ENVIRONMENTAL PROTECTION AGENCY

40 CFR Parts 9 and 158

[EPA–HQ–OPP–2004–0387; FRL–8106–5]

RIN 2070–AC12

Pesticides; Data Requirements for Conventional Chemicals

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: EPA is updating its data requirements in part 158 of Title 40 in the Code of Federal Regulations for the registration of conventional pesticide products. As scientific understanding of potential hazards posed by pesticides has evolved, some data requirements have been imposed on a case-by-case basis but not codified since 1984. Besides providing the regulated community with clearer and more transparent information, the updated data requirements will enhance the development of health and environmental data to conduct scientifically sound chemical hazard/risk assessments to protect human health and the environment. In a companion final rule also being promulgated today, EPA is making technical changes arising from this final rule.

DATES: This final rule is effective on December 26, 2007.

ADDRESSES: EPA has established a docket for this action under Docket identification number EPA–HQ–OPP–2004–0387. All documents in the docket are listed on the regulations.gov web site. Although listed in the index, some information is not publicly available, i.e., CBI or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the Internet and will be publicly available only in hard copy form. Publicly available docket materials are available either electronically through www.regulations.gov or in hard copy at the Office of Pesticide Programs (OPP) Regulatory Public Docket (7502P), Room S–4400, One Potomac Yard (South Building), 2777 S. Crystal Drive, Arlington, VA 22202. This Docket is open from 8:30 a.m. to 4 p.m., Monday through Friday, excluding legal holidays. The Docket telephone number is (703) 305–5805.

FOR FURTHER INFORMATION CONTACT: For information on the data requirements for ecological effects and environmental fate, contact: Ann Stavola, Field and External Affairs Division (FEAD), Office of Pesticide Programs (OPP) (7506P), Environmental Protection Agency, 1200 Pennsylvania Avenue NW, Washington, DC 20460; telephone number: (703) 305–5354; fax number: (703) 305–5884; e-mail address: *stavola.ann@epa.gov* . For all other questions, contact: Vera Au, FEAD (7506P), OPP, Environmental Protection Agency, 1200 Pennsylvania Ave., NW., Washington, DC 20460–0001; telephone number:(703) 308–9069; fax number: (703) 305–5884; e-mail address: *au.vera@epa.gov*.

SUPPLEMENTARY INFORMATION:

I. General Information

A. Does this Action Apply to Me?

You may be potentially affected by this action if you are a producer or registrant of a pesticide product, including agricultural, residential, and industrial, but not including antimicrobial pesticides, biochemical pesticides, or microbial pesticides.

This action may also affect any person or company who might petition the Agency for new tolerances, hold a pesticide registration with existing tolerances, or any person or company who is interested in obtaining or retaining a tolerance in the absence of a registration, that is, an import tolerance. This latter group may include pesticide manufacturers or formulators, importers of food, grower groups, or any person or company who seeks a tolerance. Potentially affected entities may include, but are not limited to:

Chemical Producers (NAICS 32532), e.g., pesticide manufacturers or formulators of pesticide products, importers or any person or company who seeks to register a pesticide or to obtain a tolerance for a pesticide.

This listing is not intended to be exhaustive, but rather provides a guide for readers regarding entities likely to be affected by this action. Other types of entities not listed in this unit could also be affected. The North American Industrial Classification System (NAICS) code has been provided to assist you and others in determining whether this action might apply to certain entities. To determine whether you or your business may be affected by this action, you should carefully examine the applicability provisions in Unit II.C. If you have any questions regarding the applicability of this action to a particular entity, consult the persons listed under **FOR FURTHER INFORMATION CONTACT**.

II. Background

A. What Action is the Agency Taking?

The Agency is updating and revising its data requirements for the registration of conventional pesticide products. The data requirements for the registration of antimicrobial products, product performance, and biochemical and microbial pesticides are not being revised in this action. EPA issued a proposed rule addressing data requirements for biochemical and microbial pesticides on March 8, 2006 (71 FR 12072). Antimicrobial data requirements have been moved to new part 161.

As scientific understanding of potential hazards posed by pesticides has evolved, some data requirements have been imposed on a case-by-case basis but not codified since 1984. By codifying the data requirements that have been applied on a case-by-case basis, the Agency believes the pesticide industry and other partners in the regulated community will be better prepared for the pesticide registration process.

B. What is the Agency's Authority for Taking this Action?

This rule is issued under the authority of FIFRA sections 3, 4, 5, 12, and 25; and FFDCA section 408.

C. Is this Final Rule Applicable to Antimicrobial Pesticides Products?

In current part 158, the data requirements cover both conventional and antimicrobial pesticides. Biochemical and microbial pesticides are set apart at § 158.690 and § 158.740. EPA proposed to limit the applicability of revised part 158 to conventional chemicals in anticipation of additional revisions tailored to biochemical, microbial, and antimicrobial pesticides. EPA received no key comments concerning the proposed limited applicability of part 158, and accordingly, EPA is adopting its proposed scope. Elsewhere in today's **Federal Register**, EPA is promulgating a final rule establishing data requirements for biochemical and microbial pesticides. However, EPA has not yet issued a proposed rule that would create separate data requirements tailored to antimicrobial pesticides.

If EPA were to maintain the proposed rule's exclusive application to conventional pesticides, the result would be that there would be no data requirements established by regulation for antimicrobial pesticides. Applicants would have to rely solely on consultations with EPA to determine the data requirements for their antimicrobial products without the benefit of regulatory data requirements. However, EPA has decided to preserve the current data requirements to provide regulatory coverage for antimicrobial

pesticides until the Agency can propose and promulgate a final regulation. To accomplish this, EPA has transferred intact the current data requirements of part 158 into a new part 161, entitled Data Requirements for Antimicrobial Pesticides. New part 161 will only apply to antimicrobial pesticides. Part 158 as promulgated today will only apply to conventional pesticides.

Part 161 is intended to be transitional and will be revoked upon the effective date of a replacement regulation tailored to antimicrobial pesticide data requirements. EPA recognizes that current data requirements of this transitional part are not optimal for registrants of antimicrobial pesticides. Because the 1984 data requirements were developed primarily to address agricultural chemicals, it has been difficult for antimicrobial registrants to discern data requirements that apply to antimicrobial products. This difficulty will not be corrected in simply transferring the current requirements to a new location. As a result, applicants should continue to routinely consult with the Agency to interpret the requirements of new part 161 as they apply to antimicrobial products. EPA supports and encourages the consultation process for all applicants, as the data requirements are highly dependent on pesticide type and use pattern. EPA is fully committed to the development of tailored data requirements for antimicrobial pesticides and expects to issue a proposed rule by the end of 2008.

III. Discussion of the March 11, 2005, Notice of Proposed Rulemaking (NPRM)

EPA published an NPRM on March 11, 2005 (70 FR 12275), proposing to update and revise its data requirements for the registration of conventional pesticide products in 40 CFR part 158. The data requirements identify the types of information that EPA needs to: determine that a pesticide product can be registered; issue a tolerance or tolerance exemption for pesticide residues in food; or allow the experimental use of the pesticide. The proposed rule was intended to: improve the scientific basis for pesticide decisions; update the requirements last codified in 1984; and reorganize part 158 to improve usability. These efforts will help protect human health and the environment by providing an up-to-date scientific framework for identifying and assessing the risks of conventional pesticides for use in the United States. The closing date of the 90–day comment period for the NPRM was June 9, 2005. The comment period was extended to September 7, 2005, to allow stakeholders additional time to assess the impact of the proposed revisions on their particular situations and prepare their comments (40 FR 33414). One hundred seven public comments were filed in Docket ID OPP–2004–0387. For a detailed response to comments, refer to Docket ID OPP–2004–0387. In addition, EPA convened a 2-day public workshop in Arlington, Virginia, to explain the provisions of the NPRM on May 3–4, 2005. There were 126 attendees at the public workshop.

IV. Discussion of Key Comments on the Order of Subparts

EPA's proposed rule structured the subparts of part 158 to match the original sequence of guidelines. A number of commenters found this structure confusing, and one commenter submitted an alternative structure, which was considered along with other alternative structures. EPA agrees with commenters that the current relatively random structure is not ideal for the average registrant who is seeking to determine the data requirements that apply to his product. Accordingly, in the final rule, EPA is restructuring the subparts to be more user-friendly.

EPA reasons that the users most in need of clarity are the infrequent, follow-on applicants, whose actual data requirements are in many cases limited to end-use product data of various types. In general, larger pesticide companies that routinely submit complex new chemical/new use applications and petitions for tolerance are responsible for the bulk of toxicology, residue chemistry, ecological effects and environmental fate data developed using the pure active ingredient (PAI), technical grade of active ingredient (TGAI) or the typical end-use product (TEP). In the case of exposure data, a variety of industry task forces, again primarily comprising large companies, are developing surrogate databases, so that newly generated data may not be necessary for many exposure scenarios.

In all these cases, FIFRA sec. 3(c)(1)(F) and its regulations in part 152 provide for the use of data developed by others, either under the formulators' exemption of section 3(c)(2)(D), or with appropriate permission or compensation offers. These provisions were put in place specifically to obviate the need for duplicate data development while protecting the rights of data submitters. Thus, smaller follow-on or me-too registrants often are required to generate only product-specific chemistry data, acute toxicity data, and efficacy data (generally designated in part 158 tables with End Use Product (EP) as the test substance). These applicants will benefit by the restructured part 158 so that they don't have to search for applicable data requirements by sifting through voluminous data requirements that may be satisfied by formulators' exemption, citation or offer-to-pay procedures.

EPA believes that major registrants will not be disrupted by a restructuring of the subparts because they are familiar with the data requirements, and, in any case, should be able to easily find the data requirement applicable to their product or petition in the current structure. Accordingly, EPA has restructured the subparts to place those data requirements applicable to the bulk of applications (new end-use products and me-too products) towards the beginning of part 158.

The resulting order does not correspond to the previous guidelines issued in 1982 *et seq*. (upon which the order of the proposed rule was based), or the sequence of the OPPTS Harmonized Guidelines. It is not critical that they do, as the tables refer to the appropriate individual Guideline for each data requirement.

The structure of part 158 in the final rule proceeds from product chemistry to efficacy to hazard/toxicity requirements of all types (human health, ecological toxicity) then exposure data requirements of all types (pre- and post-application human exposures, exposure to residues in food), and environmental fate, which overlap human exposure through drinking water, and ecological exposure, and spray drift. EPA has reserved subparts among these various segments for future additions on the same topic. EPA has also consolidated subparts addressing the same topics: plant protection data requirements (proposed as subpart J) have been incorporated into new subpart G (ecological effects data requirements) as have terrestrial and aquatic nontarget organisms data requirements (proposed as subpart E).

Finally, EPA intends that freestanding data requirements subparts such as biochemical pesticides, microbial pesticides, and antimicrobial pesticides be located at the end of the series. Product performance requirements, which span all categories of pesticides, would at present remain a separate subpart near the beginning of the series. In the proposed rule, EPA had reserved subpart P for Pesticide Management and Disposal but has removed the topic from the final rule while reserving subpart P. At present, EPA has no plans to develop data requirements specific to disposal. If EPA does so in the future, it will

determine where such requirements should be located.

EPA has placed data requirements for experimental use permits in subpart C of part 158. EPA eliminated the current use of brackets in each discipline to indicate which data requirements applied to an experimental use permit (see Unit VII.).

The final structure of part 158 is as follows:

Subpart A General provisions
Subpart B How to use the data tables
Subpart C Experimental use permits
Subpart D Product chemistry
Subpart E Product performance
Subpart F Toxicology
Subpart G Ecological effects [comprising aquatic, terrestrial and plant species]
Subparts H - I [Reserved]
Subpart J [Reserved] [Plant protection has been consolidated into subpart G]
Subpart K Human exposure [comprising pre-application and post-application exposure]
Subpart L Spray drift
Subpart M [Reserved]
Subpart N Environmental fate
Subpart O Residue chemistry
Subparts P - T [Reserved]
Subpart U Biochemical pesticides
Subpart V Microbial pesticides
Subpart W Antimicrobial pesticides
Subparts X - Z [Reserved]

V. Discussion of Key Comments on General Provisions of Part 158 (Subpart A)

A. Subpart A

EPA proposed revising subpart A by adding new material, deleting some portions, and revising the portions that were retained or relocated. The new material included definitions for ''applicant'' and ''registration,'' with references to definitions in the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and the Federal Food, Drug and Cosmetic Act (FFDCA) that apply to part 158. Deletions from subpart A include: timing of the imposition of data requirements; flexibility of the data requirements; consultation with the Agency; agricultural versus non-agricultural pesticides; and biochemical and microbial pesticides.

EPA proposed deleting the section on minor uses but based on the comments and subsequent review, the Agency has in the final rule retained portions of the minor use section with an introductory paragraph. The section on the formulators' exemption was updated and relocated to 40 CFR part 152, subpart E.

B. Format for Data Submissions

EPA proposed minor revisions to § 158.32, describing how data are to be formatted for submission to EPA. Commenters supported revising Pesticide Registration (PR) Notice 86–5 to clarify provisions and avoid rejection of data for formatting reasons; one commenter also suggested integrating formatting guidance from PR 86–5 with § 158.32 in the final rule. The Agency has begun the process of updating the guidance in PR Notice 86–5 to further clarify the submission process. The improved guidance, together with consultation with the Agency, should help reduce the formatting conflicts. EPA will provide the public an opportunity to comment on the proposed revisions to PR 86–5. Since the details of the revisions are still underway, EPA has not changed the final rule.

C. Confidential Business Information

EPA proposed a number of minor revisions to § 158.33 concerning requirements for identification of and Agency treatment of confidential business information (CBI) under FIFRA sec. 10. These revisions were intended to clarify the provisions governing the Agency's ability to release information, and to bring the regulations in line with a court decision (District Court for the District of Columbia in *NCAP v. Browner, 941 F.Supp.* 197, 201 (D.D.C. 1996) supporting broader release of information to the public.

EPA received four comments concerning these proposed revisions, all from industry trade organizations. In general, the commenters disputed the Agency's positions or interpretations of the status of certain types of information as non-confidential (and therefore eligible for disclosure). One commenter misunderstood the provisions of FIFRA sec. 10 and based his comments upon an erroneous conception. EPA disagrees with all commenters and made no revisions in the final rule. EPA intends to abide by the Court decision which supports the Agency's interpretation of FIFRA sec. 10. EPA has responded to all comments in its Response to Comments document in the docket for this rule.

There were no comments on the confidentiality claims for plant-incorporated protectant information or on releasing information to state and foreign governments with consent.

D. Flagging Requirements

EPA proposed to revise the flagging requirements by updating and clarifying the criteria by:

- Reducing the number of study criteria from 11 to 7 by combining certain studies under one criterion;
- Combining reproductive, prenatal developmental toxicity and developmental neurotoxicity under one criterion to reflect the focus on infants and children.

Commenters requested clarification on the criteria and suggested the revisions would increase the burden to registrants. All of the listed flagging criteria need not apply to a toxicology study. If any of the criteria listed are applicable to the study, then the corresponding criterion number is to be included in the flagging statement submitted with the study. In the proposed rule, the Agency acknowledged that the revisions could flag more studies but this was expected because of the new types of toxicity studies to further protect infants and children. EPA made no revisions to the flagging requirements in the final rule. EPA has responded to comments in its Response to Comments document in the docket for this rule.

E. Data Waivers

EPA proposed reformatting the waiver process while retaining the provisions. Several commenters expressed their concerns about clarity, timelines and organization of information for waiver requests and made several suggestions. EPA refined data requirements and test notes to help the registrant determine if a waiver request is in order. Applicants are encouraged to discuss the waiver with the Agency before developing and submitting supporting data, information, or other materials. The Agency is committed to timely decisions and notification of the applicant. Organizational changes that were proposed will be retained for the final rule. EPA has responded to comments in its Response to Comments document in the docket for this rule.

F. Formulators' Exemption

EPA proposed to remove or revise provisions in part 158 that directly or indirectly arise from the statutory formulators' exemption of FIFRA sec. 3(c)(2)(D). First, EPA proposed to remove language in § 158.50 pertaining to the statutory formulators' exemption. Second, EPA proposed removing the asterisks denoting the application of the formulators' exemption to product chemistry and toxicology data requirements.

A number of commenters objected to the removal of formulators' exemption language, and others were confused by the removal of the asterisks. It is clear that commenters are confused by the distinction between the array of data that the Agency must have to determine whether a pesticide may be registered (the data requirements of part 158), and the means by which those data requirements are satisfied (the data citation and compensation provisions of part 152, subpart E, including the

formulators' exemption). In short, part 158 specifies the ''what'' and part 152 specifies the ''how'' of data requirements.

The primary purpose of part 158 is to specify the data requirements pertaining to a pesticide product. Part 158 was never intended to serve the broader purpose of specifying the various means by which an individual applicant can legally satisfy the data requirements: that is the purpose of the data compensation provisions of part 152. Part 152 explains all of the means of satisfying a data requirement specified in part 158, including submitting new data, citing existing data, citing to public literature, obtaining a waiver, or claiming eligibility for the formulators' exemption. EPA believes that it should reinforce this distinction by removing from part 158 what is actually incomplete information about the formulators' exemption.

Eligibility for the formulators' exemption is not a function of a data requirement. Rather, eligibility depends on the purchase of a registered product for incorporation into another product. The 1984 regulations erred in attempting to apply the formulators' exemption to specific product chemistry and acute toxicology requirements by means of the asterisk notation. First, the manner in which the asterisks were displayed was such that it was not clear precisely when the formulators' exemption did and did not excuse an applicant from the requirement to submit data. Further, it was unclear because it potentially conveyed the notion that the data requirement need not be satisfied. The fact that certain data need not be submitted or cited by an applicant eligible for the formulators' exemption does not mean that those data are not necessary to support the registration of the product, merely that the data requirement has been satisfied by another means. Usually the requirement has been satisfied by submission of data by the producer of the registered TGAI or manufacturing use product (MP) that the applicant purchases.

Additionally, maintaining information on the formulators' exemption in two locations in the Code of Federal Regulations is administratively cumbersome. As one commenter noted, the statute has been revised since both of these regulations were issued, and neither § 152.85 nor § 158.50 is accurate or complete. For this reason, EPA believes it is important to consolidate the formulators' exemption language in a single location.

All commenters correctly pointed out that although EPA indicated in the preamble that the formulators' exemption text of § 158.50 was to be relocated to part 152, no proposed regulatory language was included. EPA agrees that it did not include in the proposal the actual regulatory text that would be incorporated into part 152. In a companion final rule making technical changes, and which is published elsewhere in this issue of the **Federal Register**, EPA has included the revised language, which would incorporate the provisions of § 158.50 into § 152.85 with needed conforming text changes. EPA has also corrected § 152.85 to reflect current FIFRA sec. 3(c)(2)(D), as amended in 1988. Except where required as a result of these statutory amendments, EPA has made no substantive change to the exemption or EPA's interpretation of its applicability.

Although EPA believes that the formulators'exemption should properly be located in part 152 together with other provisions concerning submission or citation of data, the Agency recognizes the value of referring to the provisions of part 152 in part 158. Accordingly, EPA has revised § 158.70(a), by including a new paragraph (1) which explains that the provisions of part 158 should be read in conjunction with those of part 152, subpart E.

G. Minor Uses

EPA proposed to delete material in § 158.60 concerning minor uses. Minor use policies in existence in 1984 and information in anticipation of reregistration needs for data were included in original part 158. The information is by no means complete concerning EPA policies on minor uses, which have since expanded by statute. Nonetheless, several commenters wanted EPA to retain the information in paragraphs (a)(2) and (3). EPA has in the final rule retained paragraphs (a)(2) and (3), but has removed the remaining material and renumbered those paragraphs. The paragraphs being deleted have been superseded (the definition in paragraph (a)), are guidance only (paragraphs (a)(1) and (b)), or are covered by regulations elsewhere (paragraph (a)(4)).

H. Weight-of-Evidence Approach

The weight-of-evidence approach is referenced in part 158 under several disciplines. The approach requires a critical analysis of the entire body of available data for consistency and biological plausibility. Some considerations in this approach are listed below:

- *Sufficiency of data*. Studies that completely characterize both the effects and exposure of the agent have more credibility and support than studies that contain data gaps.
- *Quality of the data*. Potentially relevant studies are judged for quality and studies of high quality are given more weight than those of lower quality.
- *Evidence of causality*. The degree of correlation between the presence of an agent and some adverse effect is an important consideration.
- *Corroborative information*. Supplementary information relevant to the conclusions reached in the assessment is incorporated, e.g., studies demonstrating agreement between model predictions and observed effects. The weight-of-evidence considers the kinds of evidence available, how they fit together in drawing conclusions, and significant issues/strengths/limitations of the data and conclusions. Weight-of-evidence is not to be interpreted as simply tallying the number of positive or negative studies.

In the case of the developmental neurotoxicity (DNT) study, such a weight of the evidence approach is used when evaluating:

1. Treatment-related neurological effects in adult animal studies, such as:
- Clinical signs of neurotoxicity
- Neuropathology
- Functional or behavioral effects

2. Treatment-related neurological effects in developing animals, following pre- and/or postnatal exposure, such as:
- Nervous system malformations or neuropathy
- Brain weight changes in offspring
- Functional or behavioral changes in the offspring

3. Causative association between exposures and adverse neurological effects in human epidemiological studies

4. A mechanism that is associated with adverse effects on the development of the nervous system, such as:
- SAR relationship to known neurotoxicants
- Altered neuroreceptor or neurotransmitter responses

A compound could be subject to a DNT requirement under a variety of circumstances using these criteria in a weight of evidence approach that considers dose response, logical pattern of effects, data quality, biological plausibility, consistency of observations in the broader toxicological database, likeness of the case to structural analogues, and mode of action understanding. For example, the following scenarios for 3 different chemicals (chemicals A, B, and C) describe findings that could lead to the conclusion that a DNT study is needed. Chemical A is found to result in

responses consistent with an effect on the central nervous system (CNS): staggering (i.e., abnormal gait) at the mid and high doses and convulsions at the high dose are seen in a study, and abnormal gait at the mid and high doses and cortical lesions in the brain at the high dose are seen in another study. Chemical B is a GABA (gamma-aminobutyric acid) receptor antagonist (i.e., a CNS mode of action that block inhibitory systems that are involved in nerve responses) and is found to result in functional effects in the animal studies consistent with this mode of action, such as hyperactivity, altered response to sudden loud noises, and seizures (only at very high doses). In developmental toxicity studies, Chemical C results in dose-related microcephaly, a rare finding indicative of the brain neurons not proliferating normally.

However, a single effect would not necessarily always trigger a DNT. For example, a small decrease in brain weight at the highest dose tested in one adult animal study but no indications of neurotoxicity, including the lack of corresponding decreases in brain weight in other adequate toxicity studies, would not necessarily trigger a DNT. Similarly, a decreased response to stimuli at doses that result in significant body weight loss and poor health of the animal may not provide a weight-of-evidence basis for triggering the DNT.

VI. Discussion of Key Comments on the Data Tables (Subpart B)

A. Use Patterns

EPA proposed subdividing the current nine major use patterns to 15 major use patterns to fully address nonagricultural uses. Commenters asked for definitions of the proposed major use patterns and the phrases ''major use pattern,'' and ''pesticide use site groups.'' One commenter suggested adding a new major use pattern in addition to the ones proposed by EPA. Commenters also identified inconsistencies in major use patterns between the preamble and the regulatory text. EPA believed that the resulting use patterns from the subdivision of existing major use patterns were fairly self-explanatory and believed that adding the suggested terrestrial nonfood non-crop uses might create too fine a distinction and add to the already existing confusion. However, the Agency does appreciate the commenters' assistance in locating inconsistencies between the regulatory text and the preamble and believes the inconsistencies have been corrected.

One major use pattern in the proposed rule, Indoor medical, has been eliminated from the final rule. It is a use pattern primarily applied to antimicrobial products, not conventional pesticides, and will be considered for subpart W when proposed for comment. There were several variations of aquatic nonfood use patterns that commenters found confusing. The definition of the aquatic nonfood residential category was questioned by several commenters who assumed it referred to indoor tropical fish aquaria or koi fish ponds in yards. A survey of labels associated with this use category produced only a handful of products. Therefore EPA has consolidated the various aquatic nonfood use patterns into one aquatic nonfood use pattern, thus reducing the number of aquatic nonfood patterns to one. The elimination of Indoor medical and several aquatic nonfood use patterns reduced the final number of major use patterns. Thus, the final number of major use pattern for conventional pesticides will be 12, rather than the 15 in the proposed rule. The final 12 use patterns are: terrestrial food crop; terrestrial feed crop; terrestrial nonfood crop; aquatic food; aquatic nonfood; greenhouse food crop; greenhouse nonfood crop; forestry; residential outdoor; residential indoor; indoor food; and indoor nonfood.

In addition, not all the general use patterns will appear in the data table for each discipline. Some of the use patterns have been collapsed under a larger major use pattern for ease of use. For example, the major use patterns in the Toxicology Data Requirements table consist of Food and Nonfood. The discussion in § 158.500(b) explains that the general use patterns of terrestrial food crop, terrestrial feed crop, aquatic food, greenhouse food crop, and indoor food have been placed under the major use pattern Food. The Nonfood use patterns include products classified under terrestrial nonfood crop, aquatic nonfood, greenhouse nonfood crop, forestry, residential outdoor and indoor, and indoor nonfood. Therefore only two major use patterns appear in the data requirement table for Toxicology. Similar adjustments have been made to other disciplines as appropriate.

B. Appendix A

EPA proposed updating the current Appendix A, a compendium of pesticide use sites associated with major use patterns to assist registrants in determining which data requirements might apply to their products. EPA also proposed removing the updated Appendix A from 40 CFR part 158 and placing it on the OPP website and titled as *Pesticide Use Site Index*. This change in location would allow EPA to correct and update the pesticide use sites with some regularity without a complicated and lengthy rulemaking. Commenters either wanted to retain Appendix A in 40 CFR part 158 or were in favor of posting it on the OPP website. The latter were more concerned that the information be updated and revised more frequently. Since Appendix A is meant to be an index of pesticide use sites and major use patterns but not a requirement for applicants, EPA believes that it is more properly posted on the OPP website to assist applicants in locating the relevant pesticide use site(s) and the corresponding data requirements. Users are encouraged to submit comments and suggestions to the contacts listed on the Web page. OPP will update the Pesticide Use Site Index on a timely basis to keep the information current for users. Accordingly in the final rule, EPA has removed Appendix A from 40 CFR part 158. The information in the current Appendix A has been updated, titled *Pesticide Use Site Index*, and is available at *http://www.epa.gov/pesticides/regulating/registering/data_sources.htm*.

C. Test Substances

EPA is continuing its longstanding system of identifying test substances in the tables as follows: Technical grade of the active ingredient (TGAI); manufacturing-use product (MP); pure active ingredient (PAI); pure active ingredient, radiolabeled (PAIRA); end-use product (EP); and typical end-use product (TEP).

D. Required and Conditionally Required Data

Some commenters were confused by the explanations of R and CR in the proposed rule and requested tighter definitions and clarification of the test notes since the latter provided insufficient guidance. In the proposed rule, EPA requested comment on its R/CR designation, and received no suggestions for alternative means of presenting the data requirements. As described in the preamble to the proposed rule, the R/CR terminology is a general presentation of the likelihood that a data requirement will apply. The use of R does not necessarily indicate that a study is always required, but that it is more likely to be required than not. The use of CR means a study is less likely to be required. However, both R and CR designations must be read in the context of the accompanying test notes to provide context for the R/CR in the table. An applicant may assume that a data requirement with R will typically

be required all the time. The test notes accompanying that R designation may provide supplementary information or identify some condition(s) when the study is not required. A CR designation will generally include more extensive test notes describing the limited conditionality of the requirement. The final rule continues this longstanding practice. EPA revised some of the test notes to clarify the conditions under which the data would be required.

VII. Discussion of Key Comments on Identifying Data for Experimental Use Permits (EUPs) (Subpart C)

EPA requested comment on a way to identify data requirements for EUPs to replace the current bracketing system within each data table. A commenter suggested that EPA should separate out the data requirements applicable to experimental use permits, which have been expressed since 1984 by simply bracketing a registration data requirement in the tables. Other commenters misunderstood the bracketing, assuming that bracketed data requirements were somehow conditional in nature. EPA agrees that the bracket system diminishes the visibility of the EUP data requirements and leaves them scattered throughout the registration data requirements, and has therefore separated out and consolidated them. At the same time, EPA has updated the test notes to reflect those in the subparts on registration data requirements.

Because an experimental use permit is intended to precede a full registration, EPA has elected to place those data requirements early in the part 158 organizational structure. An alternative location for EUP data requirements would have been to locate them in part 172, thereby consolidating all EUP requirements in one place. However, examination of part 172 yielded no logical location for the data requirements except at the very end. Accordingly EPA has placed EUP requirements in subpart C of part 158, preferring to keep all data requirements pertaining to conventional pesticides in one place for ease of use. Where test notes for registration requirements have been revised based on comments to the proposed rule, in separating out EUP requirements, EPA has also revised those same test notes as they apply to EUPs.

VIII. Discussion of Key Comments on Product Chemistry Data Requirements (Subpart D)

EPA proposed a few changes in product chemistry requirements and it received a number of comments on elements of the data requirements that EPA had not proposed changing. They include:

- certified limits
- preliminary analysis
- submittal of samples
- definition of TGAI vs. MP
- statement of formula
- grouping of products to reduce or consolidate product chemistry requirements
- data on pesticide degradates

These comments are outside the scope of the proposal and may be considered for future revisions of part 158. Accordingly, EPA has not revised the final rule.

IX. Discussion of Product Performance Data Requirements (Subpart E)

EPA has transferred the contents of the product performance section (current § 158.640) essentially unchanged into the revised part 158. The regulatory text of the product performance section is reprinted in this final rule for clarity and completeness.

X. Discussion of Key Comments on Toxicology Data Requirements (Subpart F)

A. Data Requirements

1. *Immunotoxicity*. EPA proposed requiring functional immunotoxicity testing to evaluate the potential of a chemical to adversely affect the immune system since immune system suppression has been associated with increased incidences of infections and neoplasia. While the Agency understands that traditional subchronic and chronic rodent studies can provide much useful information on certain immunological endpoints such as hematology, lymphoid organ weights and histopathology, these studies do not provide a full and integrated evaluation of immune function. As a result of recommendations from the National Research Council (NRC) review and the FIFRA Scientific Advisory Panel (SAP), the Agency proposed requiring functional immunotoxicity testing along with the data from endpoints in other studies to assess the potential risk of pesticides on the immune system more fully.

Fifteen commenters submitted a variety of comments on this data requirement. All comments are addressed in the detailed Response to Comments document in the docket. Key comments are discussed in this unit.

Two commenters requested clarification of when this testing would be required and one commenter compared the U.S. requirement with that of the European Union (EU). Three commenters strongly supported including immunotoxicity testing in the toxicology data requirements for all pesticides. Six commenters opposed the codification of this data requirement on several bases and offered alternatives: divergence in immunological structure and response between species that gives animal studies limited predictive power for immunogenicity in humans; using data from other toxicity studies as a trigger for immunotoxicity studies; and changing from R to CR. EPA disagrees with these comments because data and analysis have shown that functional immunotoxicity testing, particularly when considered in conjunction with data already required by EPA on immunotoxic endpoints, is likely to increase EPA's ability to identify pesticides with immunotoxic effects. Additionally, functional immunotoxicity testing allows for better characterization of the possible effects of an immunotoxicant.

Three commenters had detailed technical questions about the test guideline which were not appropriate for discussion in part 158 since the latter concerns only data requirements. Their comments and suggestions were forwarded to the appropriate scientists for review and consideration in the context of guideline revision. While EPA agrees that the testing protocol may need further refinement, discussions on alternative testing paradigms will continue through the various scientific venues (e.g., International Life Sciences Institute/Health and Environmental Sciences Institute (ILSI/HESI) cooperative effort) as well as through future consultation with stakeholders on the development and validation of this test guideline.

EPA recognizes that there are a range of opinions on the necessity of an across-the-board requirement for functional immunotoxicity testing. However, EPA's judgment, as supported by the recommendations of the NRC and FIFRA SAP, is that there is value-added from requiring functional immunotoxicity testing for all pesticides. Therefore in the final rule, EPA retains a requirement for immunotoxicity testing on all food and nonfood pesticides on the TGAI. EPA has responded to comments in its Response to Comments document in the docket for this rule.

2. *Prenatal developmental toxicity*. EPA proposed amending the name of the requirement to correspond with the current terminology and to require two species for all nonfood pesticides. Commenters suggested making this requirement conditional based on results of other Tier 1 studies or on a

likely exposure pattern. EPA proposed requiring a second species because it believes the data will provide some assurance that the Agency will not be basing an assessment on a single species that might be highly sensitive (or the opposite) when compared to another. The final rule will maintain these changes to adequately characterize potential hazards to pregnant women and their fetuses.

3. *21–day dermal and 90–day dermal toxicity*. EPA proposed a 21– to 28–day dermal toxicity test for all food use pesticides since it is generally needed for worker risk assessments. Analyses of exposure information have shown that this duration of exposure is typical for agricultural workers in various components of their job. EPA proposed not requiring the 21– to 28–day dermal toxicity test for nonfood uses. However, if the dermal route is the primary route of exposure for nonfood uses, a 90–day study would be required because EPA believes the 21– to 28–day subchronic dermal toxicity test is insufficient to identify potential hazards.

Several commenters questioned requiring a 90–day study for nonfood uses when exposures rarely exceed 45 days. EPA considers the 21– to 28–day dermal study insufficient for nonfood use assessment because higher tiered oral studies (i.e., chronic or carcinogenicity studies) are not usually required for nonfood use pesticides. While 45–day exposures are common, EPA believes that they are not the maximum duration. For example, professional applicators may be subjected to repeated exposures during the 3 months of peak summer infestations. Since for many pesticides there is increased toxicity with increased exposure, professional applicators may not be adequately protected with 45–day studies. Existing regulations provide flexibility to implement alternative studies, on a case-by-case basis, as appropriate. Registrants should consult with the Agency if there is any question regarding the appropriate duration of the study. The highest level of hazard evaluation available for a nonfood use pesticide is satisfied through a subchronic toxicity test, i.e., a 90–day repeated exposure to the nonfood pesticide. Therefore, the final rule will require the 90–day dermal toxicity study for nonfood uses.

4. *Reproduction and fertility effects*. EPA proposed to require a reproduction study for nonfood uses but emphasized that the requirement is based on potential exposure. Commenters requested further clarification when the study would be required. Requiring the study for nonfood use pesticides would be based on a weight-of-evidence consideration of the toxicology data and potential exposure in terms of the frequency, magnitude, and/or duration. This is primarily an exposure-based data requirement and will not always be necessary. Registrants should consult with the Agency if there is any question whether the study must be conducted.

5. *Developmental neurotoxicity (DNT)*. EPA proposed that developmental neurotoxicity testing (DNT) be conditionally required for food and nonfood use pesticides. Thirteen commenters were unclear about the conditionality of this requirement and requested clarification about Test Note 27. Test Note 27 identified the effects to be considered in the weight-of-evidence approach.

One commenter questioned whether the results of standard tests in developing animals were sufficient to trigger a DNT test and whether the inhibition of cholinesterase activity (ChEI) would be the most sensitive effect for organophosphorus and N-methyl carbamate pesticides. The Agency has completed review of 20 DNT studies conducted with organophosphorus pesticides. In 13 out of 20 studies, ChEI was measured in the pups; cholinesterase was the most sensitive endpoint in those 13. Only a limited number of DNT studies are available for carbamates, and the endpoint for only one chemical was used to assess acute dietary risk.

Two commenters suggested amending the 2–generation reproduction study to include findings of thyroid effects, thus providing another criterion for DNT testing. Although such a criterion was included in the proposed weight-of-evidence approach, experience gained with the study resulted in the removal of this criterion. Instead, when thyroid effects of concern are observed, the Agency may require a more specific special study. In the final rule, EPA continues to encourage registrants to conduct DNT studies in combination with a 2–generation reproduction study when addressing the DNT requirement.

Ten commenters asked for clarification of Test Note 27 to indicate whether the listed effects were part of the approach and not individual triggers. EPA has revised this Test Note to eliminate the impression that the items in the list were individual triggers and referred commenters to its published Risk Assessment Guidelines for a more detailed explanation of the terms used in the test note. Due to an addition of a test note, Test Note 27 in the proposed rule was re-numbered to Test Note 28 in the final rule.

Therefore, the Agency is conditionally requiring the DNT study in the rat for food and nonfood pesticides. All available toxicology data for the pesticide will contribute to the weight-of-evidence determination of the need for a DNT study. The criteria for the weight-of-evidence determination are listed in Test Note 28 and include neurological effects from adult animal studies as well as neurobehavioral effects after pre- and post-natal exposure of the pesticide to young animals.

6. *Scheduled-controlled operant behavior, peripheral nerve function, and neurophysiology - sensory evoked potentials*. Commenters wondered if these tests would be commonly required and requested specific triggers for these studies. EPA discovered upon review that these studies were seldom required during the reregistration process and determined the studies could be removed from the table of commonly required studies. If the need arises in the future, the Agency may require any of these studies on a case-by-case basis. Validated OPPTS guidelines are in place.

7. *Non-rodent chronic studies (1–year dog study*). In the proposed rule, EPA considered eliminating the requirement because evidence from the published literature was consistent with EPA's belief from its reviews that the study may not be needed. EPA currently requires a 90–day dog study and a 1–year dog study for all food and nonfood uses to fulfill the non-rodent data requirements. EPA referenced published literature that suggested that the 1–year dog study may not be necessary. Based on a retrospective analysis of a large body of 1–year dog studies in its toxicology database, EPA proposed to eliminate the 1–year dog study but retain the 90–day study. EPA solicited review and comment by the FIFRA Scientific Advisory Panel (SAP) on the results of the preliminary analysis for reference dose (RfD) derivation on May 5–6, 2005 [Ref. 10].

The FIFRA SAP reviewed the Agency's retrospective analysis of the toxicity studies and encouraged the Agency to continue its analysis with a larger database. The FIFRA SAP made the following recommendations:

i. Increase the robustness of data analysis by including dog study datasets that were not used for the RfD determination.

ii. Conduct an analysis more representative of a prospective comparison through delineating the 13–week No Observed Adverse Effect Levels (NOAELs) and Lowest Observed Adverse Effect Levels (LOAELs)

independent of the 1–year study and establish data review criteria.

iii. Consider data analysis for separate classes of pesticides.

iv. Include additional background information on RfD that provides better perspectives for reviewing the Agency position paper.

v. Revise the title of the Agency position paper to reflect the purpose of the data analysis.

The FIFRA SAP said in its report that ''if the results of the analysis continue to indicate little added value from the 1–year dog studies, the Agency could move toward eliminating them on a stronger basis.''

In response, EPA conducted a more extensive analysis of dog toxicity studies on 110 chemicals representing over 50 different classes of pesticides [Ref. 12]. EPA concluded from this analysis that extending a dog toxicity study beyond a 13–week duration does not provide additional essential toxicity information; eliminating the 1–year dog toxicity study does not compromise the data needed for the determination of chronic RfDs and margins of exposure (MOE). Thus, reliance on the required chronic rodent studies, 2–generation rat reproductive study, and the 13–week dog toxicity study provides an adequate basis for chronic RfD derivation in pesticide risk assessment.

EPA acknowledges that there may be situations where a longer duration dog toxicity study may be warranted when a pesticide chemical is highly bioaccumulating (e.g. builds up in body fat) and is eliminated so slowly that it does not achieve steady state or sufficient tissue concentrations to elicit an effect during a 90–day study. EPA anticipates that this situation will be infrequent since current pesticides are not usually designed to be highly persistent and bioaccumulating. If such a chemical is encountered, EPA would require the appropriate Tier II metabolism and pharmacokinetic studies to more precisely evaluate bioavailability, half life, and steady state to determine if a longer duration dog toxicity study is needed. The circumstances that might lead to a request for the 1–year dog study are identified in Test Note 36.

B. Alternative Testing Paradigms

In the proposed rule published March 2005, EPA discussed the work underway on alternative testing paradigms by the International Life Sciences Institute (ILSI)/Health and Environmental Sciences Institute (HESI). EPA is in conceptual agreement with the ILSI/HESI philosophy of moving toxicology testing away from a rigid guideline-based screening approach and towards a more knowledge-based approach. The ILSI/HESI approach was published in a series of papers in the January 2006 issue of *Critical Reviews in Toxicology*.

Eleven commenters addressed the ILSI/HESI testing paradigm, all supporting its development and early adoption. One commenter suggested that EPA update the proposed rule with the ILSI/HESI study findings and reissue a revised proposed rule for comment. In a similar vein, another suggested incorporating a timetable into the final rule for modifying subpart F (Toxicology). Another commenter believed a number of the concepts developed in by ILSI/HESI were ripe for incorporation into pesticide testing requirements at this time. This same commenter suggested not finalizing the proposed rule until there was an opportunity to consider and incorporate the important concepts developed by Agricultural Chemical Safety Assessment (ACSA). EPA believes that incorporating the concepts into the final rule is premature since EPA has not had the opportunity to determine if the new testing paradigm will meet its risk assessment needs. EPA believes that delaying the remaining proposed changes which comprise the bulk of the proposal would be a disservice to the regulated community. In a differing view, a commenter was concerned about the lack of public interest representatives in ILSI-EPA discussions and recommended that EPA terminate its collaborative working relationship with ILSI and industry trade groups. Since the Agency is interested in more efficient risk assessment paradigms, it will continue to work with all stakeholders in investigating efforts in that direction and welcomes the participation of any public interest representatives in the discussions.

EPA is committed to moving towards a more efficient and refined testing/risk assessment paradigm. Given the Agency's experience with regulating pesticides over the last 30 years, the Agency is interested in improving certain aspects of the testing process. In particular, EPA is more attuned to risk assessment needs (i.e., an integrated approach) that avoids requesting data not used in risk assessment and that reduces and refines the use of laboratory animals.

In the proposed rule, EPA discussed the relevance and importance of the ILSI/HESI project, Agricultural Chemical Safety Assessment (ACSA): a Tiered Approach. This project, with the participation of EPA scientists, represents a pursuit of a more efficient and accurate tiered testing of pesticide chemicals. A series of reports authored by ILSI/HESI was published in a special edition of the *Journal of Critical Reviews in Toxicology* in January 2006, Volume 36, Issue 1 [Refs. 1, 2, 3 and 5], summarizing their findings and initial recommendations.

ACSA represents the first comprehensive effort to scientifically redesign the toxicology animal-testing framework for agricultural chemicals. The ACSA proposal is consistent with EPA's direction and goals to develop a more efficient and reliable testing paradigm. Under the ACSA scheme, some studies would be eliminated while endpoint coverage would be increased in redesigned studies based on responses observed in a core set of toxicity tests. The value of the scheme is that animals are more fully utilized and the need for some tests can be eliminated if the core set of tests or existing knowledge does not indicate a concern. Decisions on next steps must be made throughout the course of the study as a thorough evaluation of all available information, including data on the pharmacokinetics and mode of action of the pesticide (if such data exist), could lead to different conclusions regarding the appropriate way to approach testing.

For example, in the case of the developmental neurotoxicity study, for some chemicals, it might be concluded that adequate testing of the developing nervous system would be best accomplished with a standard developmental neurotoxicity study. Refinements to the guideline study could include, for example, changes to the route and/or duration of exposure (e.g., initiation of dosing to maternal animals prior to gestation day 6, or direct gavage administration to pups during lactation), the evaluation of appropriate biomarkers of exposure or effect, the use of more targeted functional, behavioral, or cognitive testing in offspring, or the histopathological and/or morphometric evaluation of particular regions of the central or peripheral nervous system that are known to be affected by either the chemical or chemical class. For other chemicals, the information in the toxicological database could lead to the conclusion that an alternative test should be performed instead of a guideline developmental neurotoxicity study. Alternative chemical-specific methods could be identified as a preferred option.

EPA has multiple activities underway to address the remaining science and policy issues associated with the ACSA proposal. One essential step towards

adopting the ACSA proposal will be conducting retrospective and prospective data analyses to determine whether this new testing paradigm will meet EPA's risk assessment needs as defined by statute. To this end, the Office of Pesticide Programs is currently working with EPA's National Center for Computational Toxicology (NCCT) to populate a Toxicological Reference Database (ToxRef). The current priority is to populate ToxRef with data from the rat 2-generation reproductive study, prenatal toxicity, and systemic toxicity studies on hundreds of pesticides that represent different classes, modes of action, and toxicity profiles. EPA will use this relational database to determine the value of endpoints currently evaluated in risk assessment (i.e., the F1 versus F2 responses). This analysis will provide scientific support for EPA's adoption of the proposal as the analysis will subject the ACSA proposal to a much broader set of chemicals than that used to develop the proposal.

Another critical step is gaining scientific consensus on the triggers (i.e., the points at which a concern is indicated and a higher level of testing is needed). The retrospective analyses will also be used to refine or confirm the ACSA proposed triggers for test decisions. Once the analysis is complete, EPA will be able to complete draft guidance on testing. The analyses and guidance are planned to be subject to SAP review and public comment in 2008.

Another essential step is testing how the ACSA scheme works in practice. There are plans to conduct several case studies using the ACSA tiered testing proposal. From these case studies, EPA will be able to assess the laboratory testing feasibility of such a complex study and to evaluate the ability of the approach and its parameters to characterize known toxicants and address risk assessment needs. Based on early scientific reviews, EPA scientists are already working on improvement of the ACSA tiered testing approach.

EPA will consider the results of the SAP review of the retrospective analyses and draft guidance, issues raised by stakeholders, and the case studies, in determining what revisions to current data requirements and testing guidelines may be appropriate. As the science issues are adequately vetted and crucial questions resolved, EPA will promulgate the appropriate regulatory changes on a timely basis. In the meantime, the existing regulations provide flexibility to implement any updated, new or novel testing schemes, on a case-by-case basis, as appropriate, until the changes are codified. Case-by-case determinations would be made in consultations with the Agency without the necessity of the waiver process.

It should be noted that ACSA is only one proposal that EPA will consider in improving the risk assessment process of environmental chemicals. Other relevant activities to consider include the National Academy of Sciences (NAS) recommendations on Toxicity Testing and Assessment of Environmental Agents expected in 2007 (Project ID BEST-U–03–08–A at *http://www8.nationalacademies.org/cp/projectview.aspx?key=74*), Organization for Economic Co-Operation and Development (OECD) Integrated Approaches to Testing and Assessment (*http://www.oecd.org/document/42/0,2340,en_2649_34377_36283562_1_1_1_1,000.html*), as well as predictive toxicity tools (QSAR, -omics, etc.) being developed by EPA's Office of Research and Development (ORD) Computational Toxicology Program (www.epa.gov/comptox). With regard to the OECD effort, EPA is currently playing a leadership role in planning a workshop scheduled for December 2007. The workshop will evaluate the current state of science and regulatory programs to evaluate pesticide inert ingredients and active ingredients using the data derived from *in silico* (performed on computer or via computer simulation), *in vitro*, and short-term *in vivo* models and bioassay systems.

Before considering regulatory changes to reflect the results of EPA's consideration of ACSA, NAS, and other recommendations, the Agency will develop scientific position papers on the new approach and recommendations for internal and external review. Internal review includes review by the FIFRA SAP and opportunities for public comment. External peer review as well as acceptability by other national and international regulatory authorities are crucial before implementation of any new testing paradigm and data requirements. Harmonization with the data requirements of these same authorities is also an important factor. International regulations currently require studies that were omitted in ACSA; this would pose significant problems for registrants if a harmonized approach is not adopted world-wide.

Lastly, EPA is committed to review part 158 data requirements frequently to incorporate new science that has been fully documented and peer reviewed.

XI. Discussion of Key Comments on Ecological Effects Data Requirements (Subpart G)

A. Generic Issues

EPA received comments in several areas that were common to all science disciplines under this subpart.

1. *Data harmonization and lack of availability of current guidelines*. The Agency received several comments stating that the data requirements for nontarget terrestrial and aquatic organisms, plants and environmental fate testing should not be promulgated if the test guidlines upon which the data requirements rely are not finalized. The Agency recognizes the importance of the connection between these data requirements and the guidance documents that provide information on how the data requirements may be satisfied. The Agency is in the process of updating its nontarget plant test guidelines with the OPPTS and the OECD. The terrestrial and aquatic animal guidelines are scheduled to be finished and available to the public by late 2007. Nonetheless, guidelines are guidance documents only, and the promulgation of data requirements does not depend on the availability of guidance documents.

2. *Elimination of species names in the test notes*. EPA eliminated the inclusion of preferred species names from the data requirements in subpart G. This does not represent an actual change in the requirements. Rather, the Agency determined that the indication of preferred species is a matter of guidance and should not be part of the requirements document. Species names are covered in the Agency's test guidelines, which are cited in the data requirements tables.

3. *Independent laboratory validation*. Concerns were raised by some commenters that the requirement to now have independent laboratory validation (ILV) of the chemistry methods used for residue measurements in the ecological and environmental fate field studies would add cost and time to these studies. They view these studies as already required and conducted under Good Laboratory Practice Standards (GLP) in 40 CFR part 160 for other data requirements. However, GLP Standards do not require an ILV. The requirement for an ILV has been in effect since the 1990s and, as such, is a codification of current practice. The ILV, as well as the original method validation, should be conducted under the GLP.

B. Data Requirements

1. *Terrestrial organisms.* i. *Acute oral toxicity test with a passerine species.* EPA proposed to require a second avian acute oral study on a passerine species (i.e., red-winged blackbird) to support all outdoor uses, including residential outdoor uses. The other avian acute oral study must be conducted on either a waterfowl or an upland gamebird, which has been standard policy. This revision of the avian acute toxicity data requirement elicited a significant number of comments. The comments not only concerned the addition of a passerine species to the avian acute oral data requirement, but also the test note which specifically named the red-winged blackbird (*Agelaius phoeniceus*) as the preferred passerine species. Some commenters suggested that the passerine requirement should be based on the results of either the mallard or bobwhite acute oral test results. They based their concerns on the fact that the red-winged blackbird is a wild species, and is not reared in a laboratory, unlike some commonly tested passerines as the canary and zebra finch. Because it is a wild species, the laboratories must request permits from the U.S. Fish and Wildlife Service (USFWS) to trap the birds. Also, there were concerns about the possible exposure of laboratory personnel to the avian flu virus from the trapped birds. Others suggested that EPA continue its policy of extrapolating the data from the mallard and bobwhite acute studies to passerine species in its risk assessments, and reserve the passerine study for cases when extrapolation does not significantly reduce uncertainty. Still others requested that the Agency consider other passerine species and provide a list of recommended species to the regulatory community, rather than prescribing solely the red-winged blackbird.

Based on these comments, in the final rule the Agency is no longer specifying the red-winged blackbird as the only acceptable passerine species for an additional avian acute oral toxicity study. However, the passerine acute oral study is still required, in addition to one with either the upland gamebird or the waterfowl. More than one tested species allows for consideration of interspecies sensitivity, and testing of a passerine addresses concerns that broad, untested avian taxa may be more sensitive than previously required mallards and bobwhites (Refs. 8 and 9).

EPA will consider studies using alternative species, as long as the alternative species meet the Agency's needs. EPA also intends to revise the avian acute oral toxicity guideline to include a passerine species, with the red-winged blackbird listed as among the preferred species. The Agency will revisit the issue of an acceptable species list with this goal in mind. Testing protocols may list other acceptable species upon reconsideration of this issue.

ii. *Japanese quail.* EPA did not propose to add the Japanese quail as a test species for the acute toxicity test and as an alternate for the avian reproduction test. Nonetheless, the Agency received two comments requesting that EPA accept the use of the Japanese quail as a test species, particularly as this species is accepted by OECD. The Agency presented its rationale for not listing Japanese quail as a preferred test species in its correspondence with OECD on March 24, 2003 (Ref. 14). Many years of domestication and artificial selection in this species may have biased the response of this species to chemicals. When comparing dietary study results of the same pesticide in both species the Japanese quail responds differently to toxicants, showing less sensitivity than the northern bobwhite quail. In addition, the EPA has a long history of requiring testing with the bobwhite and has accumulated a large database of acute toxicity results for this species. Abitrarily using another test species now would increase uncertainty and not add much value to the risk assessment process. Also the Japanese quail has an extremely high reproduction rate that is not representative of North American species, and therefore is not a suitable test species for the avian reproduction study.

iii. *Avian reproduction.* EPA proposed to change the requirement from conditionally required to required for terrestrial, aquatic, forestry and residential outdoor use patterns. Two commenters stated that the need for these data should be based on the pesticides' properties. EPA does not agree with the comments and has not revised the final rule. Adverse effects on avian reproduction can occur at levels of exposure several magnitudes lower than those that can cause acutely toxic effects. A pesticide's properties are not adequate predictors of avian reproduction effects.

One commenter advocated the development of reproduction tests with passerine species. Their interest was based on the fact that the current species used in this test, the mallard and the bobwhite, are precocial species (birds that are born covered with feathers, able to see and leave the nest soon after hatching) and passerine birds are altricial (birds that are born naked and blind and depend on their parents for food). The Agency believes that addressing the potential differences in reproduction between passerines and other birds is scientifically appropriate. However, at this time, no protocols have been made available to the Agency for such testing. Given the challenges testing labs are faced with for existing reproduction tests, protocols for passerines are not likely to be developed in the near future. Thus, the Agency is not expanding avian reproduction testing to passerine species at this time.

iv. *Wild mammal testing.* EPA did not propose to change the conditionality of the wild mammal toxicity test, but to maintain its requirement on a case-by-case basis. The Agency received three comments regarding this data requirement and its test note, which referred to some of the lower tier data that could indicate a need for the study. One comment stated that the test note was unclear, and asked for more specific guidance as to what avian or mammalian acute and subacute testing, fate characteristics and use patterns could trigger this data requirement. The second comment stated that wild mammal studies should only be triggered when the terrestrial risk assessment triggers a potential concern based on mammalian endpoints generated in the toxicology data package. A third comment proposed that the test note be revised to state that data on a wild mammal species may be required when the terrestrial risk assessment triggers a potential concern (acute RQ > 0.5; chronic RQ > 1.0) [RQ = Risk Quotient = exposure/toxicity] for a given use pattern based on laboratory toxicity endpoints and a refined exposure assessment.

The Agency evaluates the need for wild mammal toxicity on a case-by-case basis. The results of effects testing or fate testing alone are not the causal factor in such a determination. There may be case-specific information that would trigger the need for additional testing. This might include lines of information that suggest that available toxicity data provide unsuitable surrogacy for a particular nontarget species. Accordingly, the Agency has not revised the final rule.

v. *Acute toxicity studies with reptiles.* Although EPA did not propose acute toxicity studies with reptiles as test species, one commenter stated that effects on reptiles still are inadequately addressed in this new regulation. They do not believe that the avian studies adequately assess risks to reptiles.

The Agency will consider any peer-reviewed reptile testing protocols for

possible future addition in required testing. Information demonstrating a biologically significant difference in sensitivity or exposure between birds and reptiles, which would suggest that the bird risk assessment is not adequately protective, can still be considered in individual risk assessments.

vi. *Field testing.* The only changes that EPA proposed for the simulated or actual field testing for birds and mammals were to expand the requirement to include more use patterns under the conditional requirement, and to ask for independent laboratory validation of the chemistry methods. EPA did not propose to change the conditionality of the field test, but to maintain its requirement on a case-by-case basis.

EPA received five comments regarding the data requirement for simulated or actual field testing with terrestrial animals. One comment stated that the information provided in the test note for this data requirement was nebulous and asked for clarification. Three comments stated that additional testing, particularly with wild species in the natural environment, should only be conducted when refined risk assessments indicate a potential concern. The fifth comment supported the continued requirement of the study.

The Agency evaluates the need for field testing on a case-by-case basis. Field studies have traditionally been performed to address uncertainties in risk assessments, especially those risk assessments predicting environmental effects of concern. However, setting a conditional requirement that triggers such studies only when risk assessment tools predict adverse effects ignores the possibility that lines of information may conversely point out inadequacies of the existing tool to provide adequate protection. To this end, the Agency has retained the existing field testing data requirements in part 158.

One of the commenters proposed a change to the test note for the terrestrial field study (test note 6 in the final rule). Their rationale was that a refined risk assessment should be the basis for requiring this higher tier study. A refined assessment may indicate that field data are needed to resolve uncertainties in the risk assessment. If so, then the field test is required. The Agency agrees with the comment and changed test note 6.

vii. *TEP testing.* EPA proposed to expand the testing of birds in the acute oral and dietary studies to conditionally require testing with the TEP based on the results of these tests with the TGAI, environmental fate data and the use patterns.

A significant number of the comments the Agency received concerned the confusion in the data table regarding the use patterns that would need to be supported by TEP and the conditions that would trigger TEP testing with birds. Two commenters stated that TEP testing of birds should only be triggered when the risk from the TGAI is high, and birds are expected to encounter the intact end-use formulation in the field or expected to use the formulation itself as a food source. In contrast, a commenter recommended TEP testing for all products with potential aquatic or terrestrial nontarget exposure.

The Agency evaluates the need for testing of TEPs on a case-by-case basis. In such evaluations, the Agency relies on available lines of evidence such as published literature, adverse effects information submitted under FIFRA sec. 6(a)(2), European regulatory testing, and confidential statements of formula. The potential for nontarget organism exposure to TEP would naturally be a consideration as well. In light of the number of comments received on this issue, and past experience that shows TEP testing has only been required for granular formulations or other special situations, the conditional requirement has been removed from the data requirements and does not appear in the final rule. It will remain consistent with past policy and be required on a case-by-case basis.

2. *Aquatic organisms*—i. *Sediments.* EPA proposed to add testing of aquatic organisms exposed to treated sediment to better assess the effects of sediment-bound pesticides on aquatic environments. The whole sediment tests are acute toxicity studies of freshwater and marine invertebrates and a chronic study with invertebrates. The Agency received many comments about these newly codified data requirements. Most of the comments concerned the conditions for requiring these tests. The commenters cited not only the test notes, but also the sections of the draft preamble where the sediment data requirements were discussed in detail. Most asked for better guidance regarding the criteria for the studies. Several commenters also proposed alternative criteria for both studies. Some of the comments discussed risk assessment issues, or issues with the guidelines for the studies. These latter two areas are not the focus of this rule, and therefore, are not addressed in this document. The Response to Comments document has comprehensive details regarding these issues. Once the Agency determines or extrapolates that the use pattern has the likelihood for chemical exposure to an aquatic system the triggers for persistence and adsorption are reviewed. Toxicity will be taken into consideration relative to potential exposure. EPA will not define specific use patterns or applications that will not automatically require sediment testing.

Two criteria, the soil-binding ability and persistence of the pesticide, were the focus of many comments. The criteria, as listed in the proposal, are the soil partition coefficient (Kd) value ≥ 50 Liters/kilogram (L/kg) and the half-life of the pesticide in sediment ≤ 10 days for the acute test and > 10 days for the chronic test. Commenters asked for justification for the selection of the value of 50 for the Kd value.

The Agency's justification for selecting Kd ≥ 50 L/kg as a criterion for requiring the study was that this value would capture those chemicals with about 80% adsorption of a chemical to sediment organic carbon (2%). In the 1980s the Agency had proposed a Kd $\geq$ 3 to 10 L/kg as a trigger for adsorption. At that time the Agency put in place a Kd ≥ 50 L/kg. The Kd criterion represents the mean value observed in the soil adsorption studies.

EPA received a comment that questioned the appropriateness of using the Kd value as a trigger for sediment testing. They suggested that the trigger should be based on the results of the aquatic transformation studies, particularly the mass balance results and the half-lives in sediments. Their method indicated that pesticides with Kd values lower than 50 L/kg, our proposed value, could also bind to sediment.

Agency scientists re-analyzed the value for the Kd criterion with United States Geological Survey (USGS) data (Ref. 13) and found that Kd values for pesticides commonly detected in sediments can range as low as 1.6 and as high as 2,095. This analysis provided EPA with an important new perspective on Kd values, and the Agency considered lowering the value of the criterion. However, EPA decided not to change the Kd value from that in the proposed rule based on science and policy considerations. First, the Kd value, which indicates binding potential of the pesticide (unadjusted for dependency upon organic carbon) is not the primary factor in determining the need for sediment testing (i.e., persistence, toxicity and exposure are the main factors). More importantly, the Agency believes that such a change warrants input from the scientific community along with broader public input on the Kd trigger. The Agency

may consider changing the Kd value in future updates to part 158 requirements.

The criteria for persistence is determined by using the aerobic aquatic metabolism data and the aerobic soil metabolism data. The anaerobic soil metabolism data are not used for this purpose. Commenters questioned the half-life value of ≤ 10 days for the acute test and assumed it was a typographical error and should be ≥ 10 days. They also questioned if an acute study must be done prior to conducting the chronic study.

It appears from the above comments that the commenters misunderstand the purpose of the persistence trigger. Refer to Test Notes 21 and 22. EPA affirms that the intent of the triggers for the acute and chronic sediment tests are not to determine length of test. They were designed to determine if the sediment compartment should be considered for testing. Once that determination is made, then problem formulation will determine the specifics of the data required. The Agency strongly advises that the registrant consult with EPA concerning type of study and test organism selection. The Kd trigger is the same for either the acute or chronic sediment test. It is the persistence (i.e. half-life) that drives the decision regarding which study to require. For example, if the soil or aquatic aerobic/anaerobic half-lives are less than 10 days (Agency policy is to use the most conservative value, unless evidence is provided to support the use of an alternative value), then the Agency would accept the 10 day (acute) sediment study, unless there are clear reproductive issues *a priori*. For half lives greater than 10 days, a 28 to 65 day (chronic) study would be more appropriate. Consultation with the Agency is needed if the registrant is uncertain as to which length of study is appropriate.

Two commenters proposed that a value of log Kow > 3 is a more commonly used value with which to judge whether a compound might have adsorptive potential. EPA agrees that the Kow, along with the Koc, are valid environmental fate values to use as criteria for these studies. The log Kow of 3 is equivalent to a Koc value of 1,000. Both values are frequently more available than either the Kd or half-life values. Consequently, the requirement for submission of sediment studies can be determined by either of these two values. The test notes in the final rule have been revised to include the Kow and Koc.

One commenter wanted EPA to specify in the test notes when freshwater or marine organisms must be tested for sediment toxicity. Sediment toxicity data are required for marine/estuarine test species if the product is intended for direct application to the estuarine or marine environments, or the product is expected to enter this environment in significant concentrations, either by runoff or erosion, because of its expected use or mobility pattern. The test notes are amended to clarify when marine organism testing is required.

ii. *Fish acute toxicity testing*. EPA proposed that indoor and greenhouse uses would only require one fish acute toxicity test, unless the chemical is stable in the environment, in which case, a second fish test with a different species is required. The Agency received three comments regarding the fish acute data requirement. The comments asked for clarification regarding the number of freshwater fish studies that are now required to support greenhouse and indoor uses.

With regard to greenhouse and indoor uses, the Agency requires the testing of one fish species to adequately assess the hazards to fish. If the LC_{50} is < 1 ppm, no other fish species testing is required. However, if the LC_{50} is between 1 - 10 ppm, a second species will be required to substantiate the potential for hazard to aquatic organisms.

iii. *Fish and invertebrate chronic toxicity testing*. EPA proposed several revisions to clarify the applicability of the requirements for the chronic toxicity tests. The Agency received one comment requesting more information on the fish early life stage test and the invertebrate life cycle with saltwater organisms. Another comment suggested that the Agency take into consideration the difficulties of using estimated environmental concentration-based triggers for the chronic studies.

The Agency affirms that chronic studies are required to support registration of an end-use pesticide product that is applied directly to water or is expected to be transported to water from the intended use site. This condition applies to estuarine as well as freshwater environments. These study requirements reflect the uncertainty that surrounds pesticide exposure and their potential for impact to aquatic organisms. Since exposure is a major driving parameter in assessing acute and/or chronic risk, this factor must be defined and addressed. The test notes for these studies list the details.

iv. *Testing with estuarine organisms*. EPA proposed to change the conditionality of the acute testing from conditionally required to required for several use patterns. The comments regarding this set of data requirements primarily addressed test species and TEP testing with estuarine organisms.

The commenters stated that proposed test notes 13 and 15 were inconsistent with regard to the preferred estuarine fish species in the test note. As discussed in the Generic Issues unit (Unit XI.A.), the test notes in the final rule no longer indicate the names of preferred test species as they are fully discussed in the appropriate guidelines.

The comment regarding TEP with estuarine organisms is similar to that for TEP testing with freshwater organisms discussed in Unit XI.B.2.vii., except that the commenter recommended estuarine organisms should only be tested with the TEP if testing with the TGAI indicated that estuarine organisms are more sensitive than freshwater organisms, or if the freshwater organism tests demonstrate that the TEP is more toxic than the TGAI. The Agency response to the comment on TEP testing is addressed in Unit XI.B.2.vii.

v. *Testing of degradates*. EPA did not specifically propose any data requirements requiring toxicity testing with degradates of pesticides. However, one commenter stated that degradates should be included as they can also present significant environmental risks. The Agency requires appropriate testing of a pesticide's degradates on a case-by-case basis. If the environmental fate data show the degradates can potentially persist, and subpart F toxicology data show they are toxic, then aquatic toxicity testing is required.

vi. *Bioaccumulation testing*. EPA proposed to eliminate the requirement for these studies for aquatic nonfood residential or residential outdoor uses since the exposure is expected to be minimal. One comment asked for clarification as to when they would, most likely, be required. The Agency anticipates that these studies may be required on a case-by-case basis depending on the results of lower tier ecological toxicity tests and potential environmental fate characteristics. The potential for accumulation is triggered when a chemical has a half-life ≥ 4 days and log Kow ≥ 3.

EPA proposed to change the conditions under which the accumulation in fish and accumulation in aquatic organisms would be required. EPA received eight comments regarding the fish and nontarget organism accumulation studies. Three of the commenters suggested that this data requirement be placed in proposed subpart E (now subpart G), Terrestrial and Aquatic Nontarget Organism Data Requirements, and not proposed subpart N. There were two comments stating that test note 10 was well written, and

should also apply to the aquatic nontarget organism accumulation study requirement in lieu of test note 11 in the environmental fate data table. They suggested that this test note is also appropriate for the three accumulation studies in proposed subpart E, bioavailability, biomagnification and toxicity of aquatic organisms.

The Agency agrees with the comments, and has moved the two studies under proposed subpart N, Accumulation in Fish and Accumulation in Aquatic Nontarget Organisms to subpart G, under the data requirements for aquatic organisms - bioavailability, biomagnification and toxicity. Therefore, all the ecological and fate requirements related to bioaccumulation are located solely in subpart G. We also agree with the comment that the language of Test Note 10 (Accumulation in Fish) in the proposed environmental fate data table is appropriate for the Accumulation in aquatic nontarget organisms data requirement in subpart G. Test note 10, ''Not required when the octanol/water partition coefficients of the pesticide and its major degradates are less than 1,000; or there are no potential exposures to fish and other nontarget aquatic organisms; or the hydrolytic half-life is less than 5 days at pH 5, 7, and 9.'' was moved to subpart G and renumbered as test note 19. This test note replaces test note 21 in proposed subpart E (now subpart G).

vii. *Testing with TEPs*. EPA proposed to require acute testing with the TEP for freshwater and estuarine organisms based on the introduction of the TEP directly into an aquatic environment, or the estimated environmental concentration of pesticide equaled or exceeded one-half the LC_{50} of the TGAI when the end-product was used as directed, or an ingredient in the formulation was expected to enhance the toxicity of the active ingredient or to directly cause toxicity to aquatic organisms. One comment recommended that TEP testing with estuarine organisms should be conditional based on the results of TEP testing with freshwater organisms, or if estuarine organisms were more sensitive to the TGAI than were freshwater organisms.

The Agency requires TEP testing of freshwater and estuarine organisms for all outdoor uses. As the environments of the estuarine and freshwater organisms are different, how the chemical ingredients that comprise a formulated product will react in the different aquatic systems cannot be readily predicted. Therefore, the responses of each group of organisms are independent of each other, necessitating testing of both freshwater and estuarine organisms with the TEP in addition to the TGAI, if the triggers in the test note 9 are met.

3. *Nontarget plant testing*. EPA proposed to eliminate the requirement for the seed germination study because the information from this study can also be obtained from the seedling emergence study. The germination study has not been required for several years, so its removal from the final rule simply codifies the current standard practice. Commenters agreed with this change.

EPA proposed to expand Tier I and Tier II seedling emergence, vegetative vigor and aquatic plant growth studies to include terrestrial food and feed crops, aquatic food crops, forestry and residential outdoor uses. The conditional requirements for Tier III phytotoxicity terrestrial and aquatic field studies were also expanded with the addition of the same use patterns. The use patterns were expanded beyond terrestrial and aquatic nonfood uses and forestry uses in order to capture scenarios which may be impacted by drift and runoff from pesticide applications in neighboring areas.

Two comments requested explanations for including outdoor residential uses and indoor uses among those requiring plant testing. Outdoor residential use patterns are now included among the sites requiring plant testing because data indicate that herbicide uses on sites such as turf can harm nontarget plants through runoff. Turf is classified as an outdoor residential terrestrial use, and therefore requires nontarget plant testing. The Agency acknowledges that including indoor uses among those requiring aquatic plant growth testing in Table 3 in the proposed rule was an error as EPA did not intend to propose such a requirement. Plant testing is not required for indoor uses. Additionally, testing for aquatic nonfood residential use, also included by error in Table 3, has been eliminated in the final rule.

i. *Test substance*. EPA proposed to change the test substance for the terrestrial plant studies from TGAI to TEP. This change was made to address Agency concerns that end-use products can contain ingredients that enhance the bioavailability or toxicity of the active ingredient. Seven commenters expressed concerns regarding the change in the test material to the TEP for the terrestrial plant studies. They preferred to continue to use the TGAI as the test substance. The most common concern expressed by the commenters was the possibility that the final composition of the end-use product under development may differ from the product used in testing. EPA recognizes this may occur, but the TEP is required as the test material because the formulations contain adjuvants and other chemicals that aid the movement of the active ingredient into the plant, making it more effective, and therefore, possibly more toxic to nontarget plant species. The Agency has been routinely requesting nontarget terrestrial plant tests with TEP for a number of years, so this change is codifying current policy and reflects the needs of the Agency in assessing impacts on nontarget organisms.

ii. *Species testing*. Recommended plant test species are not designated in part 158, but are included in the guidelines for conducting the studies. Species issues should be addressed in the context of guideline development and revision and not the data requirements. Accordingly, EPA has not revised part 158 based on comments about the plant test species.

iii. *TIER III guidelines*. The only changes that EPA proposed for the Tier III terrestrial and aquatic field studies for nontarget plants was to expand the requirements to include more use patterns under the conditional requirement, and to propose independent laboratory validation of the chemistry methods. EPA did not propose to change the conditionality of the field test, but to maintain its requirement on a case-by-case basis. The Agency received three comments regarding the field testing study guidelines and the process of problem formulation and refinement of the ecological risk assessments. They recommended that the field studies be conducted within the context of problem formulation to characterize risks to plants under actual use conditions. These comments relate more towards guidance about the field studies and not to the data requirements themselves. As such, these comments are being considered in context of revisions to guidelines and not to this final rule.

iv. *Test note revisions*. The vegetative vigor studies are no longer required for granular and bait formulations. This change acknowledges that these formulations are not practical test materials, as the vegetative vigor study requires the test substance to be applied directly to the plant surface.

The Agency received one comment regarding an apparent error in the placement of test note 3 for the Tier I and Tier II seedling emergence studies. EPA acknowledges that test note 3 was inaccurately placed next to the seedling emergence studies. This has been

corrected, and this test note now refers to the Tier I and Tier II vegetative vigor studies.

v. *Test notes 5 and 6—the conditions for moving from Tier I to Tier II studies.* EPA received one comment asking for clarification of test notes 5 and 6 of the proposed rule. The Agency agrees that the wording of both test notes is ambiguous, and rewrote both test notes. Test notes 5 and 6 in § 158.660 are now accurate. The draft test notes implied that all the plants tested in the tier I studies were also required to be tested in Tier II. We rewrote the two test notes to clarify that only the plant species that exhibited the stated level of the detrimental effect are required to be tested at Tier II.

Another commenter referred to the findings of the FIFRA SAP in 2001 when it convened to discuss the proposed NAFTA (North America Fair Trade Act) Nontarget Plant Toxicity Tests. [Ref. 4] The FIFRA SAP indicated that progression from Tier I to Tier II should be based on a statistically significant effect > 10% relative to the control for aquatic plants and between 50% to 25% for terrestrial plants. This commenter recommended that, as a conservative approach, EPA should use the 25% for progression from Tier I to Tier II for terrestrial plant studies. For terrestrial plants, the Agency agrees that the progression from Tier I to Tier II testing will remain 25% inhibition or greater. However, effects seen at less than 25% may raise concerns for federally listed threatened and endangered species, and additional testing at Tier II may be needed to mitigate the presumption of risk to listed species.

4. *Insect pollinator testing.* EPA eliminated the requirement for a honey bee subacute feeding study as the information from this test can be covered under the field study requirement. The proposed rule listed four requirements for testing of aquatic insects and terrestrial predators and parasites. Even though EPA did not propose to delete these requirements, continuing to include potential data requirements that have not been routinely imposed and for which no guidelines have been developed, serves no useful purpose. Therefore EPA eliminated these four data requirements in the final rule.

The Agency also proposed to include additional use patterns and exposure scenarios under the data requirement for the honey bee acute contact toxicity study. Previously, the requirement was limited to outdoor use patterns when the crop may be in bloom and thereby attractive to honey bees. The change addresses not only blooming but also pollen-shedding and nectar-producing parts of nontarget plants that may be attractive to honey bees and may be in or near the site of a pesticide application. The criteria for requiring the honey bee residue study was corrected from an LD_{50} value of < 1 microgram/bee for the acute contact study to < 11 micrograms/bee, as originally published in 1982 (48 FR 53192).

There were several comments pertaining to the field study requirement for pollinators concerning the criteria that the requirement could be based on data from arthropods other than bees. These commenters asked for clarification to confirm that the data pertain solely to terrestrial and not aquatic arthropods. The test note for the pollinator field study was modified to clarify this point. Another comment concerned the designation of the acute contact toxicity study as R for the aquatic uses, citing several application scenarios or formulation types, such as direct application to water or granular formulations, that would reduce exposure to honey bees. The Agency agrees with the comment and changed the requirement for aquatic uses to CR.

XII. Discussion of Key Comments on Human Exposure Data Requirements (Subpart K)

A. Applicator Exposure

A commenter recommended that EPA rely on surrogate data from other agencies such as the Occupational Safety and Health Administration's (OSHA) permissible exposure limits that are regulatory limits on the amount of concentration of hazardous substances in the air. Other commenters indicated that exposure data were available from several reliable sources besides the Pesticide Handlers Exposure Database and the Outdoor Residential Exposure Task Force mentioned in the proposed rule. These commenters identified other task forces that have generated exposure data—Indoor Residential Exposure Task Force, the Agricultural Handlers Exposure Task Force, and the Agricultural Reentry Task Force.

The Agency assumes that the commenter is referring to Permissible Exposure Limits (PELs) when he speaks of ''OSHA workplace exposure limits.'' The Agency does consider regulatory levels set by other authorities during risk assessment, including OSHA PELs; however, EPA and OSHA have different legislative mandates. OSHA does not have the authority under FIFRA to regulate pesticide exposures and therefore does not set PELs for chemicals used solely for pesticides.

The Agency has a long history of relying on surrogate exposure data and databases. To estimate occupational and residential exposures, the Agency uses databases containing large numbers of measured values of dermal and inhalation exposure for pesticide workers. Using these measured data from one study/scenario as surrogate or generic data for another study/scenario is appropriate since it is generally believed for pesticides of low volatility that the physical parameters of the handling and application process (e.g. the type of formulations, the method of application, and the type of clothing), not the chemical properties of the pesticide, control the amount of dermal and inhalation exposure. In contrast, OSHA evaluates exposures on a site-specific basis by collecting samples on workers and does not rely on surrogate databases.

However, for certain types of pesticide formulations or use scenarios, there is no exposure data, and therefore, it is not possible to perform an occupational/residential risk assessment. This is particularly one of the types of situations in which the Agency would require chemical-specific exposure data.

Some commenters questioned the currency of several guidelines in the context of dermal exposure and inhalation exposure data requirements. EPA will consider the comments as its scientists work to revise/update the guidelines. The Agency has reviewed and accepted many studies that are not conducted in accordance with current guidelines, but which serve its needs and provide suitable information for risk assessment purposes. In addition, some guidelines have not been finalized but are available in draft form. Notwithstanding such flexibility, EPA intends to finalize these test draft guidelines by the end of 2008.

EPA made no revisions in the final rule. EPA received other comments on this topic and has responded in its Response to Comments document in the docket for this rule.

B. Post-Application Exposure

EPA proposed changing several existing post-application data requirements from CR to R, expanding the use sites that those data requirements cover to include residential uses sites, and codifying certain data that had been previously sought on a case-by-case basis. Currently, EPA frequently conducts post-application exposure assessments, particularly with regard to residential

exposures, based upon conservative extrapolations from generic data. The new data will ensure that EPA can more realistically assess post-application exposure. The possibility of using generic task force data or modeling for dermal and inhalation exposure was suggested by many commenters because some of the studies might place additional testing burdens on formulators as to products that did not raise safety concerns under very conservative modeling. EPA believes that modeling and generic task force data would be acceptable absent any specific problems. Registrants who are not members of task forces need to submit their own data or otherwise satisfy the data requirements. Comments about surrogate exposure data and the Task Forces that generate them arose in the following data requirements: Product use information; description of human activity; nondietary ingestion exposure; and dislodgeable foliar residue dissipation and turf transferable residues.

Commenters also identified test guidelines that still exist only in draft form and are absent from the list of OPPTS harmonized guidelines. EPA agrees that these test guidelines need to be finalized and intends to finalize them by the end of 2008.

EPA made no revisions in the final rule. EPA received other comments on this topic and has responded to comments in its Response to Comments document in the docket for this rule.

XIII. Discussion on Spray Drift Data Requirements (Subpart L)

EPA has transferred the contents of the spray drift section (current § 158.440) essentially unchanged into subpart L of part 158. The regulatory text of the spray drift sections is reprinted in this final rule for clarity and completeness.

XIV. Discussion of Key Comments on Environmental Fate Data Requirements (Subpart N)

A. Generic Issues

1. *Data harmonization and lack of availability of current guidelines.* The Agency received several comments stating that the data requirements for nontarget terrestrial and aquatic organisms, plants and environmental fate testing should not be promulgated if the test guidelines upon which the data requirements rely are not finalized. The Agency recognizes the importance of the connection between these data requirements and the guidance documents that provide information on how the data requirements may be satisfied. Guidelines are scheduled to be finished and available to the public by late 2007. Nonetheless, Guidelines are guidance documents only, and the promulgation of data requirements does not depend on the availability of guidance documents for each group of guidelines.

2. *Independent laboratory validation (ILV).* Concerns were raised by some commenters that the requirement to now have ILV of the chemistry methods used for residue measurements in the ecological and environmental fate field studies would add cost and time to these studies. They view these studies as already required and conducted under GLP 40 CFR part 160 for other data requirements. The requirement for an ILV has been in effect since the 1990s. The ILV, as well as the original method validation, is subject to the GLP.

3. *Data requirements*—i. *Hydrolysis.* The Agency received three comments on the hydrolysis data requirement. Two comments questioned the addition of indoor uses to the use patterns that require this study. EPA included several sites that are considered indoor, but where environmental exposure may be likely. These sites include agricultural premises, in or around farm buildings, barnyards, beehives, and fish or seafood processing premises. The expansion of the use patterns requiring this study reflects concern about the potential movement of pesticides and their degradates into the environment.

ii. *Photodegradation, laboratory volatility and field volatility.* EPA proposed to expand the data requirement for photodegradation in air adding all terrestrial, greenhouse, forestry and residential outdoor use patterns. The Agency's rationale relates to the potential for exposure to highly volatile pesticides in greenhouses, residential and certain outdoor use situations. The Agency received three comments on the expansion of the use patterns for this data requirement, asking for additional guidance on the conditions that would trigger this data requirement. EPA uses the measured vapor pressure of a chemical compound or the chemical's Henry's Law Constant, as guides to the chemical's volatility and the probability of its movement into the atmosphere. Pesticides with vapor pressures $\geq 3.9 \times 10^{-5}$ mm Hg are considered to be of intermediate to high volatility under field conditions and may become airborne and enter the environment [Ref. 7].

EPA received two comments on the test note for the photodegradation in water data requirement which provided values for the electronic absorption spectra for the pesticide at which the study is not required. One comment asked for more specific guidance regarding the absorbance of the hydrolysis mixture, and the other comment asked for clarification about the structural identities of the hydrolysis products. EPA believes the test note is clear, but the commenters detailed concerns that could be addressed on an individual basis.

EPA proposed to change the designation of the requirement for the photodegradation on soil study from conditionally required (CR) to required (R) for terrestrial food crop and forestry uses patterns. The Agency received one comment about this photodegradation requirement that questioned the proposed change in classification as stated in the proposed rule. EPA is codifying a long-standing practice of requiring this study for terrestrial and forestry use patterns. The test note explaining that the study is not required when the chemical is to be applied only by soil injection or is incorporated in the soil has been retained.

iii. *Aerobic soil and aerobic aquatic metabolism.* EPA proposed to expand the use patterns that require the aerobic soil metabolism study by including aquatic uses if the pesticide is applied to aquatic sites that are intermittently dry. The aerobic aquatic metabolism study requirements were expanded to include all terrestrial and forestry use patterns, and to clarify its requirement for aquatic residential use patterns. The Agency received five comments regarding the data requirements for the aerobic soil metabolism study and the aerobic aquatic metabolism study. The comments questioned the inclusion of aquatic use sites such as rice paddies and cranberry bogs that are intermittently dry for the soil metabolism study, and the inclusion of all terrestrial and forestry uses patterns for the aquatic metabolism study. They asked for further explanation of these changes. EPA categorizes uses such as cranberry bogs and rice paddies as aquatic, but such sites can be considered both aquatic and terrestrial depending on timing and agronomic practices. As explained in the proposed rule, both the aerobic aquatic and terrestrial studies are needed to better characterize the fate of chemicals applied to aquatic sites that are intermittently dry. Aquatic metabolism studies are needed for pesticides applied terrestrially since these chemicals can be transported, e.g., through run-off or spray drift, to water bodies. Since the degradation or dissipation rates and pathways of pesticides in aquatic systems can be different from those of terrestrial

systems, both soil metabolism and aquatic metabolism studies are needed to fully describe the fate of pesticides that may be found in both terrestrial and aquatic environments. In addition to being useful for developing ecological risk assessments, this study is also valuable in refining drinking water exposure estimates.

iv. *Anaerobic soil and anaerobic aquatic metabolism*. EPA proposed to correct a technical error in current part 158 by reinstating the requirement for the anaerobic soil metabolism study. The requirement appeared in 40 CFR 158.290 prior to 1991, but a simple printing error led to its omission from the CFR in 1991 and subsequent CFRs. The twelve comments that the Agency received about the anaerobic metabolism studies generally asserted that the anaerobic soil metabolism requirement in the proposed rule constituted a new data requirement. This data requirement was never intentionally removed from the CFR by notice and comment rulemaking, and therefore is not considered a new requirement.

EPA has continued to require the anaerobic soil study as needed, notwithstanding its inadvertent omission from the CFR, but has also upon occasion accepted the anaerobic aquatic study in lieu of the anaerobic soil study. However, with the harmonization of the OPP environmental fate guidelines with those of the OECD and with PMRA under NAFTA agreements, and with the technical correction and clarification of the requirements in this rule, this practice of substituting the anaerobic aquatic study is no longer appropriate. In the harmonized guidelines, the two studies use different test media and redox conditions, so the results of these two studies will not necessarily be comparable. Continuing to use the anaerobic aquatic study when the Agency requires the anaerobic soil study will not fully address Agency risk assessment needs.

The commenters were also concerned about the expansion of the anaerobic aquatic metabolism requirement to include all terrestrial use patterns, such that the applicants would be required to conduct two anaerobic studies. This added requirement, in their estimate, would have a significant impact, doubling the time of the anaerobic system requirement. With this rule EPA now requires both anaerobic studies for terrestrial uses where the pesticide is likely to move from the site of application to nearby aquatic systems. Since the degradation or dissipation rates and pathways of pesticides in aquatic systems can be different from those of terrestrial systems, soil metabolism studies alone may not be adequate to cover these terrestrial use patterns.

v. *Soil mobility*. EPA did not propose any changes to the data requirement for soil mobility studies. However, the Agency received three comments asking for clarification about which test type we prefer to fulfill this data requirement. Therefore, in the final rule, we added a new test note for the leaching and absorption/desorption data requirement that explains which test procedure is preferred.

vi. *Terrestrial, aquatic and forestry field dissipation studies*. EPA proposed to expand the use patterns that require the terrestrial field dissipation study to include aquatic food crops and aquatic nonfood uses when the pesticide is applied to aquatic sites that are intermittently dry (rice and cranberries were given as examples). Likewise, EPA proposed to expand the requirement for an aquatic field dissipation study from solely aquatic use patterns to conditionally include terrestrial use patterns as well. The third change the Agency proposed with the field dissipation studies was to merge the long-term field dissipation study into the terrestrial field dissipation study. Instead of a separate long-term study, the field dissipation study would be extended in duration for persistent pesticides to characterize their decline curves. A number of commenters were very concerned about the changes in the conditions and requirements for the dissipation studies. One issue raised by several commenters pertained to the likelihood that some chemicals and use patterns would now require two separate field dissipation studies instead of just one, as was the policy in the past. Several of the commenters asked for greater justification and clarification of the test notes from the Agency to explain the expansion of the data requirements. They also asked for additional guidance on the triggers and endpoints of the long-term study.

EPA acknowledges that some pesticides, based on their environmental fate profile and uses, may require both the aquatic and the terrestrial field dissipation studies, but we estimated that the frequency of this occurring is low. The Agency expanded the terrestrial field dissipation data requirement to gain a better understanding of the patterns of a pesticide's fate and transport when applied to crops that grow in both flooded and dry conditions in one growing season. This decision was endorsed by the FIFRA SAP in 1994. The data provided by the aquatic field study for terrestrial applications will provide data necessary to understand the fate of a terrestrially applied pesticide that has a high potential to enter aquatic environments. Data from these studies can reduce potential overestimation of exposure and risk and can confirm assumptions of low levels of toxic degradates. The test note for the aquatic study is based on harmonized language with PMRA under NAFTA, and provides the details that must be considered to determine if an aquatic (sediment) dissipation study is necessary for a terrestrial use.

One commenter recommended that to be consistent with the terrestrial field dissipation data requirement, the Agency should state that aquatic food crops, like rice and cranberry uses, which are managed to have a dry-land period for production, now must be conducted under the Terrestrial Field Dissipation (TFD) requirement. EPA agrees with this comment and has amended the test note for this study. The TFD guideline is available on the websites of EPA and PMRA.

EPA changed the requirement for the forestry dissipation study from required to conditionally required for pesticides used in forests. The Agency received five comments expressing the concern that with this change it is no longer clear what conditions of pesticide use in forestry would trigger this requirement. The Agency made the change because these studies are very difficult to conduct and very difficult to interpret. The trend over the past few years has been to rely on the terrestrial field dissipation studies for forestry uses. If this terrestrial dissipation study cannot assess all of the major routes of dissipation, the forestry study will be required.

The Agency did not propose any changes in the requirement for a field dissipation study for combination and tank mixes. Three comments identified the test note for this study as vague and with no useful information. They suggested that the test note be revised to clarify when this data requirement is needed, and the relevance of this data. EPA took their recommendation and rewrote this test note to clarify that this study may be triggered if there is specific evidence that the presence of one pesticide can affect the dissipation characteristics of another pesticide when applied simultaneously or serially.

vii. *Accumulation studies*. EPA proposed to change the conditions under which the accumulation in fish and accumulation in aquatic organisms would be required. EPA received eight

comments regarding the fish and nontarget organism accumulation studies. Three of the commenters suggested that this data requirement be placed in proposed subpart E (now subpart G), Terrestrial and Aquatic Nontarget Organism Data Requirements, and not subpart N. There were two comments stating that test note 10 was well written, and should also apply to the aquatic nontarget organism accumulation study requirement in lieu of test note 11, in the environmental fate data table. They suggested that this test note is also appropriate for the three accumulation studies in proposed subpart E, bioavailability, biomagnification and toxicity of aquatic organisms.

The Agency agrees with the comments, and moved the two studies under proposed subpart N, Accumulation in Fish and Accumulation in Aquatic Nontarget Organisms to subpart G, under the data requirement for aquatic organisms - bioavailability, biomagnification and toxicity. Therefore, all the ecological and fate requirements related to bioaccumulation are located solely in subpart G. We also agree with the comment that the language of Note 10 (Accumulation in Fish) in the proposed environmental fate data table is appropriate for the Accumulation in aquatic nontarget organisms data requirement in subpart G. Test note 10, ''Not required when the octanol/water partition coefficients of the pesticide and its major degradates are less than 1,000; or there are no potential exposures to fish and other nontarget aquatic organisms; or the hydrolytic half-life is less than 5 days at pH 5, 7, and 9.'' was moved to subpart G and renumbered as test note 19. This test note replaces draft test note 21 in proposed subpart E (now G).

viii. *Ground water monitoring.* EPA proposed to conditionally require a groundwater monitoring study for all terrestrial and forestry uses. EPA received six comments on the proposed new data requirement for ground water monitoring. This study is conditionally required for all terrestrial uses patterns and all forestry uses patterns. Because of the newness of this data requirement we received several comments questioning the conditions that would trigger this requirement. Three additional commenters asked for better guidance in the test note for this requirement. One of the commenters additionally expressed the opinion that the conditions in the test note for this study should focus on the results of the field dissipation studies rather than laboratory studies. The Agency affirms that the conditions described in the test note include both laboratory and field data, but points out that this test note also describes many factors that must be considered to determine if this requirement is triggered. It is quite complex and difficult to fully explain all possible scenarios that could trigger a groundwater monitoring study. In summary, EPA uses a weight-of-evidence approach that incorporates the results of the other environmental fate studies plus use patterns along with factors specific to the pesticide of concern.

In addition to these use patterns, one commenter recommended that the ground water monitoring data requirement be conditionally required (CR) for residential outdoor uses. We agree that there may be certain cases where a ground water monitoring study would be needed to inform a risk management decision for residential outdoor use pesticides. In the final rule, EPA made this study CR, but we expect that the need for this study is likely to be rare.

ix. *Degradates.* EPA received six comments regarding the need and potential triggers to test degradate substances in the laboratory studies. They all asked for clarification of the potential requirement. The Agency does not require degradate substances to undergo the set of fate data requirements as it requires of the active ingredients. The set of fate studies as currently designed and conducted with the TGAI provide adequate information on the formation, decline and mobility of the major degradates. Testing with degradates as the primary test substance is not required for the environmental fate data requirements.

XV. Discussion of Key Comments on Residue Chemistry Data Requirements (Subpart O)

EPA proposed codifying the residue chemistry data requirements that have arisen since the 1984 regulations were issued and clarifying and simplifying the 1984 data requirements. EPA has responded to comments in its Response to Comments document in the docket for this rule.

Some commenters viewed the proposed residential outdoor use pattern as an expansion of requirements for home garden uses and believed such uses do not fall under the scope of the FFDCA. EPA did not intend to expand the data requirement for residential uses; the current practice is to require data based on residential use only if the corresponding agricultural use on that crop is not approved or if the residential use is likely to have higher residues based on increased application rates or shorter preharvest intervals. EPA agrees that FFDCA does not apply to commodities that are not introduced into interstate commerce and tolerances are not established for residues on home garden crops. EPA does assess under FIFRA whether any adverse effects (e.g. dietary risks) could occur.

Some commenters requested a definition of indoor food use. EPA considers indoor food uses to be primarily pesticide treatment in food areas of food handling establishments (FHEs). FHEs include food servicing, food manufacturing, and food processing. Crack, crevice and space treatments are examples of application areas where pests hide or through which they enter a building. The FHE uses described above fall under the auspices of FFDCA and generally require residue data and tolerances (or exemptions from tolerances) for residues of conventional pesticides in food.

1. *Tolerances and tolerance exemptions.* A commenter requested a more complete definition of tolerance because the proposed definition implies that all the data requirements apply to applications for a tolerance exemption. EPA agrees with the commenter that the proposed rule implies that all the residue chemistry data requirements and conditions apply to tolerance exemptions, which is not the case. In many instances such data are not needed for an exemption due to the low toxicity of the pesticide or the ability to make a safety finding using theoretical dietary exposure estimates. The Agency added Test Note 25 to most of the data requirements to clarify when a residue chemistry data requirement may not be required for an exemption from a tolerance.

2. *Storage stability.* EPA proposed separately identifying the requirement to validate the Magnitude of the Residue studies. Commenters believed that requiring an explicit storage stability study was too rigid and suggested the registrant retain the option to include this data in a stand-alone report or in the magnitude of residue (MOR) report. As explained in the proposed rule, the separation of the storage stability regime was intended solely to give visibility to a requirement often overlooked in the residue studies. The Agency would not object to the storage stability data being in the MOR report in cases where the data were actually generated concurrently as part of the MOR study.

3. *Multiresidue methods.* There were no comments on the proposed codification of the multiresidue methods data requirement as a separate requirement; multiresidue methodology

data are currently part of the Residue Analytical Method requirement.

4. *Nature of the residue in livestock*. A commenter questioned EPA's basis for requiring this study when residues are not found in livestock feed. The primary reason for requiring the livestock metabolism study when measurable residues are not found on feed items from labeled uses is to assess the potential bioconcentration of the pesticides and metabolites of concern in animal products. Although residues in feed may not be quantifiable, EPA needs assurance that residues do not concentrate to measurable levels when livestock ingest the treated feeds.

5. *Residue analytical methods*. EPA proposed changing the test substance from TGAI and metabolites to residue of concern and proposed requiring an ILV; the latter is a policy that has been in place since 1988. Commenters varied on the value of the ILV of tolerance enforcement methods. EPA believes that the ILV requirement helps ensure that methods are clearly written and include detailed descriptions of all necessary steps. Due to resource limitations, EPA chemists can validate only a limited number of methods so the Agency relies greatly on the ILV as part of the review process to determine whether an adequate tolerance enforcement method is available.

A commenter felt that it would be appropriate to address radiovalidation under both the Nature of the Residue and the Analytical Method entries. While EPA views radiovalidation as an element of the Analytical method requirement, EPA believes the issue may be addressed in either the metabolism study report or the method validation report. Radiovalidation would not be necessary when the extraction procedures in the method and metabolism studies are identical or very similar and the metabolism study was deemed acceptable in terms of the levels of residues extracted and characterized/identified.

6. *Magnitude of the residue in processed food and feed, potable water, fish, and irrigated crops*. EPA proposed changing the test substance from EP to TEP because it believes that, in general, variations of the formulation will not affect the behavior of the active ingredient. Commenters believed that changing the test substance from EP to TEP would cause an increase in the residue data as each formulation type would need to be tested. EPA notes that the existing EP requirement from the 1984 rule would require residue data for each end-use product if it were to be implemented. In actual practice, EPA has been administratively following a TEP-based approach of grouping EPs into formulation classes that requires considerably less data than an EP approach. The rule revision merely codifies this current practice.

7. *Magnitude of the residue in meat, milk, poultry, and eggs*. A verbal request for clarification at the May 3–4, 2005, workshop on the proposed rule prompted EPA review of the test note pertaining to the nature of the residue in livestock. As a result, the test note was revised to indicate that data are required if pesticide residue are present in or on livestock feed items or intentionally added to drinking water. These studies may not be required if the metabolism studies show negligible transfer of the residues of concern at the maximum expected exposure.

A commenter questioned the necessity of conducting separate feeding studies for separate metabolites. Only when the chemical structure of the plant metabolite raises concerns over potential bioconcentration and/or increased toxicity would EPA require additional animal studies dosing with the plant metabolite. The study is rarely requested, but EPA prefers to maintain the proposed test substance and footnote to alert applicants to the possibility of such data.

8. *Confined and field rotational crops*. EPA proposed moving the data requirements for confined and field rotational crops from an environmental fate requirement to residue chemistry requirement since these are primarily a dietary risk assessment concern. Commenters suggested EPA describe in detail the triggers for progressing to the Tier II and Tier III studies and explain the data needed to establish tolerances for inadvertent residues in rotational crops. Upon further consideration, Test Notes 7 and 23 were revised to put the focus on residue uptake in rotational crops as opposed to residues in food. In addition, Test Note 24 was added to the crop field trial study to address situations where tolerances are needed on rotational crops.

XVI. Discussion of Data Requirements Not Affected by this Final Rule

This final rule does not apply to the data requirements for the registration of: biochemical pesticide products; microbial pesticide products; or antimicrobial pesticide products. EPA proposed to limit the applicability of revised part 158 to conventional pesticides in anticipation of additional revisions tailored to biochemical, microbial, and antimicrobial pesticides. Elsewhere in today's **Federal Register**, EPA is promulgating a final rule establishing data requirements for biochemical and microbial pesticides. For a discussion of the applicability of part 158 data requirements to antimicrobial pesticides, see Unit II.C. One commenter believed that the promulgation of data requirements for antimicrobial pesticides should precede the promulgation of data requirements for conventional pesticides. Because EPA believes that a revised part 158 provides an important and crucial framework for the other types of pesticides, EPA is adopting its proposal to limit the applicability of revised part 158 to conventional chemicals.

EPA has transferred the contents of the sections that were not addressed in the proposal essentially unchanged into the revised part 158, i.e., spray drift (subpart L) and product performance (subpart E). The regulatory text of the sections for which no changes were proposed is reprinted in this final rule for clarity and completeness.

XVII. Discussion of Key Comments on International Harmonization of Data Requirements

The preamble to the proposed rule discussed the Agency's extensive consultation and harmonization efforts with Canada and the OECD. Both the Pest Management Regulatory Agency (PMRA) and the EU submitted comments in response to the Agency's proposed rule. Both provided extensive comparisons of data requirements between the United States and their respective requirements. The PMRA stated that, in virtually every scientific discipline, the requirements exhibit a high degree of harmonization with the Canadian requirements. The EU, whose comments were based on their draft data requirements, noted that the U.S. requirements are not completely compatible with the corresponding EU data requirements. Nonetheless, the data requirements of the United States and the EU are comparable in many cases, with some exceptions. Both PMRA and the EU highlighted areas where continued collaboration toward development of a common testing strategy would be useful. EPA will continue to work with Canada and the EU through the OECD to harmonize data requirements, testing protocols and methodologies, and to promote work-sharing opportunities.

XVIII. Discussion of Key Comments on Animal Welfare Concerns

EPA received 53 comments, primarily from individuals, supporting its proposal to eliminate the 1–year dog study from the core toxicology data requirements and urging increased minimization of animal testing,

adoption of alternative non-animal testing, and revision of test strategies to incorporate innovations such as the one developed by ILSI/HESI.

The Agency is committed to avoiding unnecessary animal testing while taking into consideration principles of sound science and the requirements of FIFRA to protect humans and the environment. For example, chemicals with a demonstrated pH indicating a strongly acidic or alkaline substance need not be tested in animals to screen for eye or skin corrosivity potential. EPA will consider data from a validated *in vitro* corrosivity assay as a screen to judge whether a chemical may be corrosive to the eye or skin. Making this determination may reduce or avoid subsequent actual testing on animals. EPA is considering how the number of longer term studies might be reduced by examining the possibility to combine toxicological endpoints from more than one study. The Agency already has bridging and batching policies in place to allow the use of acute toxicity, sensitization, or irritation test data on products to be used to support other products.

EPA is working closely with 15 other U.S. agencies to advance the validation and adoption of alternative test methods through the Federal Interagency Coordinating Committee on Validation of Alternative Methods (ICCVAM) (http://iccvam.niehs.nih.gov), established by the National Institute of Environmental Health Sciences. ICCVAM works towards:

1. Encouraging the reduction of the number of animals used in testing, where possible.

2. Seeking opportunities to replace test methods requiring animals with alternative test methods when validated acceptable alternative methods are available.

3. Optimizing animal use by test method refinement.

ICCVAM, together with the National Toxicology Program Interagency Center for the Evaluation of Alternative Toxicological Methods (NICEATM), convenes independent peer review panels, as appropriate, to evaluate the validation status of proposed test methods and coordinates expert panel meetings or workshops for validation or test method-related activities. ICCVAM has developed guidelines for the nomination and submission of new, revised, and alternative test methods (http://iccvam.niehs.nih.gov/SuppDocs/submission.htm).

The Agency has also co-sponsored a number of major workshops to advance alternative test method activities. EPA, ICCVAM, and NICEATM collaborated in the development of performance standard concepts for validated alternative tests (May 2004 NIH Publication No. 04–4510 [Ref. 6]. Recently, at the request of EPA, ICCVAM/NICEATM coordinated the review of four *in vitro* test methods for identifying ocular corrosives and severe irritants. EPA is incorporating new alternative tests and testing strategies into its programs to reduce animal use (e.g. in assessing acute oral toxicity [guideline 870.1000 revised and 870.1100 revised], dermal sensitization [guideline 870.2600 revised], and dermal irritation/corrosion).

The Agency also recognizes the need for timely periodic review, revision and/or supplementation, as applicable, of its test guidelines. As new tests and test batteries are validated, the Agency can present them to the FIFRA SAP to review their applicability in meeting regulatory needs. EPA can seek comment from the SAP on test guideline or other test method-related issues, depending on the circumstances. As other appropriate alternative or *in vitro* methods become available, they will be considered for addition to the Agency's test guidelines.

Finally, the Agency is committed to a more hypothesis-based testing paradigm by advancing *in silico, in vitro*, and efficient focused *in vivo* testing so that chemicals are tested in animals for those endpoints most relevant to each chemical's exposure or intended use. The Agency acknowledges that substantial work remains to achieve this long term goal, but the Agency is also working on the important short-term goal to make the existing animal testing paradigm more efficient, reliable, and responsive to its risk assessment and management needs. The Agency has undertaken several activities to move towards a more efficient animal paradigm, including analyzing and updating the current data requirements. As evidenced by this final rule, the Agency has completed its analysis of dog toxicity studies and determined that the 1–year dog study can now be omitted as a core data requirement for pesticides.

EPA is committed to revise part 158 data requirements to incorporate new science. In the meantime, the existing regulations provide flexibility to implement any updated, new or novel testing schemes, on a case-by-case basis, as appropriate, until the changes are codified.

XIX. Water Quality Issues

EPA received comments from four California water treatment authorities and two California cities' environmental agencies. The comments centered on their strong recommendations that FIFRA data requirements meet the needs of the Clean Water Act (CWA) regulatory program and should consider urban water quality issues. California water-treatment authorities questioned the adequacy of the Agency's assessment of risks with regard to water quality considerations including: use of aquatic toxicity data, surface water quality studies, and urban uses of pesticides, particularly when these uses result in pesticide residues in receiving waters from storm sewers or sewage treatment plants.

The goal of the 158 data requirements is to require the registrants to submit scientifically sound data, conducted according to recommended guidelines to enable the scientists in the Pesticide Program to conduct ecological risk assessments on a national scale. EPA believes the 158 data requirements are sufficient to conduct high quality risk assessments. EPA's evaluation and registration of pesticides under FIFRA take into account impacts on the aquatic environment. Also, under FIFRA, EPA has the authority to impose a specific restriction on the use of a pesticide in a particular geographic location. Such a restriction will appear in or be referenced on the labeling of all products distributed anywhere in the United States, but will affect the use of the pesticide only when it occurs within the identified geographic area. Although EPA has not routinely imposed labeling restrictions on pesticides to prevent degradation of high quality water, it could do so. As part of its reregistration and registration review programs, EPA's Pesticide and Water Offices are working more closely together to identify sites where water quality standards are not being met as a result of the presence of unacceptable levels of pesticide residues, and the Pesticide Office considers those issues in its reviews. OPP provides State and Tribal pesticide lead agencies with water quality grant funds in order to develop and carry out management programs to protect ground and surface water resources from pesticide risks.

XX. Endangered Species

Incidental to its proposed data requirements for conventional pesticides, EPA discussed the possibility of future data and information needs to develop and/or refine risk assessments for endangered species. EPA did not propose any data requirements specific to endangered species, but described its current level of information and data usage. EPA requested comment on the value and

utility of location and usage information, and on additional types of research that might yield greater refinement in risk assessments for endangered species.

EPA appreciates the response it received from commenters on these topics, primarily from industry task forces and associations. As endangered species data requirements were not proposed, EPA has not responded to the comments as part of this final rule, but will consider them in the context of its ongoing risk assessments. If EPA finds that it needs to amend part 158 to normalize endangered species data requirements, it will consider these comments in the development of a future proposed rule.

XXI. Implementation

After the effective date, the data requirements in this final rule will apply to all new registrations of conventional pesticides. The Agency does not intend to apply these requirements retroactively to all existing pesticide registrations, but the Agency may find it necessary to call in some data on certain existing registrations, as warranted by emerging risks of concern on particular pesticides or as a result of possible programmatic changes and priorities on existing pesticides. FIFRA sec. 3(c)(2) provides EPA broad authority, before and after registration, to require scientific testing and submission of the resulting data to the Agency by registrants and applicants of pesticide products. Although the data requirements in part 158 are imposed primarily as a part of initial registration, EPA is authorized under FIFRA sec. 3(c)(2)(B) to require a registrant to develop and submit additional data necessary to maintain a registration. This post-registration data call-in authority recognizes that the scientific underpinnings of risk assessment change, and is another means by which EPA may keep data for use in risk assessment current with evolving science.

EPA will consider as part of its review of a pending application whether and how to apply these updated data requirements. EPA expects that few changes will be needed, as these updated requirements reflect current practice.

Some commenters believed the revised data requirements in 40 CFR part 158 had to be finalized before registration review could be implemented. While the part 158 data requirements and registration review are related, they are not inextricably linked but rather proceed along parallel tracks. The Agency makes case-by-case data determinations as standard program practice so the registration review program now being implemented can operate effectively in the absence of updated data requirements. The updated data requirements in this final rule will provide applicants with more clarity and transparency in the information presented in part 158.

XXII. References

The Agency established an official docket for this rulemaking under Docket ID No. OPP–2004–0387. All of the documents that have been included in that docket are available at http://www.fdms.gov. The following is a list of the documents that are specifically referenced in this final rule. Not all docket materials are available electronically but all publicly available docket materials are available through the Docket facility described under **ADDRESSES**.

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2. Carmichael, N.G., Barton, H.A., Boobis, A.R., Cooper, R.L., Dellarco, V.L., Doerrer, N.G., Fenner-Crisp, P.A., Doe, J.E., Lamb, J.C., and Pastoor, T.P. Agricultural chemical safety assessment: a multi-sector approach to the modernization of human safety requirements. January 2006. *Critical Reviews in Toxicology*. v. 36, 1–7.

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6. Interagency Coordinating Committee on the Validation of Alternative Methods and the National Toxicology Program Interagency Center for the Evaluation of Alternative Toxicological Methods. Recommended Performance Standards for *In Vitro* Test Methods for Skin Corrosion. NIH Publication No. 04–4510. May 2004. *http://iccvam.niehs.nih.gov/dermal/epiderm/ps/ps044510.pdf*.

7. Kennedy, J.M. and Talbert, R.E. Comparative persistence of dinitroaniline-type herbicides on the soil surface. 1977. *Weed Science*, v. 25(5), 373–381.

8. Mineau, P., Baril, A., Collins, B.T., Duffe, J., Joerman, G. and Luttik, R. Pesticide acute toxicity reference values for birds. 2001. *Review of Environmental and Contamination Toxicology*, v. 170, 13-74.

9. Schafer, E.W. and Brunton, R.B. Indicator bird species for toxicity determinations: is the technique usable in test method development? 1979. Vertebrate Pest Control and Management Materials (American Society for Testing and Materials Special Technical Publication 680), pp. 157-168.

10. U.S. Environmental Protection Agency. A Comparison of the Results of Studies on Pesticides from 1– or 2–Year Dog Studies with Dog Studies of Shorter Duration; a set of scientific issues being considered by the EPA, May 5 and 6, 2005, FIFRA Scientific Advisory Panel Meeting, held at the Holiday Inn-Rosslyn at Key Bridge, Arlington, Virginia. Washington, DC: U.S. Environmental Protection Agency. May 2005.

11. U.S. Environmental Protection Agency. Economic Analysis of the Change in the Data Requirements Rule for Conventional Pesticides. Washington, DC: Biological and Economic Analysis Division, Office of Pesticide Programs, U.S. Environmental Protection Agency. November 7, 2006.

12. U.S. Environmental Protection Agency. Length of Dog Toxicity Study(ies) that is Appropriate for Chronic RfD Determinations of Pesticide Chemicals. Washington, DC: Health Effects Division, Office of Pesticide Programs, U.S. Environmental Protection Agency. March 20, 2006.

13. U.S. Geological Survey. Pesticides in stream sediment and aquatic biota: current understanding of distribution

and major influences. (Fact Sheet 092–00) August 24, 2000. *http://ca.water.usgs.gov/pnsp/rep/fs09200/*.

14. Letter from Dr. Maurice Zeeman, U.S. National Coordinator, OECD Test Guidelines Program, to Dr. Eisaku Toda, Environment, Health, and Safety Division, OECD/Environment Directorate, regarding the U.S. comments received in response to requested review of the proposed OECD Test Guideline 223: Avian Acute Oral Toxicity Test. March 24, 2003.

XXIII. FIFRA Review Requirements

In accordance with FIFRA sec. 25(a), a draft of this final rule was submitted to the FIFRA SAP, the Secretary of Agriculture and appropriate Congressional Committees. The FIFRA SAP waived its review of this final rule because the significant scientific issues involved have already been reviewed by the SAP and additional review isn't necessary.

XXIV. Statutory and Executive Order Reviews

A. Executive Order 12866

Under Executive Order 12866, entitled *Regulatory Planning and Review* (58 FR 51735, October 4, 1993), the Office of Management and Budget (OMB) has determined that this action is a significant regulatory action because it might raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order. Accordingly, EPA submitted this action to OMB for review under Executive Order 12866 and any changes made in response to OMB recommendations have been documented in the docket for this action as required by sec. 6(a)(3)(E) of the Executive Order.

In addition, EPA prepared an analysis of the potential costs and benefits associated with this action, entitled ''Economic Analysis of the Changes in the Data Requirements Rule for Conventional Pesticides'' [Ref. 11]. A copy of the analysis is available in the docket for this action.

This final rule is similar to the proposed rule except that some data requirements will no longer be required. As such, the estimated annual cost of this final rule will be less than the estimated annual cost of the proposed rule. The estimated costs for the data requirements that will no longer be required are:

1. *Chronic oral-non-rodent*. This test was required as part of the baseline requirements. The cost of this test is approximately $950,000 and was recently required an average of almost 18 times per year for the entire industry. Since this test will no longer be required, the estimated cost of this rule decreased from the proposed estimate by almost $16.6 million per year.

2. *Special toxicity tests*. Three special toxicity tests, which were expected to be required about 1% of the time, will no longer be required. These tests are:

- Scheduled Controlled Operant Behavior,
- Peripheral Nerve Function,
- Neurophysiology: Sensory Evoked Potentials.

In addition, some of the test notes associated with the Ecological Effects data requirements have been revised. These revisions will slightly reduce the percent of time these data requirements may be imposed, resulting in a slight reduction of the cost of the rule. However, these costs were not re-estimated because of the expected minimal impact. As a result of these changes, the estimated annual incremental cost of the final rule is expected to be about $33.6 million for the industry. The elimination of the toxicity tests as described above reduces the estimated cost of the rule by almost $17 million.

This cost reduction also applies to the high-cost option (require data 100% of the time). The low-cost option (codification of current practice) is the same in the proposed and final rule. It is no longer the lowest cost option under the final rule because current practice retains the data requirements that were eliminated in the final rule. Since the expected overall impact of this final rule on businesses is expected to be small, the Agency believes that the effect on the availability of pesticides to users is not likely a deleterious one. On balance, the Agency believes that the cost of the rule is justified by the benefits from the enhanced protection of human health and the environment.

B. Paperwork Reduction Act

The information collection activities related to the submission of data to EPA in order to register a conventional pesticide product are already approved by OMB under the Paperwork Reduction Act (PRA), 44 U.S.C. 3501 et seq. This action does not impose any new information collection burden. The information collection activities are already approved by OMB under the following existing ICRs:

1. The activities associated with the establishment of a tolerance are currently approved under OMB Control No. 2070–0024 (EPA ICR No. 0597);

2. The activities associated with the application for a new or amended registration of a pesticide are currently approved under OMB Control No. 2070–0060 (EPA ICR No. 0277);

3. The activities associated with the generation of data for reregistration are currently approved under OMB Control No. 2070– 0107 (EPA ICR No. 1504); and

4. The activities associated with the generation of data for experimental use permits are currently approved under OMB Control No. 2070–0040 (EPA ICR No. 0276).

Copies of these OMB-approved Information Collection Request (ICR) may be obtained from Susan Auby, Collection Strategies Division; U.S. Environmental Protection Agency (2822T); 1200 Pennsylvania Ave., NW, Washington, DC 20460 or by calling (202) 566–1672.

Under the PRA, ''burden'' means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information.

An agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid OMB control number, or is otherwise required to submit the specific information by a statute. The OMB control numbers for EPA's regulations codified in Title 40 of the Code of Federal Regulations, after appearing in the preamble of the final rule, are further displayed either by publication in the **Federal Register** or by other appropriate means, such as on the related collection instrument or form, if applicable. The display of OMB control numbers in certain EPA regulations is consolidated in a list at 40 CFR 9.1.

For the ICR activity contained in this final rule, in addition to displaying the applicable OMB control number in this Unit, the Agency is amending the table in 40 CFR 9.1 to list the OMB control number assigned to the collection activities in this rulemaking. Due to the technical nature of the table, EPA finds that further notice and comment about amending the table is unnecessary. As a result, EPA finds that there is good

cause under section 553(b)(B) of the Administrative Procedures Act (APA), 5 U.S.C. 553(b)(B), to amend the table in 40 CFR 9.1 without further notice and comment.

C. Regulatory Flexibility Act

Pursuant to section 605(b) of the Regulatory Flexibility (RFA), 5 U.S.C. 601 et seq., the Agency hereby certifies that this rule will not have a significant adverse economic impact on a substantial number of small entities. Small entities include small businesses, small organizations, and small governmental jurisdictions. For purposes of assessing the impacts of today's rule on small entities, small entity is defined as: (1) a small business engaged in the manufacture of pesticide and other agricultural chemicals with 500 employees or fewer as defined by NAIC code 325320; (2) a small governmental jurisdiction that is a government of a city, county, town, school district or special district with a population of less than 50,000; and (3) a small organization that is any not-for-profit enterprise which is independently owned and operated and is not dominant in its field. EPA has determined that this final rule does not impact any small governmental jurisdictions or any small not-for-profit enterprise because these entities are rarely pesticide applicants or registrants. The small entities directly regulated by this final rule are small manufacturers of pesticides and other agricultural chemicals.

Since the expected incremental cost of the final rule is about $33.6 million, which is about 33% less (almost 17 million less) than what was estimated for the proposed rule, the potential impacts on small businesses in the final rule would be less than what was estimated for the proposed rule. The small business impacts for the final rule were not re-estimated since they were not significant under the proposed rule and will therefore be even less significant under the final rule.

Based on the Economic Analysis for the proposed rule, of the 61 firms that might be impacted by this final rule, EPA had estimated that 2.4% are likely to experience a cost increase of 1% or more of gross sales. A cost increase of 3% or more of gross sales is expected to be experienced by 1.6% of the potentially impacted small firms.

Although this final rule will not have a significant economic impact on a substantial number of small entities, EPA nonetheless has tried to reduce the impact of this rule on small entities. EPA believes that the users most in need of clarity are the infrequent, generally small applicants, whose data requirements are in many cases limited to enduse product data of various types. Smaller follow-on or me-too registrants are often required to generate only product-specific chemistry data, acute toxicity data, and efficacy data. These applicants will benefit by the restructured part 158 so they don't have to search for applicable data requirements by sifting through voluminous data requirements that may be satisfied by the formulators' exemption, citation, or offer-to-pay procedures. EPA has restructured the subparts to place the data requirements applicable to the bulk of applications (new end-use and me-too products) towards the beginning of part 158 to make the regulation more user-friendly.

D. Unfunded Mandates Reform Act

Under Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), Public Law 104–4, EPA has determined that this action does not contain a Federal mandate that may result in expenditures of $100 million or more for State, local or tribal governments, in the aggregate, or on the private sector in any 1 year. The annual costs associated with this action are estimated to total about $33.6 million to applicants and registrants. These costs represent the incremental costs due to the additional or modified data requirements contained in this action. Since State, local, and tribal governments are rarely pesticide applicants or registrants, this rule is not expected to affect small governments. Thus, today's rule is not subject to the requirements of sections 202 and 205 of the UMRA.

E. Executive Order 13132

Under Executive Order 13132, entitled *Federalism* (64 FR 43255, August 10, 1999), EPA has determined that this final rule does not have federalism implications because it will not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132. Since States or local governments are rarely pesticide applicants or registrants, this final rule may seldom affect a State or local government. Thus, Executive Order 13132 does not apply to this rule.

In the spirit of Executive Order 13132, and consistent with EPA policy to promote communications between EPA and State and local governments, EPA specifically solicited comment on the proposed rule from State and local officials. EPA did not receive comments on federalism. EPA did receive comments on substantive parts of the rule from State governments and these are addressed elsewhere.

F. Executive Order 13175

Under Executive Order 13175, entitled *Consultation and Coordination with Indian Tribal Governments* (65 FR 67249, November 6, 2000), EPA has concluded that this rule does not have tribal implications because it will not have any affect on tribal governments, on the relationship between the Federal government and the Indian tribes, or on the distribution of power and responsibilities between the Federal government and Indian tribes, as specified in the Executive Order. At present, no tribal government holds, or has applied for, a pesticide registration. Thus, Executive Order 13175 does not apply to this rule.

G. Executive Order 13045

Executive Order 13045, entitled *Protection of Children from Environmental Health Risks and Safety Risks* (62 FR 19885, April 23, 1997) does not apply to this action because it is not economically significant as defined in Executive Order 12866, and because the Agency does not have reason to believe the environmental health or safety risks addressed by this action present a disproportionate risk to children. This rule does not establish an environmental standard that will have a negatively disproportionate effect on children. This rule is intended to provide added protection for children from pesticide risk. EPA will use the data and information obtained by this action to carry out its mandate under FFDCA to give special attention to the risks of pesticides to sensitive subpopulations, especially infants and children.

H. Executive Order 13211

This rule is not subject to Executive Order 13211, entitled *Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use* (66 FR 28355, May 22, 2001) because it is not designated as an ''economically significant'' regulatory action under Executive Order 12866, nor is it likely to have any adverse effect on the supply, distribution, or use of energy.

I. National Technology Transfer and Advancement Act

As noted in the proposed rule, Section 12(d) of the National Technology Transfer and Advancement Act of 1995 (NTTAA), Public Law No. 104–113, 12(d) (15 U.S.C. 272 note)

directs EPA to use voluntary consensus standards in its regulatory activities unless to do so would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical standards (e.g. materials specifications, test methods, sampling procedures, and business practices) that are developed or adopted by voluntary consensus standards bodies. The NTTAA directs EPA to provide Congress, through OMB, explanations when the Agency decides not to use available and applicable voluntary consensus standards.

This rulemaking involves environmental monitoring or measurement. Consistent with the Agency's Performance Based Measurement System (PBMS), EPA has decided not to require the use of specific, prescribed analytic methods. Rather, the rule will allow the use of any methods that meets the prescribed performance criteria. The PBMS approach is intended to be more flexible and cost-effective for the regulated community; it is also intended to encourage innovation in analytical technology and improved data quality. EPA is not precluding the use of any method, whether it constitutes a voluntary consensus standard or not, as long as it meets the performance criteria specified.

J. Executive Order 12898

This rule does not have an adverse impact on the environmental and health conditions in low-income and minority communities. Therefore, under Executive Order 12898, entitled *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (59 FR 7629, February 16, 1994), the Agency does not need to consider environmental justice-related issues.

XXV. Congressional Review Act

The Congressional Review Act, 5 U.S.C. 801 et seq., generally provides that before a rule may take effect, the agency promulgating the rule must submit a rule report, which includes a copy of the rule, to each House of the Congress and to the Comptroller General of the United States. EPA will submit a report containing this rule and other required information to the U.S. Senate, the U.S. House of Representatives, and the Comptroller General of the United States prior to the publication of the rule in the **Federal Register**. A major rule cannot take effect until 60 days after it is published in the **Federal Register**. This action is not a major rule as defined by 5 U.S.C. 804(2).

List of Subjects in 40 CFR Part 9

Reporting and recordkeeping requirements.

List of Subjects in 40 CFR Part 158

Environmental protection, Confidential business information, Pesticides and pests, Reporting and recordkeeping requirements.

Dated: October 4, 2007.

Stephen L. Johnson,

Administrator.

■ Therefore, chapter I of title 40 of the Code of Federal Regulations is amended as follows:

PART 9—[AMENDED]

■ 1. The authority citation for part 9 continues to read as follows:

Authority: 7 U.S.C. 135 et seq., 136 136y; 15 U.S.C. 2001, 2003, 2005, 2006, 2601 2671; 21 U.S.C. 331j, 346a, 31 U.S.C. 9701; 33 U.S.C. 1251 et seq., 1311, 1313d, 1314, 1318, 1321, 1326, 1330, 1342, 1344, 1345 (d) and (e), 1361; E.O. 11735, 38 FR 21243, 3 CFR, 1971 1975 Comp. p. 973; 42 U.S.C. 241, 242b, 243, 246, 300f, 300g, 300g 1, 300g 2, 300g 3, 300g 4, 300g 5, 300g 6, 300j 1, 300j 2, 300j 3, 300j 4, 300j 9, 1857 et seq., 6901 6992k, 7401 7671q, 7542, 9601 9657, 11023, 11048.

■ 2. In § 9.1, the table is amended by revising the entries under the centerheading ''Data Requirements for Registration'' and by adding the centerheading ''Data Requirements for Registration of Antimicrobial Pesticides'' and its entries immediately before the existing centerheading ''State Registration of Pesticide Products.'' to read as follows:

§ 9.1 OMB approvals under the Paperwork Reduction Act.

* * * * *

40 CFR citation	OMB control No.
* * * * * * *	
Data Requirements for Registration	
158.32	2070–0040, 2070–0053, 2070–0057, 2070–0060, 2070–0107
158.34	2070–0040, 2070–0057, 2070–0060, 2070–0107
158.45	2070–0040, 2070–0057, 2070–0060, 2070–0107
158.75	2070–0040, 2070–0057, 2070–0060, 2070–0107
158.110	2070–0040, 2070–0057, 2070–0060, 2070–0107
158.200	2070–0040
158.310	2070–0040, 2070–0057, 2070–0060, 2070–0107
158.320	2070–0040, 2070–0057, 2070–0060, 2070–0107
158.325	2070–0040, 2070–0057, 2070–0060, 2070–0107
158.330	2070–0040, 2070–0057, 2070–0060, 2070–0107
158.335	2070–0040, 2070–0057, 2070–0060, 2070–0107
158.340	2070–0040, 2070–0057, 2070–0060, 2070–0107
158.345	2070–0040, 2070–0057, 2070–0060, 2070–0107
158.350	2070–0040, 2070–0057, 2070–0060, 2070–0107
158.355	2070–0040, 2070–0057, 2070–0060, 2070–0107
158.400	2070–0057, 2070–0060, 2070–0107
158.500	2070–0057, 2070–0060, 2070–0107
158.630	2070–0057, 2070–0060, 2070–0107
158.660	2070–0057, 2070–0060, 2070–0107
158.630	2070–0057, 2070–0060, 2070–0107
158.1050	2070–0057, 2070–0060, 2070–0107
158.1100	2070–0057, 2070–0060, 2070–0107
158.1300	2070–0057, 2070–0060, 2070–0107
158.1410	2070–0057, 2070–0060, 2070–0107
158.2000	2070–0057, 2070–0060, 2070–0107

40 CFR citation	OMB control No.
158.2100	2070–0057, 2070–0060, 2070–0107
* * * * * * *	
Data Requirements for Registration of Antimicrobial Pesticides	
161.30	2070–0040, 2070–0057, 2070–0060, 2070–0107
161.32	2070–0040, 2070–0053, 2070–0057, 2070–0060, 2070–0107
161.34	2070–0040, 2070–0057, 2070–0060, 2070–0107
161.45	2070–0040, 2070–0057, 2070–0060, 2070–0107
161.75	2070–0040, 2070–0057, 2070–0060, 2070–0107
161.101	2070–0040, 2070–0057, 2070–0060, 2070–0107
161.150	2070–0040, 2070–0057, 2070–0060, 2070–0107
161.160	2070–0040, 2070–0057, 2070–0060, 2070–0107
161.162	2070–0040, 2070–0057, 2070–0060, 2070–0107
161.165	2070–0040, 2070–0057, 2070–0060, 2070–0107
161.167	2070–0040, 2070–0057, 2070–0060, 2070–0107
161.170	2070–0040, 2070–0057, 2070–0060, 2070–0107
161.175	2070–0040, 2070–0057, 2070–0060, 2070–0107
161.180	2070–0040, 2070–0057, 2070–0060, 2070–0107
161.190	2070–0040, 2070–0057, 2070–0060, 2070–0107
161.240	2070–0057, 2070–0060, 2070–0107
161.290	2070–0057, 2070–0060, 2070–0107
161.340	2070–0057, 2070–0060, 2070–0107
161.390	2070–0057, 2070–0060, 2070–0107
161.440	2070–0057, 2070–0060, 2070–0107
161.490	2070–0057, 2070–0060, 2070–0107
161.540	2070–0057, 2070–0060, 2070–0107
161.590	2070–0057, 2070–0060, 2070–0107
161.640	2070–0057, 2070–0060, 2070–0107
161.740	2070–0057, 2070–0060, 2070–0107
* * * * *	

■ 3. By adding new part 158 to read as follows:

PART 158—DATA REQUIREMENTS FOR PESTICIDES

Subpart A—General Provisions

Subpart B—How to Use Data Tables

Subpart C—Experimental Use Permits

Subpart D—Product Chemistry

Subpart E—Product Performance

Subpart F—Toxicology

Subpart G—Ecological Effects

Subparts H–J [Reserved]

Subpart K—Human Exposure

Subpart L—Spray Drift

Subpart M [Reserved]

Subpart N—Environmental Fate

Subpart O—Residue Chemistry

Subparts P–T [Reserved]

Subpart U—Biochemical Pesticides [Reserved]

Authority: 7 U.S.C. 136 - 136y; 21 U.S.C. 346a.

Subpart A—General Provisions

§ 158.1 Purpose and scope.

(a) *Purpose.* The purpose of this part is to specify the kinds of data and information EPA requires in order to make regulatory judgments under FIFRA secs. 3, 4, and 5 about the risks and benefits of pesticide products. Further, this part specifies the data and information needed to determine the safety of pesticide chemical residues under FFDCA sec. 408.

(b) *Scope.* (1) This part describes the minimum data and information EPA typically requires to support an application for pesticide registration or amendment; support the reregistration of a pesticide product; support the maintenance of a pesticide registration by means of the data call-in process, e.g., as used in the registration review program; or establish or maintain a tolerance or exemption from the requirements of a tolerance for a pesticide chemical residue.

(2) This part establishes general policies and procedures associated with the submission of data in support of a pesticide regulatory action.

(3) This part does not include study protocols, methodology, or standards for conducting or reporting test results; nor does this part describe how the Agency uses or evaluates the data and information in its risk assessment and risk management decisions, or the regulatory determinations that may be based upon the data.

(c) *Scope of individual subparts.* (1) *Conventional pesticides.* Subparts A, B, C, D, F, G, K, L, N, and O apply to conventional pesticides.

(2) *Biochemical pesticides.* Subparts A, B and U apply to biochemical pesticides.

(3) *Microbial pesticides.* Subparts A, B and V apply to microbial pesticides.

(4) *Antimicrobial pesticides.* [Reserved]

§ 158.3 Definitions.

All terms defined in sec. 2 of the Federal Insecticide, Fungicide, and Rodenticide Act apply to this part and are used with the meaning given in the Act. Applicable terms from the Federal Food, Drug, and Cosmetic Act also apply to this part. Individual subparts may contain definitions that pertain solely to that subpart. The following additional terms apply to this part:

Applicant means any person or entity, including for the purposes of this part a registrant, who submits, or is required to submit, to the Agency any application, petition, or submission intended to persuade EPA to grant, modify, or leave unmodified a registration or other approval required as a condition of sale or distribution of a pesticide. Such submissions may include, but are not limited to, the following:

(1) An application for registration or amended registration of a pesticide product under FIFRA sec. 3 or 24.

(2) A submission of data required in conjunction with reregistration of a currently registered product under FIFRA sec. 4.

(3) An application for an experimental use permit under FIFRA sec. 5.

(4) A submission of data in response to a notice issued by EPA under FIFRA sec. 3(c)(2)(B).

(5) A petition to establish or modify a tolerance or an exemption from the requirement of a tolerance for a pesticide chemical residue under FFDCA sec. 408.

Registration includes a new registration, amended registration and reregistration, unless stated otherwise.

§ 158.5 Applicability.

(a) The requirements of this part apply to the following submissions:

(1) An application for new or amended registration under FIFRA sec. 3 or 24.

(2) An application for experimental use permit under FIFRA sec. 5.

(3) A submission of data or information to support the continuation of a registration under FIFRA sec. 3, 4, or 24.

(4) A petition to establish, modify or revoke a tolerance or exemption from a tolerance under FFDCA sec. 408.

(b) The information specified in this part must be furnished with each submission described in paragraph (a) of this section if it has not been submitted previously, or if any previous submission is not accurate or complete.

§ 158.30 Flexibility.

(a) FIFRA provides EPA flexibility to require, or not require, data and information for the purposes of making regulatory judgments for pesticide products. EPA has the authority to establish or modify data needs for individual pesticide chemicals. The actual data required may be modified on an individual basis to fully characterize the use and properties, characteristics, or effects of specific pesticide products under review. The Agency encourages each applicant to consult with EPA to discuss the data requirements particular to its product prior to and during the registration process.

(b) The Agency cautions applicants that the data routinely required in this part may not be sufficient to permit EPA to evaluate the potential of the product to cause unreasonable adverse effects to man or the environment. EPA may require the submission of additional data or information beyond that specified in this part if such data or information are needed to appropriately evaluate a pesticide product.

(c) This part will be updated as needed to reflect evolving program needs and advances in science.

§ 158.32 Format of data submissions.

(a) *General.* (1) All data submitted under this part must be formatted in accordance with this section.

(2) The requirements of this section do not apply to administrative materials accompanying a data submission, including forms, labeling, and correspondence.

(b) *Transmittal document.* Each submission in support of a regulatory action must be accompanied by a transmittal document, which includes:

(1) Identity of the submitter.

(2) The transmittal date.

(3) Identification of the regulatory action with which the submission is associated, *e.g.*, the registration or petition number.

(4) A list of the individual documents included in the submission.

(c) *Individual documents.* Unless otherwise specified by the Agency, each submission must be in the form of individual documents or studies. Previously submitted documents should not be resubmitted unless specifically requested by the Agency, but should be cited with adequate information to identify the previously submitted document. Each study or document should include the following:

(1) A title page including the following information:

(i) The title of the study, including identification of the substance(s) tested and the test name or data requirement addressed.

(ii) The author(s) of the study.

(iii) The date the study was completed.

(iv) If the study was performed in a laboratory, the name and address of the laboratory, project numbers or other identifying codes.

(v) If the study is a commentary on or supplement to another previously

submitted study, full identification of the other study with which it should be associated in review.

(vi) If the study is a reprint of a published document, all relevant facts of publication, such as the journal title, volume, issue, inclusive page numbers, and date of publication.

(2) The appropriate statement(s) regarding any data confidentiality claims as described in § 158.33.

(3) A statement of compliance or non-compliance with respect to Good Laboratory Practice Standards as required by 40 CFR 160.12, if applicable.

(4) A complete and accurate English translation must be included for any information that is not in English.

(5) A flagging statement as prescribed by § 158.34, if applicable.

§ 158.33 Confidential data.

(a) *Definitions.* For the purposes of this section:

(1) *Registered or previously registered pesticide* means any pesticide containing an active ingredient contained in a product that is, or has ever been, an active ingredient in a product registered under sec. 3 of FIFRA. A registered pesticide that is the subject of an application for a new use falls within the category of ''registered or previously registered pesticide.''

(2) *Safety and efficacy information* means information concerning the objectives, methodology, results, or significance of any test or experiment performed on or with a registered or previously registered pesticide or its separate ingredients, impurities, or degradation products, and any information concerning the effects of such pesticide on any organism or the behavior of such pesticide in the environment, including, but not limited to, data on safety to fish and wildlife, humans and other mammals, plants, animals, and soil, and studies on persistence, translocation and fate in the environment, and metabolism.

(b) *Applicability.* (1) This section applies to information submitted pursuant to this part. It supplements the general confidentiality procedures in 40 CFR part 2, subpart B, including FIFRA confidentiality procedures at 40 CFR 2.307. To the extent that provisions in this section conflict with those in 40 CFR part 2, subpart B, the provisions in this section take precedence. The provisions of 40 CFR 2.308 do not apply to information to which this section applies. In addition to complying with the requirements of this section, any confidentiality claims for information subject to 40 CFR part 174 (plant-incorporated protectants) must be substantiated at the time of submission as described in § 174.9 of this chapter.

(2) FFDCA sec. 408(i) protects confidential information submitted in connection with an application for a tolerance or exemption to the same extent as FIFRA sec. 10. References in this section to FIFRA sec. 10 are deemed to apply equally to information submitted pursuant to FFDCA sec. 408, pursuant to the authority in sec. 408(i).

(c) *Method of asserting business confidentiality claims*—(1) *Claim required.* Information to which this section applies (and which is submitted on or after the effective date of this regulation) will be deemed as not subject to a confidentiality claim unless a claim for that information is made in accordance with the procedures specified in this paragraph. Information not subject to a confidentiality claim may be made available to the public without further notice, subject to the requirements of FIFRA sec. 10(g).

(2) *Statement required.* Upon submission to EPA, each document must be accompanied by a signed and dated document containing either the statements in paragraph (c)(2)(i) or (ii) of this section. No claims or markings on the document or any attachments, other than these statements and attachments submitted in accordance with paragraph (c)(3) of this section, will be recognized as asserting a claim of confidentiality. The format of data submissions is set forth in § 158.32.

(i) *No claim of confidentiality.*

No claim of confidentiality, on any basis whatsoever, is made for any information contained in this document. I acknowledge that information not designated as within the scope of FIFRA sec. 10(d)(1)(A), (B), or (C) and which pertains to a registered or previously registered pesticide is not entitled to confidential treatment and may be released to the public, subject to the provisions regarding disclosure to multinational entities under FIFRA sec. 10(g).

(ii) *Claim of confidentiality.*

Information claimed as confidential has been removed to a confidential attachment.

(3) *Confidential attachment.* (i) All information claimed as confidential must be submitted in a separate confidential attachment to the document and cross referenced to the specific location in the document from which it was removed. The confidential attachment must have its own title page and be paginated separately from the non-confidential document.

(ii) All information in the confidential attachment that consists of (or whose disclosure would in turn disclose) manufacturing or quality control processes must be individually identified in the confidential attachment as a claim for information within the scope of FIFRA sec. 10(d)(1)(A).

(iii) All information in the confidential attachment that consists of (or whose disclosure would in turn disclose) the details of any methods for testing, detecting, or measuring the quantity of any deliberately added inert ingredient of a pesticide, must be individually identified in the confidential attachment as a claim for information within the scope of FIFRA sec. 10(d)(1)(B).

(iv) All information in the confidential attachment that consists of (or whose disclosure would in turn disclose) the identity or percentage quantity of any deliberately added inert ingredient of a pesticide must be individually identified in the confidential attachment as a claim for information within the scope of FIFRA sec. 10(d)(1)(C).

(v) Information in the confidential attachment that is designated in accordance with paragraphs (c)(3)(ii) - (iv) of this section must be on a separate page from information that is not so designated.

(4) *Voluntary release of information to States and foreign governments.* (i) Submitters are encouraged to include with the statement required under paragraph (c)(2) of this section an additional statement to allow EPA to share information with State and foreign governments. EPA will not consider such a statement to be a waiver of confidentiality or proprietary claims for the information. The statement is as follows:

I authorize the Environmental Protection Agency to release any information contained in this document to State or foreign governments, without relinquishing proprietary rights or any confidentiality claims asserted above.

(ii) Information designated as releasable to state or foreign governments in accordance with this section may be released to such a government without further notice to the submitter. EPA will inform the State or foreign government of any of the confidentiality claims associated with the information.

(d) *Release of information.* (1) Safety and efficacy information that was submitted to EPA on or after May 4, 1988 and that has not been designated by the submitter as FIFRA sec. 10(d)(1)(A), (B), or (C) information in accordance with the applicable requirements of this section is not entitled to confidential treatment and may be disclosed to the public without further notice to the submitter, in accordance with paragraph (d)(2) of this section. Safety and efficacy information

which has been designated by the submitter as FIFRA sec. 10(d)(1) (A), (B), or (C) information is entitled to confidential treatment only to the extent provided by FIFRA sec. 10(b), this section, and 40 CFR 2.208.

(2) Information that is not entitled to be protected as confidential in accordance with FIFRA sec. 10(b), this section and with EPA confidentiality regulations at 40 CFR part 2, subpart B, may be released to the public without the affirmation of non-multinational status provided under FIFRA sec. 10(g), provided that the information does not contain or consist of any complete unpublished report submitted to EPA, or excerpts or restatements of any such report which reveal the full methodology and complete results of the study, test, or experiment, and all explanatory information necessary to understand the methodology or interpret the results.

§ 158.34 Flagging of studies for potential adverse effects.

(a) Any applicant who submits a study of a type listed in paragraph (b) of this section must submit with the study a statement in accordance with paragraph (c) of this section.

(b) The following table indicates the study types and the criteria to be applied to each. Column 1 lists the study types by name. Column 2 lists the associated Pesticide Assessment Guideline number. Column 3 lists the criteria applicable to each type of study. Column 4 lists the reporting code to be included in the statement specified in paragraph (c) of this section when any criterion is met or exceeded.

TABLE—FLAGGING CRITERIA

Study Type(s)	Guideline No.	Criteria: Treated animals show any of the following:	Criteria No.
Carcinogenicity or combined carcinogenicity/ chronic feeding study	870.4200 870.4300	An incidence of neoplasms in males or females which increases with dose (positive trend p≤ 0.05); or	1
		A statistically significant (pairwise p≤ 0.05) increase of any type of neoplasm in any test group, males or females at any dose level, compared to concurrent control animals of the same sex; or	2
		An increase in any type of uncommon or rare neoplasms in any test group, males or females animals at any dose level, compared to concurrent controls of the same sex; or	3
		A decrease in the time to development of any type of neoplasms in any test group, males or females at any dose level, compared to concurrent controls of the same sex.	4
Prenatal developmental toxicity Reproduction and fertility Developmental neurotoxicity	870.3700 870.3800 870.6300	When compared to concurrent controls, treated offspring show a dose-related increase in malformations, pre- or post-natal deaths, or persistent functional or behavioral changes on a litter basis in the absence of significant maternal toxicity at the same dose level.	5
Neurotoxicity	870.6100 870.6200	When compared to concurrent controls, treated animals show a statistically or biologically significant increase in neuropathological lesions or persistent functional or behavioral changes.	6
Chronic feeding Carcinogenicity Reproduction and fertility Prenatal developmental toxicity Developmental neurotoxicity Acute or 90–day neurotoxicity	870.4100 870.4200 870.3800 870.3700 870.6300 870.6200	The no observed adverse effect level (NOAEL) from one of these studies is less than the NOAEL currently used by the Agency as the basis for either the acute or chronic reference dose.	7

(c) *Identification of studies.* For each study of a type identified in paragraph (b) of this section, the applicant shall include the appropriate one of the following two statements, together with the signature of the authorized representative of the company, and the date of signature:

(1) Study does not meet or exceed criteria.

I have applied the criteria of 40 CFR 158.34 for flagging studies for potential adverse effects to the results of the attached study. This study neither meets nor exceeds any of the applicable criteria.

(2) Study meets or exceeds criteria.

I have applied the criteria of 40 CFR 158.34 for flagging studies for potential adverse effects to the results of the attached study. This study meets or exceeds the criteria numbered [insert all applicable reporting codes].

§ 158.45 Waivers.

(a) The data requirements specified in this part as applicable to a category of products will not always be appropriate for every product in that category. Some products may have unusual physical, chemical, or biological properties or atypical use patterns which would make particular data requirements inappropriate, either because it would not be possible to generate the required data or because the data would not be useful in the Agency's evaluation of the risks or benefits of the product. The Agency will waive data requirements it finds are inappropriate, but will ensure that sufficient data are available to make the determinations required by the applicable statutory standards.

(b)(1) Applicants are encouraged to discuss a data waiver request with the Agency before developing and submitting supporting data, information, or other materials.

(2) All waiver requests must be submitted to the Agency in writing. The request must clearly identify the data requirement(s) for which a waiver is sought along with an explanation and supporting rationale why the applicant

believes the data requirement should be waived. In addition, the applicant must describe any unsuccessful attempts to generate the required data, furnish any other information which the applicant(s) believe(s) would support the request, and when appropriate, suggest alternative means of obtaining data to address the concern which underlies the data requirement.

(c) The Agency will review each waiver request and subsequently inform the applicant in writing of its decision. If the decision could apply to more than the requested product, the Agency, in its discretion, may choose to send a notice to all registrants or publish a notice in the **Federal Register** announcing the decision. An Agency decision denying a written request to waive a data requirement is a final Agency action.

§ 158.60 Minor use data policies.

FIFRA sec. 2(ll) defines the term ''minor use''and FIFRA provides a number of statutory provisions concerning minor uses. In addition, EPA has established policies with respect to minor uses of pesticides, including, but not limited to, the following:

(a) A new data requirement pertinent to both an unregistered minor use and a registered major use will not be applied to a minor use applicant until it is applied to the major use registration.

(b) EPA will accept appropriate and adequate extrapolations and regional data to support establishment of individual minor use tolerances.

§ 158.70 Satisfying data requirements.

(a) *General policy.* The Agency will determine whether the data submitted or cited to fulfill the data requirements specified in this part are acceptable. This determination will be based on the design and conduct of the experiment from which the data were derived, and an evaluation of whether the data fulfill the purpose(s) of the data requirement. In evaluating experimental design, the Agency will consider whether generally accepted methods were used, sufficient numbers of measurements were made to achieve statistical reliability, and sufficient controls were built into all phases of the experiment. The Agency will evaluate the conduct of each experiment in terms of whether the study was conducted in conformance with the design, good laboratory practices were observed, and results were reproducible. The Agency will not reject data merely because they were derived from studies which, when initiated, were in accordance with an Agency-recommended protocol, even if the Agency subsequently recommends a different protocol, as long as the data fulfill the purposes of the requirements as described in this paragraph.

(1) The provisions in this part 158 should be read in conjunction with the provisions in § 152.85 to claim eligibility for the formulators' exemption.

(2) [Reserved]

(b) *Good laboratory practices.* Applicants must adhere to the good laboratory practice (GLP) standards described in 40 CFR part 160 when conducting studies. Applicants must also adhere to GLP standards when conducting a study in support of a waiver request of any data requirement which is within the scope of the GLP requirements.

(c) *Agency guidelines.* EPA has published Test Guidelines that contain standards for conducting acceptable tests, guidance on the evaluation and reporting of data, definition of terms, and suggested study protocols. Copies of the Test Guidelines may be obtained by visiting the agency's website at *www.epa.gov/pesticides.*

(d) *Study protocols*—(1) *General.* Any appropriate protocol may be used to generate the data required by this part, provided that it meets the purpose of the test standards specified in the pesticide assessment guidelines, and provides data of suitable quality and completeness as typified by the protocols cited in the guidelines. Applicants should use the test procedure which is most suitable for evaluation of the particular ingredient, mixture, or product. Accordingly, failure to follow a suggested protocol will not invalidate a test if another appropriate methodology is used.

(2) *Organization for Economic Co-Operation and Development (OECD) protocols.* Tests conducted in accordance with the requirements and recommendations of the applicable OECD protocols can be used to develop data necessary to meet the requirements specified in this part. Applicants should note, however, that certain of the OECD recommended test standards, such as test duration and selection of test species, are less restrictive than those recommended by EPA. Therefore, when using OECD protocols, care should be taken to observe the test standards in a manner such that the data generated by the study will satisfy the requirements of this part.

(e) *Combining studies.* Certain toxicology studies may be combined to satisfy data requirements. For example, carcinogenicity studies in rats may be combined with the rat chronic toxicity study. Combining appropriate studies may be expected to reduce usage of test animals as well as reduce the cost of studies. EPA encourages this practice by including standards for acceptable combined tests in the Pesticide Assessment Guidelines. Registrants and applicants are encouraged to consider combining other tests when practical and likely to produce scientifically acceptable results. Registrants and applicants, however, must consult with the EPA before initiating combined studies.

§ 158.75 Requirements for additional data.

The data routinely required by this part may not be sufficient to permit EPA to evaluate every pesticide product. If the information required under this part is not sufficient to evaluate the potential of the product to cause unreasonable adverse effects on man or the environment, additional data requirements will be imposed. However, EPA expects that the information required by this part will be adequate in most cases for an assessment of the properties and effects of the pesticide.

§ 158.80 Use of other data.

(a) *Data developed in foreign countries.* With certain exceptions, laboratory and field study data developed outside the United States may be submitted in support of a pesticide registration. Data generated in a foreign country which the Agency will not consider include, but are not limited to, data from tests which involved field test sites or a test material, such as a native soil, plant, or animal, that is not characteristic of the United States. Applicants submitting foreign data must take steps to ensure that U.S. materials are used, or be prepared to supply data or information to demonstrate the lack of substantial or relevant differences between the selected material or test site and the U.S. material or test site. Once submitted, the Agency will determine whether or not the data meet the data requirements.

(b) *Data generated for other purposes.* Data developed for purposes other than satisfaction of FIFRA data requirements, such as monitoring studies, may also satisfy data requirements in this part. Consultation with the Agency should be arranged if applicants are unsure about suitability of such data.

Subpart B—How to Use Data Tables

§ 158.100 Pesticide use patterns.

(a) *General use patterns.* There are six broad use categories used in the data tables. The six broad categories include terrestrial outdoor uses, aquatic outdoor uses, greenhouse uses, forestry uses, residential outdoor uses, and indoor

uses of all types. The 6 broad use categories are further subdivided into 12 general use patterns which are the bases for data requirements established by use pattern. Within the data tables, general use patterns have been combined into single columns when the data requirements are the same for the combined uses. If there are no data requirements for a specific use, the column for that use is not included in the table. The 12 general use pattern groups used in the data table in this part are:

(1) Terrestrial food crop use.
(2) Terrestrial feed crop use.
(3) Terrestrial nonfood crop use.
(4) Aquatic food crop use.
(5) Aquatic nonfood use.
(6) Greenhouse food crop use.
(7) Greenhouse nonfood crop use.
(8) Forestry use.
(9) Residential outdoor use.
(10) Residential indoor use.
(11) Indoor food use.
(12) Indoor nonfood use.

(b) *Pesticide use site index*. The Pesticide Use Site Index is a comprehensive list of specific pesticide use sites. The index is alphabetized separately by site for all agricultural and all nonagricultural uses. The Pesticide Use Site Index associates each pesticide use site with one or more of the 12 general use patterns. It may be used in conjunction with the data tables to determine the applicability of data requirements to specific uses. The Pesticide Use Site Index, which will be updated periodically, is available from the Agency or may be obtained from the Agency's website at *http://www.epa.gov/pesticides*.

(c) Applicants unsure of the correct use pattern for their particular product should consult the Agency.

§ 158.110 Required and conditionally required data.

The tables in this part use the descriptors R (required), CR (conditionally required), and NR (not required) as a general indication of the applicability of a data requirement. In all cases, the test notes referred to in the table must be consulted to determine the actual applicability of the data requirement.

(a) EPA requires data designated as ''required''(R) for products with a given use pattern in order to evaluate the risks or benefits of a product having that use pattern under any conditions established by the test notes.

(b) Data designated as ''conditionally required'' (CR) for products with a given use pattern are required by EPA to evaluate the risks or benefits of a product having that use pattern if the product meets the conditions specified in the notes accompanying the requirement. The determination of whether the data must be submitted is based on the product's use pattern, physical or chemical properties, expected exposure of nontarget organisms, and/or results of previous testing (for example, tier testing). Applicants must evaluate each applicable test note for the conditions and criteria to be considered in determining whether conditionally required data must be submitted.

(c) Data not required for the Agency's assessment of the risks and benefits of a particular use pattern are designated ''not required'' (NR) in data tables.

§ 158.120 Determining data requirements.

As with current practice, the actual data and studies required may be modified on an individual basis to fully characterize the use and properties of specific pesticide products under review. While EPA is attempting to assist the applicant in this subpart, it is important to emphasize that it is the applicant's obligation under FIFRA to demonstrate that an individual product meets the standard under FIFRA and/or FFDCA. Accordingly, applicants are encouraged to consult with the Agency on the appropriate data requirements as set forth here as they relate to their specific product prior to and during the registration process.

(a) *Finding the appropriate data table*. (1) Pesticide data requirements for conventional chemical active ingredients and related substances are presented in subparts D, E, F, G, K, L, N, and O of this part in the form of a series of data tables, each addressing a particular scientific discipline or data topic. Data requirements for biochemical and microbial pest control agents are contained and are described separately within subparts U and V of this part, respectively.

(2) Key to table notations. R = required data; CR = conditionally required data; NR = Not required; MP = manufacturing-use product; EP = end-use product; TEP = typical end-use product; TGAI = technical grade of the active ingredient; PAI = pure active ingredient; PAIRA = pure active ingredient, radiolabeled; Choice = choice of several test substances depending on studies required.

(b) *Identifying required studies*. To determine the specific kinds of data needed to support the registration use of each pesticide product, the applicant may:

(1) Refer to the applicable subpart(s) of this part. These subparts describe the data requirements including data tables for each subject area.

(2) Select the general use pattern(s) that best cover the use pattern(s) specified on the pesticide product label as explained in § 158.100. All applicable use patterns must be included.

(3) Proceed down the appropriate general use pattern column in the table and note which tests are required (R), conditionally required (CR), or not required (NR). Required and conditionally required studies are described in § 158.110.

(4) Review the notes for each requirement to determine its applicability to the specific product proposed for registration.

(5)(i) Proceed down the Test substance columns and determine the appropriate test substance needed for that study. If the data are intended to support a manufacturing-use product, use the MP column. If the data are intended to support an end-use product, use the EP column.

(ii) The test substances columns specify which substance is to be used for testing. Applicants should note that the substance that must be used when performing the study may or may not be the product itself. For example, the data from a certain study may be required to support the registration of an end-use product, but the test substance column may state that the particular test shall be performed using the technical grade of the active ingredient(s) in the end-use product.

(iii) Manufacturing-use products (MP) and end-use products (EP) containing a single active ingredient and no intentionally added inert ingredients are considered identical in composition to each other, and to the technical grade of the active ingredient (TGAI) from which they were derived. Therefore, the data from a test conducted using any one of these as the test substance is also suitable to meet the requirement (if any) for the same test to be conducted using either of the other substances.

(6) Refer to the Pesticide Assessment Guideline reference number for each study located in the first column. See § 158.70(c) for information pertaining to the guidelines and how to obtain copies.

§ 158.130 Purposes of the registration data requirements.

(a) *General*. The data requirements for registration are intended to generate data and information necessary to address concerns pertaining to the identity, composition, potential adverse effects and environmental fate of each pesticide.

(b) *Product chemistry*—(1) *Product composition*. Data on product composition are needed:

(i) To support the conclusions expressed in the statement of formula;

(ii) To compare to the composition of materials used in required testing under this part; and

(iii) To determine whether a product is ''identical or substantially similar''to another product, a determination that involves the comparison of product composition.

(2) *Nominal concentration and certified limits*. The nominal concentration of a product, defined as that concentration that is expected to be present in a product as a result of the production or formulation process, is used to gauge the acceptability of the certified limits, which define the outer limits of the range of the product's ingredients. The certified limits are used to enforce the composition of the product and to ensure the accuracy of hazard assessments.

(3) *Physical and chemical characteristics*. The physical and chemical characteristics of an active ingredient or product are used:

(i) To confirm or provide supportive information on the identity and composition of the product;

(ii) To assess the hazards of the ingredient or product; and

(iii) To trigger or evaluate certain other studies required by this part.

(c) *Product performance*. Requirements to develop data on product performance provide a mechanism to ensure that pesticide products will perform as intended and that unnecessary pesticide exposure to the environment will not occur as a result of the use of ineffective products. Specific performance standards are used to validate the efficacy data in the public health areas, including disinfectants used to control microorganisms infectious to man in any area of the inanimate environment and those pesticides used to control vertebrates (such as rodents, birds, bats and skunks) that may directly or indirectly transmit diseases to humans.

(d) *Toxicology-humans and domestic animals*. Data required to assess hazards to humans and domestic animals are derived from a variety of acute, subchronic and chronic toxicity tests, and tests to assess mutagenicity and pesticide metabolism.

(1) *Acute studies*. Determination of acute oral, dermal and inhalation toxicity is usually the initial step in the assessment and evaluation of the toxic characteristics of a pesticide. These data provide information on health hazards likely to arise soon after, and as a result of, short-term exposure. Data from acute studies serve as a basis for classification and precautionary labeling. For example, acute toxicity data are used to calculate farmworker reentry intervals and to develop precautionary label statements pertaining to protective clothing requirements for applicators. They also provide information used in establishing the appropriate dose levels in subchronic and other studies; provide initial information on the mode of toxic action(s) of a substance; and determine the need for child resistant packaging. Information derived from primary eye and primary dermal irritation studies serves to identify possible hazards from exposure of the eyes, associated mucous membranes and skin.

(2) *Subchronic studies*. Subchronic tests provide information on health hazards that may arise from repeated exposures over a limited period of time. They provide information on target organs and accumulation potential. The resulting data are also useful in selecting dose levels for chronic studies and for establishing safety criteria for human exposure. These tests are not capable of detecting those effects that have a long latency period for expression (*e.g.*, carcinogenicity).

(3) *Chronic studies*. Chronic toxicity studies (usually conducted by feeding the test substance to the test species) are intended to determine the effects of a substance in a mammalian species following prolonged and repeated exposure. Under the conditions of this test, effects which have a long latency period or are cumulative should be detected. The purpose of long-term carcinogenicity studies is to observe test animals over most of their life span for the development of neoplastic lesions during or after exposure to various doses of a test substance by an appropriate route of administration.

(4) *Developmental toxicity and reproduction studies*. The developmental toxicity study is designed to determine the potential of the test substance to induce structural and/or other abnormalities to the fetus as the result of exposure of the mother during pregnancy. Two-generation reproduction testing is designed to provide information concerning the general effects of a test substance on gonadal function, estrus cycles, mating behavior, conception, parturition, lactation, weaning, and the growth and development of the offspring. The study may also provide information about the effects of the test substance on neonatal morbidity, mortality, and preliminary data on prenatal developmental toxicity and serve as a guide for subsequent tests.

(5) *Mutagenicity studies*. For each test substance a battery of tests is required to assess the potential to affect the mammalian cell's genetic components. The objectives underlying the selection of a battery of tests for mutagenicity assessment are:

(i) To detect, with sensitive assay methods, the capacity of a chemical to alter genetic material in cells.

(ii) To determine the relevance of these mutagenic changes to mammals.

(iii) When mutagenic potential is demonstrated, to incorporate these findings in the assessment of heritable effects, carcinogenicity, and, possibly, other health effects.

(6) *Metabolism studies*. Data from studies on the absorption, distribution, metabolism, and excretion of a pesticide aid in the valuation of test results from other toxicity studies and in the extrapolation of data from animals to man. The main purpose of metabolism studies is to produce data which increases the Agency's understanding of the behavior of the chemical when considering the human exposure anticipated from intended uses of the pesticide.

(e) *Hazards to nontarget organisms*—(1) *General*. The information required to assess hazards to nontarget organisms is derived from tests to determine pesticidal effects on birds, mammals, fish, terrestrial and aquatic invertebrates and plants. These tests include short-term acute, subacute, reproduction, simulated field, and full field studies arranged in a hierarchical or tier system which progresses from the basic laboratory tests to the applied field tests. The results of each tier of testing must be evaluated to determine the potential of the pesticide to cause adverse effects, and to determine whether further testing is required. A purpose common to all data requirements is to provide data which determine the need for (and appropriate wording for) precautionary label statements to minimize the potential adverse effects to nontarget organisms.

(2) *Short-term studies*. The short-term acute and subchronic laboratory studies provide basic toxicity information which serves as a starting point for the hazard assessment. These data are used: To establish acute toxicity levels of the active ingredient to the test organisms; to compare toxicity information with measured or estimated pesticide residues in the environment in order to assess potential impacts on fish, wildlife and other nontarget organisms; and to indicate whether further laboratory and/or field studies are needed.

(3) *Long-term and field studies*. Additional studies (*i.e.*, avian, fish, and

invertebrate reproduction, life cycle studies and plant field studies) may be required when basic data and environmental conditions suggest possible problems. Data from these studies are used to: Estimate the potential for chronic effects, taking into account the measured or estimated residues in the environment; and to determine if additional field or laboratory data are necessary to further evaluate hazards. Simulated field and/or field data are used to examine acute and chronic adverse effects on captive or monitored fish and wildlife populations under natural or near-natural environments. Such studies are required only when predictions as to possible adverse effects in less extensive studies cannot be made, or when the potential for adverse effects is high.

(f) *Applicator and post-application exposure.* Data are used to evaluate exposures to persons in occupational and non-occupational settings, including agricultural, residential, commercial, institutional and recreational sites. Data include oral, dermal and inhalation exposure data, post-application residue data, post-application monitoring data, use information, and human activity information. These data, together with toxicology data, are used to determine whether application or post-application risks are of concern, and, where appropriate, to develop post-application restrictions such as reentry restrictions.

(g) *Pesticide spray drift evaluation.* Data required to evaluate pesticide spray drift are derived from studies of droplet size spectrum and spray drift field evaluations. These data contribute to the development of the overall exposure estimate and, along with data on toxicity for humans, fish and wildlife, or plants, are used to assess the potential hazard of pesticides to these organisms. A purpose common to all these tests is to provide data which will be used to determine the need for (and appropriate wording for) precautionary labeling to minimize the potential adverse effect to nontarget organisms.

(h) *Environmental fate*—(1) *General.* The data generated by environmental fate studies are used to: Assess the toxicity to man through exposure of humans to pesticide residues remaining after application, either upon reentering treated areas or from consuming inadvertantly-contaminated food; assess the presence of widely distributed and persistent pesticides in the environment which may result in loss of usable land, surface water, ground water, and wildlife resources; and, assess the potential environmental exposure of other nontarget organisms, such as fish and wildlife, to pesticides. Another specific purpose of the environmental fate data requirements is to help applicants and the Agency estimate expected environmental concentrations of pesticides in specific habitats where threatened or endangered species or other wildlife populations at risk are found.

(2) *Degradation studies.* The data from hydrolysis and photolysis studies are used to determine the rate of pesticide degradation and to identify pesticides that may adversely affect nontarget organisms.

(3) *Metabolism studies.* Data generated from aerobic and anaerobic metabolism studies are used to determine the nature and availability of pesticides to rotational crops and to aid in the evaluation of the persistence of a pesticide.

(4) *Mobility studies.* These data requirements pertain to leaching, adsorption/desorption, and volatility of pesticides. They provide information on the mode of transport and eventual destination of the pesticide in the environment. This information is used to assess potential environmental hazards related to: Contamination of human and animal food; loss of usable land and water resources to man through contamination of water (including ground water); and habitat loss of wildlife resulting from pesticide residue movement or transport in the environment.

(5) *Dissipation studies.* The data generated from dissipation studies are used to assess potential environmental hazards (under actual field use conditions) related to: Reentry into treated areas; hazards from residues in rotational crops and other food sources; and the loss of land as well as surface and ground water resources.

(i) *Residue chemistry.* (1) Residue chemistry data are used by the Agency to estimate the exposure of the general population to pesticide residues in food and for setting and enforcing tolerances for pesticide residues in food or feed.

(2) Information on the chemical identity and composition of the pesticide product, the amounts, frequency and time of the pesticide application, and results of tests on the amount of residues remaining on or in the treated food or feed, are needed to support a finding as to the magnitude and identity of residues which result in food or animal feed as a consequence of a proposed pesticide usage.

(3) Residue chemistry data are also needed to support the adequacy of one or more methods for the enforcement of the tolerance, and to support practicable methods for removing residues that exceed any proposed tolerance.

(4) *Accumulation studies.* Accumulation studies indicate pesticide residue levels in food supplies that originate from wild sources or from rotational crops. Rotational crop studies are necessary to establish realistic crop rotation restrictions and to determine if tolerances may be needed for residues on rotational crops. Data from irrigated crop studies are used to determine the amount of pesticide residues that could be taken up by representative crops irrigated with water containing pesticide residues. These studies allow the Agency to establish label restrictions regarding application of pesticides on sites where the residues can be taken up by irrigated crops. These data also provide information that aids the Agency in establishing any corresponding tolerances that would be needed for residues on such crops. Data from pesticide accumulation studies in fish are used to establish label restrictions to prevent applications in certain sites so that there will be minimal residues entering edible fish or shellfish. These residue data are also used to determine if a tolerance or action level is needed for residues in aquatic animals eaten by humans.

Subpart C—Experimental Use Permits

§ 158.200 Experimental use permit data requirements tables.

Sections 158.200 through 158.270 describe how to use these tables to determine the experimental use permit data requirements for a particular pesticide product. Notes that apply to an individual test and include specific conditions, qualifications, or exceptions to the designated test are listed at the end of each table. Refer to 40 CFR part 172 for further information on experimental use permits.

§ 158.210 Experimental use permit data requirements for product chemistry.

All product chemistry data, as described in § 158.310, must be submitted to support a request for an experimental use permit.

§ 158.220 Experimental use permit data requirements for product performance.

All product performance data, as described in paragraph (c) of this section, must be submitted to support a request for an experimental use permit.

(a) *Use patterns.* (1) The terrestrial use pattern includes products classified under the general use patterns of terrestrial food crop and terrestrial nonfood crop. The aquatic use pattern includes products classified under the general use patterns of aquatic food crop

and aquatic nonfood crop. The greenhouse use pattern includes products classified under the general use patterns of greenhouse food crop and greenhouse nonfood crop. The indoor use pattern includes products classified under the general use patterns of indoor food and indoor nonfood use.

(2) Data are also required for forestry and residential outdoor uses.

(b) *Key*. CR=Conditionally required; NR=Not required; R=Required; MP=Manufacturing-use product; EP=End-use product; TEP=Typical end-use product.

(c) *Table*. The following table shows the experimental use data requirements for product performance. The test notes are shown in paragraph (d) of this section.

TABLE—DATA REQUIREMENTS FOR PRODUCT PERFORMANCE

Guideline No.	Data Requirement	Use Pattern									Test substance to support		Test Note No.
		Terrestrial		Aquatic		Greenhouse		Forestry	Residential Outdoors	Indoor	MP	EP	
		Food Crop	Nonfood Crop	Food Crop	Nonfood Crop	Food Crop	Nonfood Crop						
Efficacy of antimicrobial agents													
91–8	Products for treating water systems	NR	NR	CR	NR	NR	NR	NR	NR	NR	NR	EP	1
Efficacy of fungicides and nematicides													
93–16	Products for control of organisms producing mycotoxins	CR	NR	CR	NR	CR	NR	NR	NR	NR	NR	EP	1
Efficacy of vertebrate control agents													
96–5	Avian toxicants	R	R	NR	NR	NR	NR	NR	R	R	NR	EP	1
96–6	Avian repellents	R	R	NR	NR	NR	NR	NR	R	NR	NR	EP	1
96–7	Avian frightening agents	R	R	NR	NR	NR	NR	NR	R	NR	NR	EP	1
96–9	Bat toxicants and repellents	NR	NR	NR	NR	NR	NR	NR	NR	R	NR	EP	1
96–10	Commensal rodenticides	R	R	NR	NR	NR	NR	NR	R	R	TEP	EP	1
96–12	Rodenticides on farm and rangelands	R	R	NR	NR	NR	NR	NR	R	NR	NR	EP	1
95–13	Rodent fumigants	R	R	NR	NR	NR	NR	NR	R	R	NR	EP	1
95–16	Rodent reproductive inhibitors	R	R	NR	NR	NR	NR	NR	R	R	NR	EP	1
95–17	Mammalian predacides	R	R	NR	NR	NR	NR	NR	R	NR	NR	EP	1

(d) *Test notes*. The following test notes apply to the data requirements in the table to paragraph (c) of this section.

1. The Agency has waived the requirement to submit efficacy data unless the pesticide product bears a claim to control pest microorganisms that pose a threat to human health and whose presence cannot readily be observed by the user including, but not limited to, microorganisms infectious to man in any area of the inanimate environment, or a claim to control vertebrates (such as rodents, birds, bats, canids, and skunks) that may directly or indirectly transmit diseases to humans. However each registrant must ensure through testing that his product is efficacious when used in accordance with label directions and commonly accepted pest control practices. The Agency reserves the right to require, on a case-by-case basis, submission of efficacy data for any pesticide product registered or proposed for registration.

2. [Reserved]

§ 158.230 Experimental use permit data requirements for toxicology.

All toxicology data, as described in paragraph (c) of this section, must be submitted to support a request for an experimental use permit.

(a) *Use patterns.* (1) Food use patterns include products classified under the general use patterns of terrestrial food crop use, terrestrial feed crop use, aquatic food crop use, greenhouse food crop use, and indoor food use.

(2) Nonfood use patterns include products classified under the general use patterns of terrestrial nonfood crop use, aquatic nonfood crop use, aquatic nonfood outdoor use, greenhouse nonfood crop use, forestry use, residential outdoor use, indoor nonfood use, and indoor residential use.

(b) *Key.* CR=Conditionally required; NR=Not required; R=Required; EP=End-use product; MP=Manufacturing-use product; PAIRA=Pure active ingredient radio-labeled; TGAI=Technical grade of the active ingredient.

(c) *Table.* The following table shows the experimental use data requirements for toxicology. The test notes are shown in paragraph (d) of this section.

TABLE—TOXICOLOGY DATA REQUIREMENTS

Guideline Number	Data Requirement	Use Pattern		Test substance to support		Test Note No.
		Food	Nonfood	MP	EP	
Acute Testing						
870.1100	Acute oral toxicity - rat	R	R	MP and TGAI	TGAI, EP	1
870.1200	Acute dermal toxicity	R	R	MP and TGAI	TGAI, EP	1, 2
870.1300	Acute inhalation toxicity - rat	R	R	MP and TGAI	TGAI and EP	3
870.2400	Primary eye irritation - rabbit	R	R	MP	TGAI and EP	2
870.2500	Primary dermal irritation	R	R	MP	TGAI and EP	1, 2
870.2600	Dermal sensitization	R	R	MP	TGAI and EP	2, 4
870.6100	Delayed neurotoxicity (acute) - hen	CR	CR	TGAI	TGAI	5
Subchronic Testing						
870.3100	90–day Oral - rodent	R	NR	TGAI	TGAI	--
870.3150	90–day Oral - non-rodent	R	NR	TGAI	TGAI	--
Chronic Testing						
870.4100	Chronic oral - rodent	R	NR	TGAI	TGAI	6
Developmental Toxicity and Reproduction						
870.3700	Prenatal Developmental toxicity - rat and rabbit, preferred	R	NR	TGAI	TGAI	7, 8
870.3800	Reproduction	R	NR	TGAI	TGAI	6
Mutagenicity Testing						
870.5100	Bacterial reverse mutation assay	R	NR	TGAI	TGAI	9
870.5300 870.5375	*In vitro* mammalian cell assay	R	NR	TGAI	TGAI	9, 10
870.5385 870.5395	*In vivo* cytogenetics	R	NR	TGAI	TGAI	9, 11

(d) *Test notes.* The following test notes apply to the data requirements in the table to paragraph (c) of this section.

1. Not required if test material is a gas or a highly volatile liquid.

2. Not required if test material is corrosive to skin or has a pH of less than 2 or greater than 11.5.

3. Required if the product consists of, or under conditions of use will result in, a respirable material (e.g., gas, vapor, aerosol, or particulate).

4. Required if repeated dermal exposure is likely to occur under conditions of use.

5. Required if the test material is an organophosphorus substance, which includes uncharged organophosphorus esters, thioesters, or anhydrides of organophosphoric, organophosphonic, or organophosphoramidic acids, or of related phosphorothioic, phosponothioic, or phosphorothioamidic acids, or is structurally related to other substances that may cause the delayed neurotoxicity sometimes seen in this class of chemicals.

6. These studies are seldom required to support EUPs. They may be required if the dietary exposure for these EUPs occupies a large part, e.g., greater than 50%, of the reference dose.

7. The oral route, by oral intubation, is preferred unless the chemical or physical properties of the test substance or the pattern of exposure suggests a more appropriate route of exposure.

8. May be combined with the 2–generation reproduction study in rodents by utilizing a second mating of the parental animals in either generation.

9. At a minimum, an initial battery of mutagenicity tests with possible confirmatory testing is required. Other relevant mutagenicity tests that may have been performed, plus a complete reference list must also be submitted.

10. Choice of assay using either:

i. Mouse lymphoma L5178Y cells, thymidine kinase (tk) gene locus, maximizing assay conditions for small colony expression or detection;

ii. Chinese hamster ovary (CHO) or Chinese hamster lung fibroblast (V79) cells, hypoxanthine-guanine phosphoribosyl transferase (hgprt) gene locus, accompanied by an appropriate *in vitro* test for clastogenicity; or

iii. CHO cells strains AS52, xanthine-guanine phosphoribosyl transferase (xprt) gene locus.

11. The micronucleus rodent bone marrow assay is preferred; however, rodent bone marrow assays using metaphase analysis (aberrations) are acceptable.

§ 158.240 Experimental use permit data requirements for ecological effects.

All data for terrestrial nontarget organisms and aquatic nontarget organisms as described in § 158.243 must be submitted to support a request for an experimental use permit. No data for nontarget plant protection must be submitted to support a request for an experimental use permit.

§ 158.243 Experimental use permit data requirements for terrestrial and aquatic nontarget organisms.

All terrestrial and aquatic nontarget organism data, as described in paragraph (c) of this section, must be submitted to support a request for an experimental use permit.

(a) *Use patterns.* (1) The terrestrial use pattern includes products classified under the general use patterns of terrestrial food crop, terrestrial feed crop, and terrestrial nonfood crop. The aquatic use pattern includes products classified under the general use patterns of aquatic food crop and aquatic nonfood. The greenhouse use pattern includes products classified under the general use patterns of greenhouse food crop and greenhouse nonfood crop. The indoor use pattern includes products classified under the general use patterns of indoor food and indoor nonfood use.

(2) Data are also required for the general use patterns of forestry and residential outdoor use.

(b) *Key.* CR=Conditionally required; NR=Not required; R=Required; TEP=Typical end-use product; TGAI=Technical grade of the active ingredient; commas between the test substances (e.g. TGAI, TEP) indicate that data may be required on the TGAI or TEP depending on the conditions set forth in the test note.

(c) *Table.* The following table shows the experimental use data requirements for terrestrial and aquatic nontarget organisms. The test notes are shown in paragraph (d) of this section.

TABLE—TERRESTRIAL AND AQUATIC NONTARGET ORGANISMS DATA REQUIREMENTS

Guideline No.	Data Requirement	Use Pattern						Test substance	Test Note No.
		Terrestrial	Aquatic	Forestry	Residential Outdoor	Greenhouse	Indoor		
Avian and Mammalian Testing									
850.2100	Avian oral toxicity	R	R	R	R	CR	CR	TGAI	1, 2, 3
850.2200	Avian dietary toxicity	R	R	R	R	NR	NR	TGAI	1, 4
Aquatic Organisms Testing									
850.1075	Freshwater fish toxicity	R	R	R	NR	NR	NR	TGAI, TEP	1, 2, 5, 6, 11
850.1010	Acute toxicity freshwater invertebrates	R	R	R	NR	NR	NR	TGAI, TEP	1, 2, 6, 7, 11
850.1300	Aquatic invertebrate life cycle (freshwater)	NR	R	R	NR	NR	NR	TGAI	1, 7, 8
850.1400	Fish early-life stage (freshwater)	NR	R	R	NR	NR	NR	TGAI	1, 8, 9
Accumulation Study									
850.1730	Fish	CR	CR	CR	NR	NR	NR	TGAI or PAIRA	10
Insect Pollinator Testing									
850.3020	Honeybee acute contact toxicity	R	R	R	NR	NR	NR	TGAI	1

(d) *Test notes.* The following test notes apply to the data requirements in the table to paragraph (c) of this section.

1. Data using the TGAI are required to support all outdoor end-use product uses including, but not limited to, turf. Data are generally not required to support end-use products in the form of a gas, a highly volatile liquid, a highly reactive solid, or a highly corrosive material.

2. For greenhouse and indoor end-use products, data using the TGAI are required to support manufacturing-use products to be reformulated into these same end-use products or to support end-use products when there is no registered manufacturing-

use product. Avian acute oral data are not required for liquid formulations for greenhouse and indoor uses. The study is not required if there is no potential for environmental exposure.

3. Data are required on one passerine species and either one waterfowl species or one upland game bird species for terrestrial, aquatic, forestry, and residential outdoor uses. Data are preferred on waterfowl or upland game bird species for indoor and greenhouse uses.

4. Data are required on waterfowl and upland game bird species.

5. Data are required on one coldwater fish and one warmwater fish for terrestrial, aquatic, forestry, and residential outdoor uses. For indoor and greenhouse uses, testing with only one of either fish species is required.

6. EP or TEP testing is required for any product which meets any of the following conditions:

i. The end-use pesticide will be introduced directly into an aquatic environment (e.g., aquatic herbicides and mosquito larvicides) when used as directed.

ii. The maximum expected environmental concentration (MEEC) or the estimated environmental concentration (EEC) in the aquatic environment is ≥ one-half the LC_{50} or EC_{50} of the TGAI when the EP is used as directed.

iii. An ingredient in the end-use formulation other than the active ingredient is expected to enhance the toxicity of the active ingredient or to cause toxicity to aquatic organisms.

7. Data are required on one freshwater aquatic invertebrate species.

8. Data are generally not required for outdoor residential uses, other than turf, unless data indicate that pesticide residues from the proposed use(s) can potentially enter waterways.

9. Data are required on one freshwater fish species. If the test species is different from the two species used for the freshwater fish acute toxicity tests, a 96 hour LC_{50} on that species must also be provided.

10. Not required when:

i. The octanol/water partition coefficients of the pesticide and its major degradates are < 1,000; or

ii. There are no potential exposures to fish and other nontarget aquatic organisms; or

iii. The hydrolytic half-life is < 5 days at pH 5, 7 and 9.

11. The freshwater fish test species for the TEP testing is the most sensitive of the species tested with the TGAI. A freshwater invertebrate must also be tested with the EP or TEP using the same species tested with the TGAI.

§ 158.250 Experimental use permit data requirements for human exposure.

No data for applicator exposure and post-application exposure must be submitted to support a request for an experimental use permit.

§ 158.260 Experimental use permit data requirements for environmental fate.

All environmental fate data, as described in paragraph (c) of this section, must be submitted to support a request for an experimental use permit.

(a) *Use patterns.* (1) The terrestrial use pattern includes products classified under the general use patterns of terrestrial food crop, terrestrial feed crop, and terrestrial nonfood. The aquatic use pattern includes the general use patterns of aquatic food crop, aquatic nonfood residential, and aquatic nonfood outdoors. The greenhouse use pattern includes both food and nonfood uses. The indoor use pattern includes food, nonfood, and residential indoor uses.

(2) Data are also required for the general use patterns of forestry use and residential outdoor use.

(b) *Key.* CR=Conditionally required; NR=Not required; R=Required; PAIRA=Pure active ingredient radiolabeled; TGAI=Technical grade of the active ingredient.

(c) *Table.* The following table shows the experimental use data requirements for environmental fate. The test notes are shown in paragraph (d) of this section.

TABLE—ENVIRONMENTAL FATE DATA REQUIREMENTS

Guideline No.	Data Requirement	Use Pattern						Test substance	Test Note No.
		Terrestrial	Aquatic	Greenhouse	Indoors	Forestry	Residential Outdoors		
Degradation Study - Laboratory									
835.2120	Hydrolysis	R	R	R	NR	R	R	TGAI or PAIRA	1
Metabolism Studies - Laboratory									
835.4100	Aerobic soil	R	CR	NR	NR	R	NR	TGAI or PAIRA	2
835.4300	Aerobic aquatic	NR	R	NR	NR	NR	NR	TGAI or PAIRA	--
Mobility Study									
835.1230 835.1240	Leaching and adsorption/desorption	R	NR	NR	NR	R	NR	TGAI or PAIRA	3

(d) *Test notes.* The following test notes apply to the data requirements in the table to paragraph (c) of this section.

1. Study is required for indoor uses in cases where environmental exposure is likely to occur. Such sites include, but are not limited to, agricultural premises, in or around farm buildings, barnyards, and beehives.

2. Required for aquatic uses for aquatic sites that are intermittently dry. Such sites include, but are not limited to cranberry bogs and rice paddies.

3. Adsorption and desorption using a batch equilibrium method is preferred. However, in some cases, for example, where the pesticide degrades rapidly, soil column leaching with unaged or aged columns may be more appropriate to fully characterize the potential mobility of the parent compound and major transformation products.

§ 158.270 Experimental use permit data requirements for residue chemistry.

All residue chemistry data, as described in § 158.1410, are required for an experimental use permit for which a temporary tolerance under FFDCA

section 408(r) is sought. Residue chemistry data are not required for an experimental use permit issued on a crop-destruct basis.

§§ 158.280 - 158.290 [Reserved]

Subpart D—Product Chemistry

§ 158.300 Definitions.

The following terms are defined for the purposes of this subpart:

Active ingredient means any substance (or group of structurally similar substances, if specified by the Agency) that will prevent, destroy, repel or mitigate any pest, or that functions as a plant regulator, desiccant, defoliant, or nitrogen stabilizer, within the meaning of FIFRA sec. 2(b).

End-use product means a pesticide product whose labeling:

(1) Includes directions for use of the product (as distributed or sold, or after combination by the user with other substances) for controlling pests or defoliating, desiccating or regulating growth of plants, or as a nitrogen stabilizer, and

(2) does not state that the product may be used to manufacture or formulate other pesticide products.

Formulation means:

(1) The process of mixing, blending, or dilution of one or more active ingredients with one or more other active or inert ingredients, without an intended chemical reaction, to obtain a manufacturing-use product or an end-use product, or

(2) The repackaging of any registered product.

Impurity means any substance (or group of structurally similar substances if specified by the Agency), in a pesticide product other than an active ingredient or an inert ingredient, including unreacted starting materials, side reaction products, contaminants, and degradation products.

Impurity associated with an active ingredient means:

(1) Any impurity present in the technical grade of active ingredient; and

(2) Any impurity which forms in the pesticide product through reactions between the active ingredient and any other component of the product or packaging of the product.

Inert ingredient means any substance (or group of structurally similar substances if designated by the Agency), other than the active ingredient, which is intentionally included in a pesticide product.

Integrated system means a process for producing a pesticide product that:

(1) Contains any active ingredient derived from a source that is not an EPA-registered product; or

(2) Contains any active ingredient that was produced or acquired in a manner that does not permit its inspection by the Agency under FIFRA sec. 9(a) prior to its use in the process.

Manufacturing-use product means any pesticide product other than an end-use product. A product may consist of the technical grade of active ingredient only, or may contain inert ingredients, such as stabilizers or solvents.

Nominal concentration means the amount of an ingredient which is expected to be present in a typical sample of a pesticide product at the time the product is produced, expressed as a percentage by weight.

Starting material means a substance used to synthesize or purify a technical grade of active ingredient (or the practical equivalent of the technical grade ingredient if the technical grade cannot be isolated) by chemical reaction.

Technical grade of active ingredient means a material containing an active ingredient:

(1) Which contains no inert ingredient, other than one used for purification of the active ingredient; and

(2) Which is produced on a commercial or pilot plant production scale (whether or not it is ever held for sale).

§ 158.310 Product chemistry data requirements table.

(a) *General.* Sections 158.100 through 158.130 describe how to use this table to determine the product chemistry data requirements for a particular pesticide product. Notes that apply to an individual test and include specific conditions, qualifications, or exceptions to the designated test are listed in paragraph (f) of the section.

(b) *Use patterns.* Product chemistry data are required for all pesticide products and are not use-specific.

(c) *Test substance.* Data requirements that list only the manufacturing-use product as the test substance apply to products containing solely the technical grade of the active ingredient and manufacturing-use products to which other ingredients have been intentionally added.

(d) *Key.* R=Required; CR=Conditionally required; MP=Manufacturing-use product; NR=Not required; EP=End-use product; TGAI=Technical grade of the active ingredient; PAI=Pure active ingredient.

(e) *Table.* The following table shows the data requirements for product chemistry. The table notes are shown in paragraph (f) of this section.

PRODUCT CHEMISTRY DATA REQUIREMENTS

Guideline Number	Data Requirement	Use Pattern	Test substance to support		Test Note No.
		All	MP	EP	
Product Identity and Composition					
830.1550	Product identity and composition	R	MP	EP	1
830.1600	Description of materials used to produce the product	R	MP	EP	2
830.1620	Description of production process	R	MP	EP	3
830.1650	Description of formulation process	R	MP	EP	4
830.1670	Discussion of formulation of impurities	R	MP, and possibly TGAI	EP, and possibly TGAI	5
830.1700	Preliminary analysis	CR	MP, and possibly TGAI	EP, and possibly TGAI	6, 9, 10

PRODUCT CHEMISTRY DATA REQUIREMENTS—Continued

Guideline Number	Data Requirement	Use Pattern	Test substance to support		Test Note No.
		All	MP	EP	
830.1750	Certified limits	R	MP	EP	7
830.1800	Enforcement analytical method	R	MP	EP	8
830.1900	Submittal of samples	CR	MP, PAI and TGAI	EP, PAI, TGAI	9, 11
Physical and Chemical Properties.					
830.6302	Color	R	MP and TGAI	EP	9
830.6303	Physical state	R	MP and TGAI	EP and TGAI	9
830.6304	Odor	R	MP and TGAI	EP	9
830.6313	Stability to normal and elevated temperatures, metals, and metal ions	R	MP and TGAI	EP	9, 12, 26
830.6314	Oxidation/reduction: chemical incompatibility	CR	MP	EP	13
830.6315	Flammability	CR	MP	EP	14
830.6316	Explodability	CR	MP	EP	15
830.6317	Storage stability	R	MP	EP	
830.6319	Miscibility	CR	MP	EP	16
830.6320	Corrosion characteristics	R	MP	EP	
830.6321	Dielectric breakdown voltage	CR	NR	EP	17
830.7000	pH	CR	MP and TGAI	EP and TGAI	9, 18
830.7050	UV/visible light absorption	R	TGAI or PAI	NR	--
830.7100	Viscosity	CR	MP	EP	19
830.7200	Melting point/melting range	R	TGAI or PAI	TGAI or PAI	9, 20
830.7220	Boiling point/boiling range	R	TGAI or PAI	TGAI or PA	9, 21
830.7300	Density/relative density/bulk density	R	MP and TGAI	EP and TGAI	9
830.7370	Dissociation constants in water	R	TGAI or PAI	TGAI or PAI	9, 22
830.7520	Particle size, fiber length, and diameter distribution	CR	TGAI or PAI	EP	23
830.7550 830.7560 830.7570	Partition coefficient (n-octanol/water)	R	TGAI or PAI	TGAI or PAI	24
830.7840 830.7860	Water solubility	R	TGAI or PAI	TGAI or PAI	9
830.7950	Vapor pressure	R	TGAI or PAI	TGAI or PAI	9, 25

(f) *Test notes.* The following test notes are applicable to the product chemistry data requirements in the table to paragraph (e) of this section:

1. Data must be provided in accordance with § 158.320.

2. Data must be provided in accordance with § 158.325.

3. Data must be provided in accordance with § 158.330.

4. Data must be provided in accordance with § 158.335.

5. Data must be provided in accordance with § 158.340.

6. Data must be provided in accordance with § 158.345.

7. Data must be provided in accordance with § 158.350.

8. Data must be provided in accordance with § 158.355.

9. If the TGAI cannot be isolated, data are required on the practical equivalent of the TGAI.

10. Data are required if the product is produced by an integrated system.

11. Basic manufacturers are required to provide the Agency with a sample of each TGAI used to formulate a product produced by an integrated system when the new TGAI is first used as a formulating ingredient in products registered under FIFRA. A sample of the active ingredient (PAI) suitable for use as an analytical standard is also required at this time. Samples of end-use products produced by an integrated system must be submitted on a case-by-case basis.

12. Data on the stability to metals and metal ions are required only if the TGAI is

expected to come into contact with either material.

13. Required when the product contains an oxidizing or reducing agent.

14. Required when the product contains combustible liquids.

15. Required when the product is potentially explosive.

16. Required when the product is an emulsifiable liquid and is to be diluted with petroleum solvent.

17. Required when the EP is a liquid and is to be used around electrical equipment.

18. Required when the test substance is soluble or dispersible in water.

19. Required when the product is a liquid.

20. Required when the TGAI is solid at room temperature.

21. Required when the TGAI is liquid at room temperature.

22. Required when the test substance contains an acid or base functionality (organic or inorganic) or an alcoholic functionality (organic).

23. Required for water insoluble test substances (>10^{-6} g/l) and fibrous test substances with diameter of ≥0.1 μm.

24. Required if technical chemical is organic and non-polar.

25. Not required for salts.

26. Data on stability of the MP and TGAI to storage at normal temperatures are required. Data on the stability of the TGAI to high temperatures are required if the TGAI is expected to be subjected to temperatures >50° C (122° F) during production or storage.

§ 158.320 Product identity and composition.

Information on the composition of the pesticide product must be furnished. The information required by paragraphs (a), (b), and (f) of this section must be provided for each product. In addition, if the product is produced by an integrated system, the information on impurities required by paragraphs (c) and (d) of this section must be provided.

(a) *Active ingredient.* The following information is required for each active ingredient in the product:

(1) If the source of any active ingredient in the product is an EPA-registered product:

(i) The chemical and common name (if any) of the active ingredient, as listed on the source product.

(ii) The nominal concentration of the active ingredient in the product, based upon the nominal concentration of active ingredient in the source product.

(iii) Upper and lower certified limits of the active ingredient in the product, in accordance with § 158.350.

(2) If the source of any active ingredient in the product is not an EPA-registered product:

(i) The chemical name according to Chemical Abstracts Society (CAS) nomenclature, the CAS Registry Number, and any common names.

(ii) The molecular, structural, and empirical formulae and the molecular weight or weight range.

(iii) The nominal concentration.

(iv) Upper and lower certified limits of the active ingredient in accordance with § 158.350.

(v) The purpose of the ingredient in the formulation.

(b) *Inert ingredients.* The following information is required for each inert ingredient (if any) in the product:

(1) The chemical name of the ingredient according to Chemical Abstracts Society nomenclature, the CAS Registry Number, and any common names (if known). If the chemical identity or chemical composition of an ingredient is not known to the applicant because it is proprietary or trade secret information, the applicant must ensure that the supplier or producer of the ingredient submits to the Agency (or has on file with the Agency) information on the identity or chemical composition of the ingredient. Generally, it is not required that an applicant know the identity of each ingredient in a mixture that he uses in his product. However, in certain circumstances, the Agency may require that the applicant know the identity of a specific ingredient in such a mixture. If the Agency requires specific knowledge of an ingredient, it will notify the applicant in writing.

(2) The nominal concentration.

(3) Upper and lower certified limits in accordance with § 158.350.

(4) The purpose of the ingredient in the formulation.

(c) *Impurities of toxicological significance associated with the active ingredient.* For each impurity associated with the active ingredient that is determined by EPA to be toxicologically significant, the following information is required:

(1) Identification of the ingredient as an impurity.

(2) The chemical name of the impurity.

(3) The nominal concentration of the impurity in the product.

(4) A certified upper limit, in accordance with § 158.350.

(d) *Other impurities associated with the active ingredient.* For each other impurity associated with an active ingredient that was found to be present in any sample at a level ≥0.1 percent by weight of the technical grade active ingredient the following information is required:

(1) Identification of the ingredient as an impurity.

(2) The chemical name of the impurity.

(3) The nominal concentration of the impurity in the final product.

(e) *Impurities associated with an inert ingredient.* [Reserved]

(f) *Ingredients that cannot be characterized.* If the identity of any ingredient or impurity cannot be specified as a discrete chemical substance (such as mixtures that cannot be characterized or isomer mixtures), the applicant must provide sufficient information to enable EPA to identify its source and qualitative composition.

§ 158.325 Description of materials used to produce the product.

The following information must be submitted on the materials used to produce the product:

(a) *Products not produced by an integrated system.* (1) For each active ingredient that is derived from an EPA-registered product:

(i) The name of the EPA-registered product.

(ii) The EPA registration number of that product.

(2) For each inert ingredient:

(i) Each brand name, trade name, common name, or other commercial designation of the ingredient.

(ii) All information that the applicant knows (or that is reasonably available to him) concerning the composition (and, if requested by the Agency, chemical and physical properties) of the ingredient, including a copy of technical specifications, data sheets, or other documents describing the ingredient.

(iii) If requested by the Agency, the name and address of the producer of the ingredient or, if that information is not known to the applicant, the name and address of the supplier of the ingredient.

(b) *Products produced by an integrated system.* (1) The information required by paragraph (a)(1) of this section concerning each active ingredient that is derived from an EPA-registered product (if any).

(2) The following information concerning each active ingredient that is not derived from an EPA-registered product:

(i) The name and address of the producer of the ingredient (if different from the applicant).

(ii) Information about each starting material used to produce the active ingredient, as follows:

(A) Each brand name, trade name, or other commercial designation of the starting material.

(B) The name and address of the person who produces the starting material or, if that information is not known to the applicant, the name and address of each person who supplies the starting material.

(C) All information that the applicant knows (or that is reasonably available to

him), concerning the composition (and if requested by the Agency, chemical or physical properties) of the starting material, including a copy of all technical specifications, data sheets, or other documents describing it.

(3) The information required by paragraph (a)(2) of this section concerning each inert ingredient.

(c) *Additional information.* On a case-by-case basis, the Agency may require additional information on substances used in the production of the product.

§ 158.330 Description of production process.

If the product is produced by an integrated system, the applicant must submit information on the production (reaction) processes used to produce the active ingredients in the product. The applicant must also submit information about the formulation process, in accordance with § 158.335.

(a) Information must be submitted for the current production process for each active ingredient that is not derived from an EPA-registered product. If the production process is not continuous (a single reaction process from starting materials to active ingredient), but is accomplished in stages or by different producers, the information must be provided for each such production process.

(b) The following information must be provided for each process resulting in a separately isolated substance:

(1) The name and address of the producer who uses the process, if not the same as the applicant.

(2) A general characterization of the process (*e.g.*, whether it is a batch or continuous process).

(3) A flow chart of the chemical equations of each intended reaction occurring at each step of the process, and of the duration of each step and of the entire process.

(4) The identity of the materials used to produce the product, their relative amounts, and the order in which they are added.

(5) A description of the equipment used that may influence the composition of the substance produced.

(6) A description of the conditions (*e.g.*, temperature, pressure, pH, humidity) that are controlled during each step of the process to affect the composition of the substance produced, and the limits that are maintained.

(7) A description of any purification procedures (including procedures to recover or recycle starting materials, intermediates or the substance produced).

(8) A description of the procedures used to assure consistent composition of the substance produced, *e.g.*, calibration of equipment, sampling regimens, analytical methods, and other quality control methods.

§ 158.335 Description of formulation process.

The applicant must provide information on the formulation process of the product (unless the product consists solely of a technical grade of active ingredient) as required by the following sections:

(a) Section 158.330(b)(2), pertaining to characterization of the process.

(b) Section 158.330(b)(4), pertaining to ingredients used in the process.

(c) Section 158.330(b)(5), pertaining to process equipment.

(d) Section 158.330(b)(6), pertaining to the conditions of the process.

(e) Section 158.330(b)(8), pertaining to quality control measures.

§ 158.340 Discussion of formation of impurities.

The applicant must provide a discussion of the impurities that may be present in the product, and why they may be present. The discussion should be based on established chemical theory and on what the applicant knows about the starting materials, technical grade of active ingredient, inert ingredients, and production or formulation process. If the applicant has reason to believe that an impurity that EPA would consider toxicologically significant may be present, the discussion must include an expanded discussion of the possible formation of the impurity and the amounts at which it might be present. The impurities which must also be discussed are the following, as applicable:

(a) *Technical grade active ingredients and products produced by an integrated system.* (1) Each impurity associated with the active ingredient which was found to be present in any analysis of the product conducted by or for the applicant.

(2) Each other impurity which the registrant or applicant has reason to believe may be present in his product at any time before use at a level ≥0.1 percent (1,000 ppm) by weight of the technical grade of the active ingredient, based on what he knows about the following:

(i) The composition (or composition range) of each starting material used to produce his product.

(ii) The impurities which the applicant knows are present (or believes are likely to be present) in the starting materials, and the known or presumed level (or range of levels) of these impurities.

(iii) The intended reactions and side reactions which may occur in the production of the product, and the relative amounts of byproduct impurities produced by such reactions.

(iv) The possible degradation of the ingredients in the product after its production but prior to its use.

(v) Post-production reactions between the ingredients in the product.

(vi) The possible migration of components of packaging materials into the pesticide.

(vii) The possible carryover of contaminants from use of production equipment previously used to produce other products or substances.

(viii) The process control, purification and quality control measures used to produce the product.

(b) *Products not produced by an integrated system.* Each impurity associated with the active ingredient which the applicant has reason to believe may be present in the product at any time before use at a level ≥0.1 percent (1,000 ppm) by weight of the product based on what he knows about the following:

(1) The possible carryover of impurities present in any registered product which serves as the source of any of the product's active ingredients. The identity and level of impurities in the registered source need not be discussed or quantified unless known to the formulator.

(2) The possible carryover of impurities present in the inert ingredients in the product.

(3) Possible reactions occurring during the formulation of the product between any of its active ingredients, between the active ingredients and inert ingredients, or between the active ingredient and the production equipment.

(4) Post-production reactions between any of the product's active ingredients and any other component of the product or its packaging.

(5) Possible migration of packaging materials into the product.

(6) Possible contaminants resulting from earlier use of equipment to produce other products.

(c) *Expanded discussion.* On a case-by-case basis, the Agency may require an expanded discussion of information on impurities:

(1) From other possible chemical reactions.

(2) Involving other ingredients.

(3) At additional points in the production or formulation process.

§ 158.345 Preliminary analysis.

(a) If the product is produced by an integrated system, the applicant must

provide a preliminary analysis of each technical grade of active ingredient contained in the product to identify all impurities present at 0. 1 percent or greater of the technical grade of the active ingredient. The preliminary analysis should be conducted at the point in the production process after which no further chemical reactions designed to produce or purify the substances are intended.

(b) Based on the preliminary analysis, a statement of the composition of the technical grade of the active ingredient must be provided. If the technical grade of the active ingredient cannot be isolated, a statement of the composition of the practical equivalent of the technical grade of the active ingredient must be submitted.

§ 158.350 Certified limits.

The applicant must propose certified limits for the ingredients in the product. Certified limits become legally binding limits upon approval of the application. Certified limits will apply to the product from the date of production to date of use. If the product label bears a statement prohibiting use after a certain date, the certified limits will apply only until that date.

(a) *Ingredients for which certified limits are required.* Certified limits are required on the following ingredients of a pesticide product:

(1) An upper and lower limit for each active ingredient.

(2) An upper and lower limit for each inert ingredient.

(3) If the product is a technical grade of active ingredient or is produced by an integrated system, an upper limit for each impurity of toxicological significance associated with the active ingredient and found to be present in any sample of the product.

(4) On a case-by-case basis, certified limits for other ingredients or impurities as specified by EPA.

(b) *EPA determination of standard certified limits for active and inert ingredients.* (1) Unless the applicant proposes different limits as provided in paragraph (c) of this section, the upper and lower certified limits for active and inert ingredients will be determined by EPA. EPA will calculate the certified limits on the basis of the nominal concentration of the ingredient in the product, according to the table in paragraph (b)(2) of this section.

(2) Table of standard certified limits.

STANDARD CERTIFIED LIMITS

If the nominal concentration (N) for the ingredient and percentage by weight for the ingredient is:	The certified limits for that ingredient will be as follows:	
	Upper Limit	Lower Limit
N≤1.0%	N + 10%N	N - 10%N
1.0% ≤N ≤20.0%	N + 5%N	N - 5%N
20.0%≤N≤100.0%	N + 3%N	N - 3%N

(c) *Applicant proposed limits.* (1) The applicant may propose a certified limit for an active or inert ingredient that differs from the standard certified limit calculated according to paragraph (b)(2) of this section.

(2) If certified limits are required for impurities, the applicants must propose a certified limit. The standard certified limits may not be used for such substances.

(3) Certified limits should:

(i) Be based on a consideration of the variability of the concentration of the ingredient in the product when good manufacturing practices and normal quality control procedures are used.

(ii) Allow for all sources of variability likely to be encountered in the production process.

(iii) Take into account the stability of the ingredient in the product and the possible formation of impurities between production and sale or distribution.

(4) The applicant may include an explanation of the basis of his proposed certified limits, including how the certified limits were arrived at (*e.g.*, sample analysis, quantitative estimate based on production process), and its accuracy and precision. This will be particularly useful if the range of the certified limit for an active or inert ingredient is greater than the standard certified limits.

(d) *Special cases.* If the Agency finds unacceptable any certified limit (either standard, or applicant proposed), the Agency will inform the registrant or applicant of its determination and will provide supporting reasons. The Agency may also recommend alternative limits to the applicant. The Agency may require, on a case-by-case basis, any or all of the following:

(1) More precise limits.

(2) More thorough explanation of how the certified limits were determined.

(3) A narrower range between the upper and lower certified limits than that proposed.

(e) *Certification statement.* The applicant must certify the accuracy of the information presented, and that the certified limits of the ingredients will be maintained. The following statement, signed by the authorized representative of the company, is acceptable:

I hereby certify that, for purposes of FIFRA sec. 12(a)(1)(C), the description of the composition of [*insert product name*], EPA Reg. No. [*insert registration number*], refers to the composition set forth on the Statement of Formula and supporting materials. This description includes the representations that: (1) no ingredient will be present in the product in an amount greater than the upper certified limit or in an amount less than the lower certified limit (if required) specified for that ingredient in a currently approved Statement of Formula (or as calculated by the Agency); and (2) if the Agency requires that the source of supply of an ingredient be specified, that all quantities of such ingredient will be obtained from the source specified in the Statement of Formula.

§ 158.355 Enforcement analytical method.

An analytical method suitable for enforcement purposes must be provided for each active ingredient in the product and for each other ingredient or impurity that the Agency determines to be toxicologically significant.

Subpart E—Product Performance

§ 158.400 Product performance data requirements table.

(a) *General.* Sections 158.100 through 158.130 describe how to use this table to determine the product performance data requirements for a particular pesticide product. Notes that apply to an individual test, including specific conditions, qualifications, or exceptions to the designated test are listed in paragraph (e) of this section.

(b) *Use patterns.* The terrestrial use pattern includes products classified under the general use patterns of terrestrial food crop and terrestrial nonfood crop. The aquatic use pattern includes products classified under the general use patterns of aquatic food crop

and aquatic nonfood. The greenhouse use pattern includes products classified under the general use patterns of greenhouse food crop and greenhouse nonfood crop. Data are also required for the general use patterns of forestry use, residential outdoor use, and indoor use, which includes both food and nonfood uses.

(c) *Key.* CR=Conditionally required; NR=Not required; R=Required; EP=End-use product; MP=Manufacturing-use product; TEP=Typical end-use product.

(d) *Table.* The following table lists the data requirements that pertain to product performance. The table notes are shown in paragraph (e) of this section.

TABLE—PRODUCT PERFORMANCE DATA REQUIREMENTS

Guideline Number	Data Requirement	Use Pattern									Test substance to support		Test Note No.
		Terrestrial		Aquatic		Greenhouse		Forestry	Residential Outdoor	Indoor	MP	EP	
		Food Crop	Nonfood Crop	Food	Nonfood	Food Crop	Nonfood Crop						
Efficacy of antimicrobial agents													
91–2	Products for use on hard surfaces	NR	NR	NR	NR	NR	NR	NR	NR	CR	NR	EP	1
91–3	Products requiring confirmatory data	NR	NR	NR	NR	NR	NR	NR	NR	CR	NR	EP	1
91–4	Products for use on fabrics and textiles	NR	NR	NR	NR	NR	NR	NR	NR	CR	NR	EP	1
91–5	Air sanitizers	NR	NR	NR	NR	NR	NR	NR	NR	CR	NR	EP	1
91–7	Products for control of microbial pests associated with human and animal wastes	NR	NR	NR	NR	NR	NR	NR	NR	CR	NR	EP	1
91–8	Products for treating water systems	NR	NR	CR	NR	NR	NR	NR	NR	CR	NR	EP	1
Efficacy of fungicides and nematicides													
93–16	Products for control of organisms producing mycotoxins	CR	NR	CR	NR	CR	NR	NR	NR	NR	NR	EP	1
Efficacy of vertebrate control agents													
96–5	Avian toxicants	R	R	NR	NR	NR	NR	NR	R	R	NR	EP	1
96–6	Avian repellents	R	R	NR	NR	NR	NR	NR	R	NR	NR	EP	1
96–7	Avian frightening agents	R	R	NR	NR	NR	NR	NR	R	NR	NR	EP	1
96–9	Bat toxicants and repellents	NR	NR	NR	NR	NR	NR	NR	NR	R	NR	EP	1

TABLE—PRODUCT PERFORMANCE DATA REQUIREMENTS—Continued

Guideline Number	Data Requirement	Use Pattern									Test substance to support		Test Note No.
		Terrestrial		Aquatic		Greenhouse		Forestry	Residential Outdoor	Indoor	MP	EP	
		Food Crop	Nonfood Crop	Food	Nonfood	Food Crop	Nonfood Crop						
96–10	Commensal rodenticides	R	R	NR	NR	NR	NR	NR	R	R	TEP	EP	1
96–12	Rodenticides on farm and rangelands	R	R	NR	NR	NR	NR	NR	R	NR	NR	EP	1
95–13	Rodent fumigants	R	R	NR	NR	NR	NR	NR	R	R	NR	EP	1
95–16	Rodent reproductive inhibitors	R	R	NR	NR	NR	NR	NR	R	R	NR	EP	1
95–17	Mammalian predacides	R	R	NR	NR	NR	NR	NR	R	NR	NR	EP	1

(e) *Test notes*. The following notes appy to the data requirements table in paragraph (d) of this section.

1. The Agency has waived the requirement to submit product performance data unless the pesticide product bears a claim to control pest microorganisms that pose a threat to human health and whose presence cannot readily be observed by the user including, but not limited to, microorganisms infectious to man in any area of the inanimate environment, or a claim to control vertebrates (such as rodents, birds, bats, canids, and skunks) that may directly or indirectly transmit diseases to humans. However each registrant must ensure through testing that his product is efficacious when used in accordance with label directions and commonly accepted pest control practices. The Agency reserves the right to require, on a case-by-case basis, submission of product performance data for any pesticide product registered or proposed for registration.

2. [Reserved]

Subpart F—Toxicology

§ 158.500 Toxicology data requirements table.

(a) *General*. Sections 158.100 through 158.130 describe how to use the data table in paragraph (d) of this section to determine the toxicology data requirements for a particular pesticide product. Notes that apply to an individual test and include specific conditions, qualifications, or exceptions to the designated test in the table are listed in paragraph (e) of this section.

(b) *Use patterns*. (1) Food use patterns include products classified under the general use patterns of terrestrial food crop use, terrestrial feed crop use, aquatic food crop use, greenhouse food crop use, and indoor food use.

(2) Nonfood use patterns include products classified under the general use patterns of terrestrial nonfood crop use, aquatic nonfood use, greenhouse nonfood crop use, forestry use, residential outdoor use, and indoor nonfood use.

(c) *Key*. R=Required; CR=Conditionally required; NR=Not required; MP=Manufacturing-use product; EP=End-use product; TGAI=Technical grade of the active ingredient; PAI=Pure active ingredient; PAIRA=Pure active ingredient radiolabeled; Choice=Choice of several test substances depending on study required.

(d) *Table*. The following table lists the toxicology data requirements. The table notes are shown in paragraph (e) of this section.

TABLE—TOXICOLOGY DATA REQUIREMENTS

Guideline Number	Data Requirements	Use Pattern		Test substance to support		Test Note No.
		Food	Nonfood	MP	EP	
Acute Testing						
870.1100	Acute oral toxicity - rat	R	R	TGAI and MP	TGAI, EP, and possibly diluted EP	1, 2
870.1200	Acute dermal toxicity	R	R	TGAI and MP	TGAI, EP	1, 2, 3
870.1300	Acute inhalation toxicity - rat	R	R	TGAI and MP	TGAI and EP	4
870.2400	Primary eye irritation - rabbit	R	R	TGAI and MP	TGAI and EP	3

TABLE—TOXICOLOGY DATA REQUIREMENTS—Continued

Guideline Number	Data Requirements	Use Pattern		Test substance to support		Test Note No.
		Food	Nonfood	MP	EP	
870.2500	Primary dermal irritation	R	R	TGAI and MP	TGAI and EP	1, 3
870.2600	Dermal sensitization	R	R	TGAI and MP	TGAI and EP	3, 5
870.6100	Delayed neurotoxicity (acute) - hen	CR	CR	TGAI	TGAI	6
870.6200	Acute neurotoxicity - rat	R	R	TGAI	TGAI	7
Subchronic Testing						
870.3100	90–day Oral - rodent	R	CR	TGAI	TGAI	8, 9
870.3150	90–day Oral - non-rodent	R	CR	TGAI	TGAI	36
870.3200	21/28–day Dermal	R	NR	TGAI	TGAI and EP	10, 11
870.3250	90–day Dermal	CR	R	TGAI	TGAI and EP	11, 12
870.3465	90–day Inhalation - rat	CR	CR	TGAI	TGAI	13, 14
870.6100	28–day Delayed neurotoxicity-hen	CR	CR	TGAI	TGAI	6, 15
870.6200	90–day Neurotoxicity - rat	R	R	TGAI	TGAI	7, 16
Chronic Testing						
870.4100	Chronic oral - rodent	R	CR	TGAI	TGAI	17, 18, 19
870.4200	Carcinogenicity - two rodent species - rat and mouse preferred	R	CR	TGAI	TGAI	9, 17, 18, 19, 20, 21
Developmental Toxicity and Reproduction						
870.3700	Prenatal Developmental toxicity - rat and rabbit, preferred	R	R	TGAI	TGAI	22, 23, 24, 25, 26
870.3800	Reproduction and fertility effects	R	R	TGAI	TGAI	26, 27, 29
870.6300	Developmental neurotoxicity	CR	CR	TGAI	TGAI	27, 28, 29
Mutagenicity Testing						
870.5100	Bacterial reverse mutation assay	R	R	TGAI	TGAI	30
870.5300 870.5375	*In vitro* mammalian cell assay	R	R	TGAI	TGAI	30, 31
870.5385 870.5395	*In vivo* cytogenetics	R	R	TGAI	TGAI	30, 32
Special Testing						
870.7485	Metabolism and pharmacokinetics	R	CR	PAI or PAIRA	PAI or PAIRA	33
870.7200	Companion animal safety	CR	CR	NR	TGAI or EP	34
870.7600	Dermal penetration	CR	CR	Choice	Choice	35
870.7800	Immunotoxicity	R	R	TGAI	TGAI	

(e) *Test notes.* The following test notes apply to the requirements in the table to paragraph (d) of this section:

1. Not required if test material is a gas or a highly volatile liquid.

2. Diluted EP testing is required to support the end product registration if results using the EP meet the criteria for restricted use classification under § 152.170(b) or special review consideration under § 154.7(a)(1).

3. Not required if the test material is corrosive to skin or has a pH of less than 2 or greater than 11.5.

4. Required if the product consists of, or under conditions of use will result in, a respirable material (e.g., gas, vapor, aerosol, or particulate).

5. Required if repeated dermal exposure is likely to occur under conditions of use.

6. Required if the test material is an organophosphorus substance, which includes uncharged organophosphorus esters; thioesters or anhydrides of organophosphoric, organophosphonic, or organophosphoramidic acids; or of related phosphorothioic, phosponothioic, or phosphorothioamidic acids; or is structurally related to other substances that may cause the delayed neurotoxicity sometimes seen in this class of chemicals.

7. As determined by the Agency, additional measurements may also be required, such as cholinesterase activity for certain pesticides, e.g., organophosphates and some carbamates. The route of exposure must correspond with the primary route of exposure.

8. Required for nonfood use pesticides if oral exposure could occur.

9. The 90–day study is required in the rat for hazard characterization (possibly endpoint selection) and dose-setting for the chronic/carcinogenicity study. It is not required in the mouse, but the Agency would strongly encourage the registrant to conduct a 90–day range finding for the purposes of dose selection for the mouse carcinogenicity study to achieve adequate dosing and an acceptable study. The registrant is also encouraged to consult with the Agency on the results of the 90–day mouse study prior to conducting the carcinogenicity study.

10. Required for agricultural uses or if repeated human dermal exposure may occur. Not required if an acceptable 90–day dermal toxicity study is performed and submitted.

11. EP testing is required if the product, or any component of it, may increase dermal absorption of the active ingredient(s) as determined by testing using the TGAI, or increase toxic or pharmacologic effects.

12. Required for food uses if either of the following criteria is met:

(i) The use pattern is such that the dermal route would be the primary route of exposure; or

(ii) The active ingredient is known or expected to be metabolized differently by the dermal route of exposure than by the oral route, and a metabolite is the toxic moiety.

13. Required if there is the likelihood of significant repeated inhalation exposure to the pesticide as a gas, vapor, or aerosol.

14. Based on estimates of the magnitude and duration of human exposure, studies of shorter duration, e.g., 21– or 28–days, may be sufficient to satisfy this requirement. Registrants should consult with the Agency to determine whether studies of shorter duration would meet this requirement.

15. Required if results of acute neurotoxicity study indicate significant statistical or biological effects, or if other available data indicate the potential for this type of delayed neurotoxicity, as determined by the Agency.

16. All 90–day subchronic studies in rats can be designed to simultaneously fulfill the requirements of the 90–day neurotoxicity study using separate groups of animals for testing. Although the subchronic guidelines include the measurement of neurological endpoints, they do not meet the requirement of the 90–day neurotoxicity study.

17. Required if either of the following are met:

(i) The use of the pesticide is likely to result in repeated human exposure over a considerable portion of the human lifespan, as determined by the Agency;

(ii) The use requires a tolerance or an exemption from the requirement of a tolerance.

18. Based on the results of the acute and subchronic neurotoxicity studies, or other available data, a combined chronic toxicity and neurotoxicity study may be required.

19. Studies which are designed to simultaneously fulfill the requirements of both the chronic oral and carcinogenicity studies (i.e., a combined study) may be conducted. Minimum acceptable study durations are:

(i) Chronic rodent feeding study (food use) - 24 months.

(ii) Chronic rodent feeding study (nonfood use) - 12 months.

(iii) Mouse carcinogenicity study - 18 months.

(iv) Rat carcinogenicity study - 24 months.

20. Required if any of the following, as determined by the Agency, are met:

(i) The use of the pesticide is likely to result in significant human exposure over a considerable portion of the human life span which is significant in terms of either frequency, duration, or magnitude of exposure;

(ii) The use requires a tolerance or an exemption from the requirement of a tolerance; or

(iii) The active ingredient, metabolite, degradate, or impurity (a) is structurally related to a recognized carcinogen, (b) causes mutagenic effects as demonstrated by *in vitro* or *in vivo* testing, or (c) produces a morphologic effect in any organ (e.g., hyperplasia, metaplasia) in subchronic studies that may lead to a neoplastic change.

21. If this study is modified or waived, a subchronic 90–day oral study conducted in the same species may be required.

22. Testing in two species is required for all uses.

23. The oral route, by oral intubation, is preferred unless the chemical or physical properties of the test substance or the pattern of exposure suggests a more appropriate route of exposure.

24. Additional testing by other routes may be required if the pesticide is determined to be a prenatal developmental toxicant after oral dosing.

25. May be combined with the 2–generation reproduction study in rodents by utilizing a second mating of the parental animals in either generation.

26. Required to support products intended for food uses and to support products intended for nonfood uses if use of the product is likely to result in significant human exposure over a portion of the human life span in terms of frequency, magnitude or duration of exposure.

27. An information-based approach to testing is preferred, which utilizes the best available knowledge on the chemical (hazard, pharmacokinetic, or mechanistic data) to determine whether a standard guideline study, an enhanced guideline study, or an alternative study should be conducted to assess potential hazard to the developing animal, or in some cases to support a waiver for such testing. Registrants should submit any alternative proposed testing protocols and supporting scientific rationale to the Agency prior to study initiation.

28. Study required using a weight-of-evidence approach considering:

(i) The pesticide causes treatment-related neurological effects in adult animal studies (i.e., clinical signs of neurotoxicity, neuropathology, functional or behavioral effects).

(ii) The pesticide causes treatment-related neurological effects in developing animals, following pre- and postnatal exposure (i.e. nervous system malformations or neuropathy, brain weight changes in offspring, functional or behavioral changes in the offspring).

(iii) The pesticide elicits a causative association between exposures and adverse neurological effects in human epidemiological studies.

(iv) The pesticide evokes a mechanism that is associated with adverse effects on the development of the nervous system (e.g., SAR relationship to known neurotoxicants, altered neuroreceptor or neurotransmitter responses).

29. The use of a combined study that utilizes the 2–generation reproduction study in rodents as a basic protocol for the addition of other endpoints or functional assessments in the immature animal is encouraged.

30. At a minimum, an initial battery of mutagenicity tests with possible confirmatory testing is required. Other relevant mutagenicity tests that may have been performed, plus a complete reference list must also be submitted.

31. Choice of assay using either:

(i) Mouse lymphoma L5178Y cells, thymidine kinase (tk) gene locus, maximizing assay conditions for small colony expression or detection;

(ii) Chinese hamster ovary (CHO) or Chinese hamster lung fibroblast (V79) cells, hypoxanthine-guanine phosphoribosyl transferase (hgprt) gene locus, accompanied by an appropriate *in vitro* test for clastogenicity; or

(iii) CHO cells strains AS52, xanthine-guanine phosphoribosyl transferase (xprt) gene locus.

32. The micronucleus rodent bone marrow assay is preferred; however, rodent bone marrow assays using metaphase analysis (aberrations) are acceptable.

33. Required when chronic or carcinogenicity studies are required. May be required if significant adverse effects are seen in available toxicology studies and these effects can be further elucidated by metabolism studies.

34. May be required if the product's use will result in exposure to domestic animals through, but not limited to, direct application.

35. A risk assessment assuming that dermal absorption is equal to oral absorption must be

performed to determine if the study is required, and to identify the doses and duration of exposure for which dermal absorption is to be quantified.

36. A 1–year non-rodent study (i.e., 1–year dog study) would be required if the Agency finds that a pesticide chemical is highly bioaccumulating and is eliminated so slowly that it does not achieve steady state or sufficient tissue concentrations to elicit an effect during a 90–day study. EPA would require the appropriate tier II metabolism and pharmacokinetic studies to evaluate more precisely bioavailability, half-life, and steady state to determine if a longer duration dog toxicity study is needed.

§ 158.510 Tiered testing options for nonfood pesticides.

For nonfood use pesticides only, applicants have two options for generating and submitting required toxicology (§ 158.500) and human exposure (§ 158.1020, § 158.1070, and § 158.1410) studies. Applicants are to select one of the following:

(a) Acute, subchronic, chronic, and other toxicological studies on the active ingredient must be submitted together. The specific makeup of the set of toxicology study requirements is based on the anticipated exposure to the pesticide as determined by the Agency. If hazards are identified based upon review of these studies, specific exposure data will be required to evaluate risk.

(b) Certain toxicological and exposure studies must be submitted simultaneously with the toxicology data submitted in a tiered system. Exposure data must be submitted along with first tier toxicology data. The requirement for additional second and third level toxicology testing will be determined by the Agency based on the results of the first tiered studies.

(1) The required first-tier toxicology studies consist of:

(i) Battery of acute studies.

(ii) A subchronic 90–day dermal study or a subchronic 90–day inhalation study.

(iii) An acute and subchronic neurotoxicity screening battery in the rat.

(iv) Prenatal developmental toxicity studies in both the rat and rabbit.

(v) Reproduction and fertility studies in rats.

(vi) Battery of mutagenicity studies.

(vii) Immunotoxicity study.

(2) The conditionally required second-tier studies include:

(i) Subchronic 90–day feeding studies in both the rodent and nonrodent.

(ii) Dermal penetration study.

(3) The conditionally required third-tier studies include:

(i) Chronic feeding studies in the rodent.

(ii) Carcinogenicity.

(iii) Metabolism study.

(iv) Additional mutagenicity testing.

Subpart G— Ecological Effects

§ 158.630 Terrestrial and aquatic nontarget organisms data requirements table.

(a) *General.* Sections 158.100 through 158.130 describe how to use this table to determine the terrestrial and aquatic nontarget data requirements for a particular pesticide product. Notes that apply to an individual test including specific conditions, qualifications, or exceptions to the designated test are listed in paragraph (e) of this section.

(b) *Use patterns.* (1) The terrestrial use pattern includes products classified under the general use patterns of terrestrial food crop, terrestrial feed crop, and terrestrial nonfood crop. The aquatic use pattern includes products classified under the general use patterns of aquatic food crop and aquatic nonfood use patterns. The greenhouse use pattern includes products classified under the general use patterns of greenhouse food crop and greenhouse nonfood crop. The indoor use pattern includes products classified under the general use patterns of indoor food and indoor nonfood use.

(2) Data are also required for the general use patterns of forestry and residential outdoor use.

(3) In general, for all outdoor end-uses, including turf, the following studies are required: Two avian oral LD_{50}, two avian dietary LC_{50}, two avian reproduction studies, two freshwater fish LC_{50}, one freshwater invertebrate EC_{50}, one honeybee acute contact LD_{50}, one freshwater fish early-life stage, one freshwater invertebrate life cycle, and three estuarine acute LC_{50}/EC_{50} studies -- fish, mollusk and invertebrate. All other outdoor residential uses, i.e., gardens and ornamental will not usually require the freshwater fish early-life stage, the freshwater invertebrate life-cycle, and the acute estuarine tests.

(c) *Key.* R=Required; CR=Conditionally required; NR=Not required; TGAI=Technical grade of the active ingredient; TEP=Typical end-use product; PAI=Pure active ingredient; EP=end-use product. Commas between the test substances (i.e., TGAI, TEP) indicate that data may be required on the TGAI or the TEP depending on the conditions set forth in the test note.

(d) *Table.* The following table shows the data requirements for nontarget terrestrial and aquatic organism. The table notes are shown in paragraph (e) of this section.

TERRESTRIAL AND AQUATIC NONTARGET ORGANISM DATA REQUIREMENTS

Guideline Number	Data Requirement	Use Pattern						Test substance	Test Note No.
		Terrestrial	Aquatic	Forestry	Residential Outdoor	Greenhouse	Indoor		
Avian and Mammalian Testing									
850.2100	Avian oral toxicity	R	R	R	R	CR	CR	TGAI	1, 2, 3
850.2200	Avian dietary toxicity	R	R	R	R	NR	NR	TGAI	1, 4
850.2400	Wild mammal toxicity	CR	CR	CR	CR	NR	NR	TGAI	5
850.2300	Avian reproduction	R	R	R	R	NR	NR	TGAI	1, 4
850.2500	Simulated or actual field testing	CR	CR	CR	CR	NR	NR	TEP	6, 7
Aquatic Organisms Testing									

TERRESTRIAL AND AQUATIC NONTARGET ORGANISM DATA REQUIREMENTS—Continued

Guideline Number	Data Requirement	Use Pattern						Test substance	Test Note No.
		Terrestrial	Aquatic	Forestry	Residential Outdoor	Greenhouse	Indoor		
850.1075	Freshwater fish toxicity	R	R	R	R	CR	CR	TGAI, TEP	1, 2, 8, 9, 26
850.1010	Acute toxicity freshwater invertebrates	R	R	R	R	CR	CR	TGAI, TEP	1, 2, 9, 10, 26
850.1025 850.1035 850.1045 850.1055 850.1075	Acute toxicity estuarine and marine organisms	R	R	R	R	NR	NR	TGAI, TEP	1, 9, 11, 12, 26
850.1300	Aquatic invertebrate life cycle (freshwater)	R	R	R	R	NR	NR	TGAI	1, 10, 12
850.1350	Aquatic invertebrate life cycle (saltwater)	CR	CR	CR	CR	NR	NR	TGAI	12, 14, 15
850.1400	Fish early-life stage (freshwater)	R	R	R	R	NR	NR	TGAI	1, 12, 13
850.1400	Fish early-life stage (saltwater)	CR	CR	CR	CR	NR	NR	TGAI	12, 15, 16
850.1500	Fish life cycle	CR	CR	CR	CR	NR	NR	TGAI	17, 18
850.1710 850.1730 850.1850	Aquatic organisms bioavailability, biomagnification, toxicity	CR	CR	CR	CR	NR	NR	TGAI, PAI, degradate	19
850.1950	Simulated or actual field testing for aquatic organisms	CR	CR	CR	CR	NR	NR	TEP	7, 20
Sediment Testing									
850.1735	Whole sediment: acute freshwater invertebrates	CR	CR	CR	CR	NR	NR	TGAI	21
850.1740	Whole sediment: acute marine invertebrates	CR	CR	CR	CR	NR	NR	TGAI	21, 23
	Whole sediment: chronic invertebrates freshwater and marine	CR	CR	CR	CR	NR	NR	TGAI	22, 23
Insect Pollinator Testing									
850.3020	Honeybee acute contact toxicity	R	CR	R	R	NR	NR	TGAI	1
850.3030	Honey bee toxicity of residues on foliage	CR	CR	CR	CR	NR	NR	TEP	24
850.3040	Field testing for pollinators	CR	CR	CR	CR	NR	NR	TEP	25

(e) *Test notes.* The following test notes apply to terrestrial and aquatic nontarget organisms data requirements in the table to paragraph (d) of this section:

1. Data using the TGAI are required to support all outdoor end-use product uses including, but not limited to turf. Data are generally not required to support end-use products in the form of a gas, a highly volatile liquid, a highly reactive solid, or a highly corrosive material.

2. For greenhouse and indoor end-use products, data using the TGAI are required to support manufacturing-use products to be reformulated into these same end-use products or to support end-use products when there is no registered manufacturing-use product. Avian acute oral data are not required for liquid formulations for greenhouse and indoor uses. The study is not required if there is no potential for environmental exposure.

3. Data are required on one passerine species and either one waterfowl species or one upland game bird species for terrestrial, aquatic, forestry, and residential outdoor uses. Data are preferred on waterfowl or upland game bird species for indoor and greenhouse uses.

4. Data are required on waterfowl and upland game bird species.

5. Tests are required based on the results of lower tier toxicology studies, such as the acute and subacute testing, intended use pattern, and environmental fate characteristics that indicate potential exposure.

6. Higher tier testing may be required for a specific use pattern when a refined risk assessment indicates a concern based on laboratory toxicity endpoints and refined exposure assessments.

7. Environmental chemistry methods used to generate data associated with this study must include results of a successful confirmatory method trial by an independent laboratory. Test standards and procedures for independent laboratory validation are available as addenda to the guideline for this test requirement.

8. Data are required on one coldwater fish and one warmwater fish for terrestrial, aquatic, forestry, and residential outdoor uses. For indoor and greenhouse uses, testing with only one of either fish species is required.

9. EP or TEP testing is required for any product which meets any of the following conditions:

i. The end-use pesticide will be introduced directly into an aquatic environment (e.g., aquatic herbicides and mosquito larvicides) when used as directed.

ii. The maximum expected environmental concentration (MEEC) or the estimated environmental concentration (EEC) in the aquatic environment is ≥ one-half the LC_{50} or EC_{50} of the TGAI when the EP is used as directed.

iii. An ingredient in the end-use formulation other than the active ingredient is expected to enhance the toxicity of the active ingredient or to cause toxicity to aquatic organisms.

10. Data are required on one freshwater aquatic invertebrate species.

11. Data are required on one estuarine/marine mollusk, one estuarine/marine invertebrate and one estuarine/marine fish species.

12. Data are generally not required for outdoor residential uses, other than turf, unless data indicate that pesticide residues from the proposed use(s) can potentially enter waterways.

13. Data are required on one freshwater fish species. If the test species is different from the two species used for the freshwater fish acute toxicity tests, a 96–hour LC_{50} on that species must also be provided.

14. Data are required on one estuarine/marine invertebrate species.

15. Data are required on estuarine/marine species if the product meets any of the following conditions:

i. Intended for direct application to the estuarine or marine environment.

ii. Expected to enter this environment in significant concentrations because of its expected use or mobility patterns.

iii. If the acute LC_{50} or EC_{50} < 1 milligram/liter (mg/l).

iv. If the estimated environmental concentration (EEC) in water is ≥ 0.01 of the acute EC_{50} or LC_{50} or if any of the following conditions exist:

A. Studies of other organisms indicate the reproductive physiology of fish and/or invertebrates may be affected.

B. Physicochemical properties indicate bioaccumulation of the pesticide.

C. The pesticide is persistent in water (e.g., half-life in water > 4 days).

16. Data are required on one estuarine/marine fish species.

17. Data are required on estuarine/marine species if the product is intended for direct application to the estuarine or marine environment, or the product is expected to enter this environment in significant concentrations because of its expected use or mobility patterns.

18. Data are required on freshwater species if the end-use product is intended to be applied directly to water, or is expected to be transported to water from the intended use site, and when any of the following conditions apply:

i. If the estimated environmental concentration (EEC) is ≥ 0.1 of the no-observed-effect level in the fish early-life stage or invertebrate life cycle test;

ii. If studies of other organisms indicate that the reproductive physiology of fish may be affected.

19. Not required when:

i. The octanol/water partition coefficients of the pesticide and its major degradates are < 1,000; or

ii. There are no potential exposures to fish and other nontarget aquatic organisms; or

iii. The hydrolytic half-life is < 5 days at pH 5, 7 and 9.

20. Data are required based on the results of lower tier studies such as acute and chronic aquatic organism testing, intended use pattern, and environmental fate characteristics that indicate significant potential exposure.

21. Data are required if:

i. The half-life of the pesticide in the sediment is ≤ 10 days in either the aerobic soil or aquatic metabolism studies and if any of the following conditions exist:

A. The soil partition coefficient (Kd) is ≥ 50.

B. The log Kow is ≥ 3.

C. The Koc ≥ 1,000.

ii. Registrants must consult with the Agency on appropriate test protocols prior to designing the study.

22. Data are required if:

i. The estimated environmental concentration (EEC) in sediment is > 0.1 of the acute LC_{50}/EC_{50} values and

ii. The half-life of the pesticide in the sediment is > 10 days in either the aerobic soil or aquatic metabolism studies and if any of the following conditions exist:

A. The soil partition coefficient (Kd) is ≥ 50.

B. The log Kow is ≥ 3.

C. The Koc ≥ 1,000.

iii. Registrants must consult with the Agency on appropriate test protocols prior to designing the study.

23. Sediment testing with estuarine/marine test species is required if the product is intended for direct application to the estuarine or marine environment or the product is expected to enter this environment in concentrations which the Agency believes to be significant, either by runoff or erosion, because of its expected use or mobility pattern.

24. Data are required only when the formulation contains one or more active ingredients having an acute LD_{50} of < 11 micrograms per bee as determined in the honey bee acute contact study and the use pattern(s) indicate(s) that honey bees may be exposed to the pesticide.

25. Required if any of the following conditions are met:

i. Data from other sources (Experimental Use Permit program, university research, registrant submittals, etc.) indicate potential adverse effects on colonies, especially effects other than acute mortality (reproductive, behavioral, etc.);

ii. Data from residual toxicity studies indicate extended residual toxicity.

iii. Data derived from studies with terrestrial arthropods other than bees indicate potential chronic, reproductive or behavioral effects.

26. The freshwater fish test species for the TEP testing is the most sensitive of the species tested with the TGAI. Freshwater invertebrate and acute estuarine and marine organisms must also be tested with the EP or TEP using the same species tested with the TGAI.

§ 158.660 Nontarget plant protection data requirements table.

(a) *General.* Sections 158.100 through158.130 describe how to use this table to determine the nontarget plant data requirements for a particular pesticide product. Notes that apply to an individual test and include specific conditions, qualifications, or exceptions to the designated test are listed in paragraph (e) of this section.

(b) *Use patterns.* (1) The terrestrial use pattern includes products classified under the general use patterns of terrestrial food crop, terrestrial feed crop, and terrestrial nonfood. The aquatic use pattern includes only the general use patterns of aquatic food crops and aquatic nonfood.

(2) Data are also required for the general use patterns of forestry use and residential outdoor use.

(c) *Key.* R=Required; CR=Conditionally required; NR=Not required; TGAI=Technical grade of the active ingredient; TEP=Typical end-use product.

(d) *Table.* The following table shows the nontarget plant protection data requirements. The table notes are shown in paragraph (e) of this section.

TABLE—NONTARGET PLANT PROTECTION DATA REQUIREMENTS

Guideline Number	Data Requirement	Use Pattern			Test substance	Test Note No.
		Terrestrial	Aquatic	Forestry and Residential Outdoor		
Nontarget Area Phytotoxicity - Tier I						
850.4100	Seedling emergence	R	R	R	TEP	1, 2, 7
850.4150	Vegetative vigor	R	R	R	TEP	1, 2, 3, 7
850.4400 850.5400	Aquatic plant growth (algal and aquatic vascular plant toxicity)	R	R	R	TEP or TGAI	1, 2, 7
Nontarget Area Phytotoxicity - Tier II						
850.4100	Seedling emergence	CR	CR	CR	TEP	1, 4, 5, 7
850.4150	Vegetative vigor	CR	CR	CR	TEP	1, 3, 4, 5, 7
850.4400 850.5400	Aquatic plant growth (algal and aquatic vascular plant toxicity)	CR	CR	CR	TEP or TGAI	1, 4, 6, 7
Nontarget Area Phytotoxicity - Tier III						
850.4300	Terrestrial field	CR	CR	CR	TEP	1, 7, 8, 10
850.4450	Aquatic field	CR	CR	CR	TEP	1, 7, 8, 10
Target Area Phytotoxicity						
850.4025	Target area phytotoxicity	CR	CR	CR	TEP	1, 7, 9, 10

(e) *Test notes.* The following test notes apply to the table in paragraph (d) of this section.

1. Not required for contained pesticide treatments such as bait boxes and pheromone traps unless adverse effects reports are received by the Agency.

2. Not required for known phytotoxicants.

3. Generally not required for granular formulations. May be requested on a case-by-case basis.

4. Required for known phytotoxicants such as herbicides, desiccants and defoliants.

5. Required if a tested terrestrial species exhibits a 25 percent or greater detrimental effect in the Tier I study. When Tier II testing is required, the test species should be the species that showed detrimental effects in the Tier I testing.

6. Required if the tested aquatic species exhibits a 50 percent or greater detrimental effect in the Tier I study. When Tier II testing is required, the test species should be the species that showed detrimental effects in the tier I testing.

7. Not required for aquatic residential uses.

8. Environmental chemistry methods used to generate data must include the results of a successful confirmatory method trial by an independent laboratory.

9. Tests are required on a case-by-case basis based on the results of lower tier phytotoxicity studies, adverse incident reports, intended use pattern, and environmental fate characteristics that indicate potential exposure.

10. Registrants must consult with the Agency on appropriate test protocols prior to designing the study.

Subparts H - J [Reserved]

§§ 158.700 - 158.900 [Reserved]

Subpart K—Human Exposure

§ 158.1000 Applicator exposure—general requirements.

(a) If EPA determines that industrial standards, such as the workplace standards set by the Occupational Safety and Health Administration (OSHA), provide adequate protection from risk under FIFRA for a particular pesticide use pattern, exposure data may not be required for that use pattern. Applicants should consult with the Agency on appropriate testing prior to the initiation of studies.

(b) The Agency may accept surrogate exposure data estimations from other sources to satisfy applicator exposure data requirements if the data meet the basic quality assurance, quality control, good laboratory practice, and other scientific requirements set by EPA. In order to be acceptable, the Agency must find that the surrogate exposure data estimations have adequate information to address applicator exposure data requirements and contain adequate replicates of acceptable quality data to reflect the specific use prescribed on the label and the applicator activity of concern, including formulation type, application methods and rates, type of activity, and other pertinent information. The Agency will consider using such surrogate data for evaluating human exposure on a case-by-case basis.

§ 158.1010 Applicator exposure—criteria for testing .

Applicator exposure data described in paragraph (d) of this section are required based on toxicity and exposure criteria. Data are required if a product meets, as determined by the Agency, at least one of the toxicity criteria in paragraph (a) of this section and either or both of the exposure criteria in paragraph (b) of this section.

(a) *Toxicity criteria.* (1) Evidence of potentially significant adverse effects have been observed in any applicable toxicity study.

(2) Scientifically sound epidemiological or poisoning incident data indicate that adverse health effects may have resulted from handling of the pesticide.

(b) *Exposure criteria.* (1) Dermal exposure may occur during the prescribed use.

(2) Respiratory exposure may occur during the prescribed use.

§ 158.1020 Applicator exposure data requirements table.

(a) *General.* Sections 158.100 through 158.130 describe how to use this table to determine the applicator exposure data requirements for a particular pesticide product. Notes that apply to an individual test and include specific conditions, qualifications, or exceptions to the designated test are listed in paragraph (e) of this section.

(b) *Use patterns.* (1) Occupational use patterns include products classified under the general use patterns of terrestrial food crop, terrestrial feed crop, terrestrial nonfood crop, aquatic food, aquatic nonfood use, forestry, greenhouse food, greenhouse nonfood, indoor food use, and indoor nonfood use. Occupational use patterns also include commercial (''for hire'') applications to residential outdoor and indoor sites.

(2) Residential use patterns include residential outdoor use and residential indoor use. These use patterns are limited to nonoccupational, *i.e.*, nonprofessional, pesticide applications.

(c) *Key.* R=Required; CR=Conditionally required; TEP=Typical end-use product.

(d) *Table.* The data requirements listed pertain to pesticide products that meet the testing criteria outlined in § 158.1010. The table notes are shown in paragraph (e) of this section.

TABLE—APPLICATOR EXPOSURE DATA REQUIREMENTS

Guideline Number	Data requirement	Use pattern		Test substance	Test Note No.
		Occupational	Residential		
875.1100	Dermal outdoor exposure	R	R	TEP	1, 2, 3
875.1200	Dermal indoor exposure	R	R	TEP	1, 2, 4
875.1300	Inhalation outdoor exposure	R	R	TEP	1, 2, 3
875.1400	Inhalation indoor exposure	R	R	TEP	1, 2, 4
875.1500	Biological monitoring	CR	CR	TEP	1, 2
875.1600	Data reporting and calculations	R	R	TEP	5
875.1700	Product use information	R	R	TEP	--

(e) *Test notes.* The following notes apply to the data requirements in the table to paragraph (d) of this section:

1. Protocols must be submitted for approval prior to the initiation of the study. Details for developing protocols are available from the Agency.

2. Biological monitoring data may be submitted in addition to, or in lieu of, dermal and inhalation exposure data, provided the human pharmacokinetics of the pesticide and/or metabolite/analog compounds (i.e., whichever method is selected as an indicator of body burden or internal dose) allow for the back calculation to actual dose.

3. Data are required if the product is applied outdoors.

4. Data are required if the product is applied indoors.

5. Data reporting and calculations are required when handler exposure data are submitted.

§ 158.1050 Post-application exposure—general requirements.

(a) If EPA determines that industrial standards, such as the workplace standards set by the Occupational Safety and Health Administration, provide adequate protection for a particular pesticide use pattern, post-application exposure data may not be required for that use pattern. Applicants should consult with the Agency on appropriate testing before the initiation of studies.

(b) The Agency may accept surrogate exposure data from other sources to satisfy post-application exposure data requirements if the data meet the basic quality assurance, quality control, good laboratory practice, and other scientific needs of EPA. In order to be acceptable, among other things, the Agency must find that the surrogate exposure data have adequate information to address post-application exposure data requirements and contain adequate replicates of acceptable quality data to reflect the specific use prescribed on the label and the post-application activity of concern, including formulation type, application methods and rates, type of activity, and other pertinent information. The Agency will consider using such surrogate data for evaluating human exposure on a case-by-case basis.

§ 158.1060 Post-application exposure—criteria for testing

Exposure data described in § 158.1070(d) are required based upon toxicity and exposure criteria. Data are required if a product meets, as determined by the Agency, either or both of the toxicity criteria in paragraph (a) of this section and either or both of the exposure criteria in paragraph (b) of this section.

(a) *Toxicity criteria.* (1) Evidence of potentially significant adverse health effects have been observed in any applicable toxicity study.

(2) Scientifically sound epidemiological or poisoning incident data indicate that adverse health effects may have resulted from post-application exposure to the pesticide.

(b) *Exposure criteria.* The need for data from potential exposure resulting from situations not covered by this paragraph should be discussed with the Agency.

(1) *For outdoor uses.* (i) Occupational human post-application exposure to pesticide residues on plants or in soil

could occur as the result of cultivation, pruning, harvesting, mowing or other work-related activity. Such uses include agricultural food, feed, and fiber commodities, forest trees, ornamental plants, and turf grass.

(ii) Residential human post-application exposure to pesticide residues on plants or in soil could occur. Such uses may include turf grass, fruits, vegetables, and ornamentals grown at sites, including, but not limited to, homes, parks, and recreation areas.

(2) *For indoor uses.* (i) Occupational human post-application exposure to pesticide residues could occur following the application of the pesticide to indoor spaces or surfaces at agricultural or commercial sites, such as, but not limited to, agricultural animal facilities and industrial or manufacturing facilities.

(ii) Residential human post-application exposure to pesticide residues could occur following the application of the pesticide to indoor spaces or surfaces at residential sites, such as, but not limited to homes, daycare centers, hospitals, schools, and other public buildings.

§ 158.1070 Post-application exposure data requirements table .

(a) *General.* Sections 158.100 through 158.130 describe how to use this table to determine the post-application data requirements for a particular pesticide product. Notes that apply to an individual test and include specific conditions, qualifications, or exceptions to the designated test are listed in paragraph (e) of this section.

(b) *Use patterns.* (1) Occupational use patterns include products classified under the general use patterns of terrestrial food crop, terrestrial feed crop, terrestrial nonfood use, aquatic food, aquatic nonfood use, forestry, greenhouse food, greenhouse nonfood, indoor food, and indoor nonfood. Occupational use patterns also include commercial (''for hire'') applications to residential outdoor and indoor sites.

(2) Residential use patterns include residential outdoor use and indoor residential use. These use patterns are limited to nonoccupational, *i.e.*, nonprofessional, pesticide applications.

(c) *Key.* R=Required; CR=Conditionally required; NR=Not required; TEP=Typical end-use product.

(d) *Table.* The data requirements listed in the following table pertain to pesticide products that meet the testing criteria outlined in § 158.1060. The table notes are shown in paragraph (e) of this section.

TABLE—POST-APPLICATION EXPOSURE DATA REQUIREMENTS

Guideline Number	Data Requirement	Use Pattern		Test Substance	Test Note No.
		Occupational	Residential		
875.2100	Dislodgeable foliar residue and turf transferable residues	R	R	TEP	1, 2, 3, 4, 5
875.2200	Soil residue dissipation	R	CR	TEP	1, 2, 6, 7
875.2300	Indoor surface residue dissipation	R	R	TEP	1, 2, 8, 9
875.2400	Dermal exposure	R	R	TEP	1, 2, 10, 11, 12
875.2500	Inhalation exposure	R	R	TEP	1, 10, 11, 12
875.2600	Biological monitoring	CR	CR	TEP	1, 12, 13
875.2700	Product use information	R	R	TEP	--
875.2800	Description of human activity	R	R	TEP	--
875.2900	Data reporting and calculations	R	R	TEP	14
875.3000	Nondietary ingestion exposure	NR	R	TEP	1, 11, 15

(e) *Test notes.* The following test notes apply to the data requirements in the table to paragraph (d) of this section:

1. Protocols must be submitted for approval prior to the initiation of the study. Details for developing protocols are available from the Agency.

2. Bridging applicable residue dissipation data to dermal exposure data is required.

3. Turf grass transferable residue dissipation data are required when pesticides are applied to turf grass. Dislodgeable foliar residue dissipation data are required when pesticides are applied to the foliage of plants other than turf grass.

4. Data are required for occupational sites if (i) there are uses on turf grass or other plant foliage, and (ii) the human activity data indicate that workers are likely to have post-application dermal contact with treated foliage while participating in typical activities.

5. Data are required for residential sites if there are uses on turf grass or other plant foliage.

6. Data are required for occupational sites, if (i) there are outdoor or greenhouse uses to or around soil or other planting media, and (ii) the human activity data indicate that workers are likely to have post-application dermal contact with treated soil or planting media while participating in typical activities.

7. Data are required for residential sites if the pesticide is applied to or around soil or other planting media both outdoors and indoors, *e.g.*, residential greenhouse or houseplant uses.

8. Data are required for occupational sites if the pesticide is applied to or around on non-plant surfaces, *e.g.*, flooring or countertops, and if the human activity data indicate that workers are likely to have post-application dermal contact with treated indoor surfaces while participating in typical activities.

9. Data are required for residential sites if the pesticide is applied to or around non-plant surfaces, *e.g.*, flooring and countertops.

10. Data are required for occupational sites if the human activity data indicate that workers are likely to have post-application exposures while participating in typical activities.

11. Data are required for residential sites if post-application exposures are likely.

12. Biological monitoring data may be submitted in addition to, or in lieu of, dermal and inhalation exposure data provided the human pharmocokinetics of the pesticide and/or metabolite/analog compounds (*i.e.*, whichever method is selected as an indicator of body burden or internal dose) allow for a back-calculation to the total internal dose.

13. Data are required when passive dosimetry techniques are not applicable for a particular exposure scenario, such as a swimmer exposure to pesticides.

14. Data reporting and calculations are required when any post-application exposure monitoring data are submitted.

15. The selection of a sampling method will depend on the nondietary pathway(s) of interest. Data must be generated to consider all potential pathways of nondietary ingestion exposure that are applicable (*e.g.*, soil ingestion, hand-to-mouth transfer, and object-to-mouth transfer of surface residues).

Subpart L—Spray Drift

§ 158.1100 Spray drift data requirements table.

(a) *General.* Sections 158.100 through 158.130 describe how to use this table to determine the spray drift data requirements for a particular pesticide product. Notes that apply to an individual test, including specific conditions, qualifications, or exceptions to the designated test are listed in paragraph (e) of this section.

(b) *Use patterns.* The terrestrial use pattern includes products classified under the general use patterns of terrestrial food crop and terrestrial nonfood crop. The aquatic use pattern includes products classified under the general use patterns of aquatic food crop and aquatic nonfood. The greenhouse use pattern includes products classified under the general use patterns of greenhouse food crop and greenhouse nonfood crop. Data are also required for the general use patterns of forestry use, residential outdoor use, and indoor use.

(c) *Key.* CR=Conditionally required; NR=Not required; TEP=Typical end-use product; MP=Manufacturing use product; EP=End-use product.

(d) *Table.* The following table lists the data requirements that pertain to spray drift. The table notes are shown in paragraph (e) of this section.

TABLE—SPRAY DRIFT DATA REQUIREMENTS

Guideline Number	Data Requirement	Use Pattern									Test substance		Test Note No.
		Terrestrial		Aquatic		Greenhouse		Forestry	Residential Outdoor	Indoor	MP	EP	
		Food Crop	Nonfood Crop	Food	Nonfood	Food Crop	Nonfood Crop						
201–1	Droplet size spectrum	CR	CR	CR	CR	NR	NR	CR	NR	NR	TEP	TEP	1
202–1	Droplet size spectrum	CR	CR	CR	CR	NR	NR	CR	NR	NR	TEP	TEP	1

(e) *Test notes.* The following notes apply to the requirements in the table to paragraph (d) of this section:

1. This study is required when aerial applications (rotary and fixed winged) and mist blower or other methods of ground application are proposed and it is estimated that the detrimental effect level of those nontarget organisms expected to be present would be exceeded. The nontarget organisms include humans, domestic animals, fish and wildlife, and nontarget plants.

2. [Reserved]

Subpart M—[Reserved]

§§ 158.1200 – 158.1299 [Reserved]

Subpart N—Environmental Fate

§ 158.1300 Environmental fate data requirements table.

(a) *General.* All environmental fate data, as described in paragraph (c) of this section, must be submitted to support a request for registration.

(b) *Use patterns.* (1) The terrestrial use pattern includes products classified under the general use patterns of terrestrial food crop, terrestrial feed crop, and terrestrial nonfood. The aquatic use pattern includes the general use patterns of aquatic food crop, and aquatic nonfood. The greenhouse use pattern includes both food and nonfood uses. The indoor use pattern includes food, nonfood, and residential indoor uses.

(2) Data are also required for the general use patterns of forestry use and residential outdoor use.

(c) *Key.* CR=Conditionally required; NR=Not required; R=Required; PAIRA=Pure active ingredient radiolabeled; TGAI=Technical grade of the active ingredient; TEP=Typical end-use product.

(d) *Table.* The following table shows the data requirements for environmental fate. The test notes are shown in paragraph (e) of this section.

TABLE—ENVIRONMENTAL FATE DATA REQUIREMENTS

Guideline Number	Data Requirement	Use Pattern						Test substance	Test Note No.
		Terrestrial	Aquatic	Greenhouse	Indoor	Forestry	Residential Outdoor		
Degradation Studies - Laboratory									
835.2120	Hydrolysis	R	R	R	CR	R	R	TGAI or PAIRA	1
835.2240	Photodegradation in water	R	R	NR	NR	R	NR	TGAI or PAIRA	2

TABLE—ENVIRONMENTAL FATE DATA REQUIREMENTS—Continued

Guideline Number	Data Requirement	Use Pattern						Test substance	Test Note No.
		Terrestrial	Aquatic	Greenhouse	Indoor	Forestry	Residential Outdoor		
835.2410	Photodegradation on soil	R	NR	NR	NR	R	NR	TGAI or PAIRA	3
835.2370	Photodegradation in air	CR	NR	CR	NR	CR	CR	TGAI or PAIRA	4
Metabolism Studies - Laboratory									
835.4100	Aerobic soil	R	CR	R	NR	R	R	TGAI or PAIRA	5
835.4200	Anaerobic soil	R	NR	NR	NR	NR	NR	TGAI or PAIRA	--
835.4300	Aerobic aquatic	R	R	NR	NR	R	NR	TGAI or PAIRA	--
835.4400	Anaerobic aquatic	R	R	NR	NR	R	NR	TGAI or PAIRA	--
Mobility Studies									
835.1230 835.1240	Leaching and adsorption/ desorption	R	R	R	NR	R	R	TGAI or PAIRA	6
835.1410	Volatility - laboratory	CR	NR	CR	NR	NR	NR	TEP	4
835.8100	Volatility - field	CR	NR	CR	NR	NR	NR	TEP	--
Dissipation Studies - Field									
835.6100	Terrestrial	R	CR	NR	NR	CR	R	TEP	5, 7, 12
835.6200	Aquatic (sediment)	CR	R	NR	NR	NR	NR	TEP	7, 8
835.6300	Forestry	NR	NR	NR	NR	CR	NR	TEP	7, 9, 12
835.6400	Combination and tank mixes	CR	CR	NR	NR	NR	NR	TEP	10
Ground Water Monitoring									
835.7100	Ground water monitoring	CR	NR	NR	NR	CR	CR	TEP	7, 9, 11

(e) *Test notes*. The following test notes apply to the requirements in the table to paragraph (d) of this section:

1. Study is required for indoor uses in cases where environmental exposure is likely to occur. Such sites include, but are not limited to, agricultural premises, in or around farm buildings, barnyards, and beehives.

2. Not required when the electronic absorption spectra, measured at pHs 5, 7, and 9, of the chemical and its hydrolytic products, if any, show no absorption or tailing between 290 and 800 nm.

3. Not required when the chemical is to be applied only by soil injection or is incorporated in the soil.

4. Requirement based on use patterns and other pertinent factors including, but not limited to, the Henry's Law Constant of the chemical. In view of methodological difficulties with the study of photodegradation in air, prior consultation with the Agency regarding the protocol is recommended before the test is performed.

5. Required for aquatic food and nonfood crop uses for aquatic sites that are intermittently dry. Such sites include, but are not limited to, cranberry bogs and rice paddies.

6. Adsorption and desorption using a batch equilibrium method is preferred. However in some cases, for example, where the pesticide degrades rapidly, soil column leaching with unaged or aged columns may be more appropriate to fully characterize the potential mobility of the parent compound and major transformation products.

7. Environmental chemistry methods used to generate data associated with this study must include results of a successful confirmatory method trial by an independent laboratory. Test standards and procedures for independent laboratory validation are available as addenda to the guideline for this test requirement.

8. Requirement for terrestrial uses is based on potential for aquatic exposure and if pesticide residues have the potential for persistence, mobility, nontarget aquatic toxicity or bioaccumulation. Not required for aquatic residential uses. Field testing under the terrestrial field dissipation requirement may be more appropriate for some aquatic food crops, such as rice and cranberry uses, that are managed to have a dry-land period for production. The registrant is encouraged to consult with the Agency on protocols.

9. Agency approval of a protocol is necessary prior to initiation of the study.

10. This study may be triggered if there is specific evidence that the presence of one pesticide can affect the dissipation characteristics of another pesticide when applied simultaneously or serially.

11. Required if the weight-of-evidence indicates that the pesticide and/or its degradates is likely to leach to ground water, taking into account other factors such as the toxicity of the chemicals(s), available monitoring data, and the vulnerability of ground water resources in the pesticide use area.

12. If the terrestrial dissipation study cannot assess all of the major routes of dissipation, the forestry study will be required.

Subpart O—Residue Chemistry

§ 158.1400 Definitions.

The following terms are defined for the purposes of this subpart:

Livestock, for the purposes of this section, includes all domestic animals that are bred for human consumption, including, but not limited to, cattle, swine, sheep, and poultry.

Plant or animal metabolite means a pesticide chemical residue that is the result of biological breakdown of the parent pesticide within the plant or animal.

Residue of concern means the parent pesticidal compound and its metabolites, degradates, and impurities of toxicological concern.

Tolerance, for the purposes of this section, includes the establishment of a new tolerance or tolerance exemption, or amended tolerance or tolerance exemption.

§ 158.1410 Residue chemistry data requirements table.

(a) *General.* Sections 158.100 through 158.130 describe how to use this table to determine the residue chemistry data requirements for a particular pesticide product. Notes that apply to an individual test and include specific conditions, qualifications, or exceptions to the designated test are listed in paragraph (e) of this section.

(b) *Use patterns.* (1) Data are required or conditionally required for all pesticides used in or on food and for residential outdoor uses where food crops are grown. Food use patterns include products classified under the general use patterns of terrestrial food crop use, terrestrial feed crop use, aquatic food crop use, greenhouse food crop use, and indoor food use.

(2) Data may be required for nonfood uses if pesticide residues may occur in food or feed as a result of the use. Data requirements for these nonfood uses will be determined on a case-by-case basis. For example, most products used in or near kitchens require residue data for risk assessment purposes even though tolerances may not be necessary in all cases.

(c) *Key.* R=Required; CR=Conditionally required; NR=Not required; TGAI=Technical grade of the active ingredient; PAI=Pure active ingredient; PAIRA=Pure active ingredient radio-labeled; Residue of concern= the active ingredient and its metabolites, degradates, and impurities of toxicological concern; TEP=Typical end-use product.

(d) *Table.* The following table list the data requirements for residue chemistry related to food uses. The table notes are shown in paragraph (e) of this section.

TABLE—RESIDUE CHEMISTRY DATA REQUIREMENTS FOR FOOD USES

Guideline Number	Data Requirement	Use Pattern					Test substance	Test Note No.
		Terrestrial Food or Feed	Aquatic Food	Greenhouse Food	Indoor Food	Residential Outdoor		
Supporting Information								
860.1100	Chemical identity	R	R	R	R	R	TGAI	--
860.1200	Directions for use	R	R	R	R	R	--	--
860.1550	Proposed tolerance	R	R	R	CR	NR	--	1
860.1560	Reasonable grounds in support of petition	R	R	R	CR	NR	--	1
860.1650	Submittal of analytical reference standards	R	R	R	CR	NR	PAI and residue of concern	1, 2, 25
Nature of the residue								
860.1300	Nature of the residue in plants	R	R	R	CR	CR	PAIRA	3, 4, 25
860.1300	Nature of the residue in livestock	CR	CR	CR	CR	NR	PAIRA or radiolabeled plant metabolite	1, 6, 25
860.1850	Confined rotational crops	CR	CR	NR	NR	NR	PAIRA	7
Analytical methods								
860.1340	Residue analytical methods	R	R	R	CR	CR	Residue of concern	1, 3, 8, 9, 10, 25
860.1360	Multiresidue method	R	R	R	CR	NR	Residue of concern	1, 11, 25

TABLE—RESIDUE CHEMISTRY DATA REQUIREMENTS FOR FOOD USES—Continued

Guideline Number	Data Requirement	Use Pattern					Test substance	Test Note No.
		Terrestrial Food or Feed	Aquatic Food	Greenhouse Food	Indoor Food	Residential Outdoor		
Magnitude of the residue								
860.1380	Storage stability	R	R	R	CR	CR	TEP or residue of concern	1, 3, 10, 12, 25
860.1500	Crop field trials	R	R	R	CR	CR	TEP	3, 10, 14, 24, 25
860.1520	Processed food or feed	CR	CR	CR	CR	NR	TEP	1, 15, 25
860.1480	Meat/milk/poultry/eggs	CR	CR	CR	CR	NR	TGAI or plant metabolite	1, 16, 17, 18, 25
860.1400	Potable water	NR	R	NR	NR	NR	TEP	19, 25
860.1400	Fish	NR	R	NR	NR	NR	TEP	5, 25
860.1400	Irrigated crops	NR	CR	NR	NR	NR	TEP	20, 25
860.1460	Food handling	NR	NR	NR	CR	NR	TEP	1, 21, 25
860.1540	Anticipated residues	CR	CR	CR	CR	NR	Residue of concern	1, 13, 22, 26
860.1900	Field rotational crops	CR	CR	NR	NR	NR	TEP	23, 25

(e) *Test notes.* The following test notes apply to the data requirements in the table to paragraph (d) of this section.

1. Required if indoor use could result in pesticide residues in or on food or feed.

2. Material safety data sheets must accompany standards as specified by OSHA in 29 CFR 1910.1200.

3. Required for residential outdoor uses on food crops if the corresponding agricultural use is not approved or the residential use is expected to produce higher residues based on the label directions.

4. Required for indoor uses where the pesticide is applied directly to food, in order to determine metabolites and/or degradates. Not required when only indirect contact with food would occur (*e.g.*, crack and crevice treatments).

5. Data for fish are required for all pesticides applied directly to water inhabited, or which will be inhabited, by fish that may be caught or harvested for human consumption.

6. Required when a pesticide is to be applied directly to livestock, to livestock premises, to livestock drinking water, or to crops used for livestock feed. If results from the plant metabolism study show differing metabolites in plants from those found in animals, an additional livestock metabolism study involving dosing with the plant metabolite(s) may also be required.

7. Required when the Agency determines that it is reasonably foreseeable that a food or feed crop could be subsequently planted on the site of pesticide application after harvest or failure of the treated crop. Typically not required for pesticide uses in permanent food crops (e.g., various tree crops, vines) or semi-permanent crops (e.g., asparagus, pineapples).

8. A residue analytical method suitable for enforcement purposes is required whenever a numeric tolerance (including temporary and time-limited tolerances) is proposed.

9. New analytical methods to be used for enforcement purposes must include results from an independent laboratory validation.

10. A residue method, storage stability data, and crop field trials are required for the nonfood crop tobacco (green, freshly harvested). Depending on the level of residues found on the green tobacco, additional data may be required on cured/dried tobacco and pyrolysis products.

11. Data are required to determine whether FDA/USDA multiresidue methodology would detect and identify the pesticides and any metabolites.

12. Data are required for any magnitude of the residue study unless analytical samples are stored frozen for 30 days or less, and the active ingredient is not known to be volatile or labile.

13. Studies using single serving samples of a raw agricultural commodity may be needed for acutely toxic pesticides and/or their metabolites. These residue studies must be conducted using a statistical design accepted by the Agency.

14. Required for indoor uses which are direct postharvest treatments of raw agricultural commodities (*e.g.*, fungicidal waxes or stored grain fumigants).

15. Data on the nature and level of residues in processed food/feed are required if residues could potentially concentrate on processing thus requiring the establishment of a separate tolerance higher than that of the raw agricultural commodity.

16. Required when the pesticide use is a direct application to livestock.

17. Data are required if pesticide residues are present in or on livestock feed items or intentionally added to drinking water. These studies, however, may not be required in cases where the livestock metabolism studies indicate negligible transfer of the pesticide's residues of concern to tissues, milk, and eggs at the maximum expected exposure level for the animals.

18. If results from the plant metabolism study show differing metabolites in plants from those found in animals, an additional livestock feeding study involving dosing with the plant metabolite(s) may also be required.

19. Data are required whenever a pesticide may be applied directly to water, unless it can be demonstrated that the treated water would not be available for human or livestock consumption.

20. Data are required when a pesticide is to be applied directly to water that could be used for irrigation or to irrigation facilities such as irrigation ditches.

21. Data are required whenever a pesticide may be used in a food handling or feed handling establishment.

22. Required when residues at the tolerance level may result in a risk of concern. These data may include washing, cooking, processing or degradation studies as well as market basket surveys for a more precise residue determination.

23. Typically required if pesticide residues of concern greater than 0.01 ppm are found

in crops at the appropriate plant back intervals (taking into account plant back restrictions on product labels) in the confined rotational crop study. If residues of concern in the confined study are greater than 0.01 ppm but less than the limit of quantitation of the analytical method to be used on field trial samples, the Agency will consider not requiring, on a case-by-case basis, the limited field trials. If there are particular toxicological concerns with the parent pesticide or any metabolites, limited field studies may be needed if such residues are identified at levels below 0.01 ppm in the confined study.

24. Crop field trials are required to establish tolerances on rotational crops when quantifiable residues of concern are observed in the field rotational crops study.

25. Not required for an exemption from a tolerance provided that dietary exposure estimates are not needed due to low toxicity or that theoretical estimates of exposure are adequate to assess dietary risk.

26. Not required for an exemption from a tolerance.

Subparts P – T [Reserved]

§§ 158.1500 – 158.1900 [Reserved]

Subpart U—Biochemical Pesticides [Reserved]

§ 158.2000 [Reserved]

Subpart V—Microbial Pesticides [Reserved]

§ 158.2100 [Reserved]

Subpart W—Antimicrobial Pesticides [Reserved]

§ 158.2200 [Reserved]

Subparts X – Z [Reserved]

§§ 158.2300 – 158.2500 [Reserved]

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ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 158

[EPA–HQ–OPP–2004–0415; FRL–8109–8]

RIN 2070–AD51

Pesticides; Data Requirements for Biochemical and Microbial Pesticides

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final Rule.

SUMMARY: This is the final rule for Biochemical and Microbial Pesticide Data Requirements. The Agency published a proposed rule on March 8, 2006, on the data requirements to support registration of biochemical and microbial pesticides and proposed to update definitions for both biochemical and microbial pesticides. The Agency received comments from 20 commenters, representing State and Federal agencies, industry, and private consultants.

DATES: This rule is effective on December 26, 2007.

ADDRESSES: EPA has established a docket for this action under Docket identification number EPA-HQ-OPP-2004-0415. All documents in the docket are listed on the regulations.gov web site. Although listed in the index, some information is not publicly available, i.e., CBI or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the Internet and will be publicly available only in hard copy form. Publicly available docket materials are available either electronically through www.regulations.gov or in hard copy at the Office of Pesticide Programs (OPP) Regulatory Public Docket (7502P), Room S-4400, One Potomac Yard (South Building), 2777 S. Crystal Drive, Arlington, VA 22202. This Docket is open from 8:30 a.m. to 4 p.m., Monday through Friday, excluding legal holidays. The Docket telephone number is (703) 305-5805 .

FOR FURTHER INFORMATION CONTACT: Candace Brassard or Nathanael Martin, U.S. Environmental Protection Agency (7506P), 1200 Pennsylvania Ave., NW., Washington, DC 20460, telephone: 703-305-6598 or 703-305-6475, e-mail: *brassard.candace@epa.gov* or *martin.nathanael@epa.gov*.

SUPPLEMENTARY INFORMATION:

I. General Information

A. Does this Action Apply to Me?

You may be potentially affected by this action if you are a producer or registrant of a biochemical or microbial pesticide product. This action may also affect any person or company that might petition the Agency for new tolerances for biochemical or microbial pesticides, or hold a pesticide registration with existing tolerances, any person or company interested in obtaining or retaining a tolerance in the absence of a registration. Potentially affected entities may include, but are not limited to:

- Crop Production (NAICS code 111).
- Animal Production (NAICS code 112).
- Food Manufacturing and Processing (NAICS code 311).
- Chemical Producers (NAICS code 32532), e.g., pesticide manufacturers or formulators of pesticide products, importers, or any person or company that seeks to register a pesticide or obtain a tolerance for a pesticide.

This listing is not intended to be exhaustive, but rather provides a guide for readers regarding entities likely to be affected by this action. Other types of entities not listed in this unit could also be affected. The North American Industrial Classification System (NAICS) codes have been provided to assist you and others in determining whether this action might apply to certain entities. To determine whether you or your business may be affected by this action, you should carefully examine the applicability provisions in Unit II. If you have any questions regarding the applicability of this action to a particular entity, consult the persons listed under **FOR FURTHER INFORMATION CONTACT** or visit the following Web site: *http://www.epa.gov/pesticides/biopesticides/*.

B. How Can I Access Electronic Copies of this Document and Other Related Information?

All documents in the docket are listed in the docket index at *http://www.regulations.gov* under docket number EPA–HQ–OPP–2004–0415. Although listed in the index, some information is not publicly available, e.g., CBI or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the Internet and will be publicly available only in hard copy form. Publicly available docket materials are available either in the electronic docket at *http://www.regulations.gov*, or, if only available in hard copy, at the Office of Pesticide Programs (OPP) Regulatory Public Docket in Rm. S-4400, One Potomac Yard (South Building), 2777 S. Crystal Drive, Arlington, VA. The hours of operation of this docket facility are from 8:30 a.m. to 4:00 p.m., Monday through Friday, excluding legal holidays. The Docket telephone number is 703-305-5805.

II. Overview of This Document

EPA published a notice of proposed rulemaking in the **Federal Register** on March 8, 2006 (71 FR 12072) for Data Requirements for Biochemical and Microbial Pesticides. This document is the final rule and the response to comments on the proposed rule. EPA received comments from 20 commenters, raising 58 comments on various data requirement issues for biochemical and microbial pesticides. A total of 11 comments concerning the definition of a biochemical pesticide and 5 comments concerning the