

FEDERAL TRADE COMMISSION**16 CFR Part 460****Labeling and Advertising of Home Insulation: Trade Regulation Rule****AGENCY:** Federal Trade Commission.**ACTION:** Notice of proposed rulemaking.

SUMMARY: The Federal Trade Commission (“Commission” or “we”) proposes to amend its Trade Regulation Rule Concerning the Labeling and Advertising of Home Insulation (“R-value Rule” or “Rule”) to streamline and increase the benefits of the Rule to consumers and sellers, minimize its costs, and respond to the development and utilization of new technologies to make American homes more energy efficient and less costly to heat and cool. This document provides background on the R-value Rule and this proceeding; proposes amendments to recognize technological advances in R-value testing and specimen preparation procedures, and to clarify, streamline, and improve the Rule’s requirements; and discusses public comments received by the Commission and solicits further comments on the proposed amendments and additional issues.

DATES: Written comments must be submitted on or before September 22, 2003. Because written comments appear adequate to present the views of all interested parties, neither a public workshop nor a hearing has been scheduled. If interested parties request the opportunity to present views orally, the Commission will publish a document in the **Federal Register**, stating the time and place at which the hearing or workshop will be held and describing the procedures that will be followed. In addition to submitting a request to present views orally, interested parties who wish to appear must submit, on or before September 22, 2003, a written comment or statement that describes the issues on which the party wishes to speak. If there is no interest in a hearing or workshop, the Commission will base its decision on the written rulemaking record.

ADDRESSES: Send written comments to Secretary, Federal Trade Commission, Room H-159, 600 Pennsylvania Ave., N.W., Washington, D.C. 20580. All written comments should be captioned “16 CFR Part 460—Labeling and Advertising of Home Insulation” and “16 CFR Part 460 Request to Testify—Labeling and Advertising of Home Insulation,” respectively. As discussed in the Dates section of this document, a public workshop has not been scheduled. However, individuals who

would like to submit oral views should submit their request to the address noted in this section. To encourage prompt and efficient review and dissemination of the comments to the public, all comments should also be submitted, if possible, in electronic form. Comments or requests in electronic form should be sent, if possible, to: r-valuerule@ftc.gov. The Commission will make this document and, to the extent possible, all comments received in electronic form in response to this document, available to the public through the Internet at the following address: www.ftc.gov.

FOR FURTHER INFORMATION CONTACT: Hampton Newsome, (202) 326-2889, Division of Enforcement, Bureau of Consumer Protection, Federal Trade Commission, 600 Pennsylvania Avenue, N.W., Washington, DC 20580.

SUPPLEMENTARY INFORMATION:**Table of Contents**

- I. Introduction
- II. Overview of the Rule
 - A. Products Covered
 - B. Parties Covered
 - C. Basis for the Rule
 - D. Requirements of the Rule
- III. Procedural History
 - A. The 1995 Initial Regulatory Review (“the 1995 Notice”)
 - B. The 1996 Notice of Continuing Need and Technical Amendments (“the 1996 Notice”)
 - C. The 1999 Advanced Notice of Proposed Rulemaking (“the ANPR”)
- IV. Section-by-Section Description of Proposed Amendments
- V. Discussion of Comments and Proposed Amendments
 - A. Disclosing Thermal Performance of Additional Products
 - 1. Residential Pipe and Duct Insulations
 - 2. Non-residential Insulations
 - B. Disclosing In-Use Thermal Performance Values
 - 1. Performance of Insulations in Actual Use
 - 2. Performance of Building System Components That Include Insulation
 - C. Disclosing R-Values That Account for Factors Affecting R-Value
 - 1. Aging
 - a. Cellular Plastics Insulation
 - b. Reflective Insulations
 - 2. Settling
 - a. Loose-fill and Stabilized Insulations in Attics
 - b. Loose-fill and Self-Supported Insulations in Walls
 - 3. Density Variations
 - 4. Installations in Closed Cavities of Variable Thickness
 - D. Other Testing Requirements
 - 1. Accreditation of Testing Laboratories
 - 2. Test Temperature Requirements
 - a. Mean Temperature
 - b. Temperature Differential
 - 3. Tolerance
 - 4. Use of Current Test Data
 - 5. Determining the Thermal Performance of Reflective Insulations

- a. Traditional Reflective Insulations
- b. Radiant Barrier Products
- 6. Additional Laboratory Procedures for Testing Loose-Fill Insulations
- E. Other Disclosure Issues
 - 1. Disclosures on Labels and Fact Sheets
 - a. “What You Should Know About R-values”
 - b. Disclosures for Batt, Blanket, and Boardstock Insulations
 - c. Required Disclosures for Loose-fill Insulations
 - i. R-value Disclosures
 - ii. Initial Installed Thickness
 - iii. Additional Loose-Fill Insulation
 - d. Disclosures for Urea-based Foam Insulations
 - 2. Disclosures in Advertising and Other Promotional Materials
 - a. Disclosures Required
 - b. Advertising on Radio (and Television)
 - c. Initial Installed Thickness
 - 3. Disclosures by Installers or New Home Sellers
 - a. Fact Sheets
 - b. Attic Cards and Certifications, and Attic Rulers
 - 4. Disclosures by Retailers
 - F. Minor Corrections and Amendments to Update References ASTM Standards
 - VI. Rulemaking Procedures
 - VII. Requests for Public Hearings
 - VIII. Regulatory Flexibility Act
 - IX. Paperwork Reduction Act
 - X. Additional Information for Interested Persons
 - XI. Invitation to Comment and Questions for Comment
 - XII. Proposed Rule Language

I. Introduction

The R-value Rule specifies substantiation and disclosure requirements for thermal insulation products used in the residential market, and prohibits certain claims unless they are true.¹ The primary disclosure required is the insulation product’s “R-value.” R-value is the recognized numerical measure of the ability of an insulation product to restrict the flow of heat and, therefore, to reduce energy costs—the higher the R-value, the better the product’s insulating ability. To assist consumers, the Rule requires sellers (including insulation manufacturers, professional installers, new home sellers, and retailers) to disclose the insulation product’s R-value and related information, before retail sale, based on uniform, industry-adopted standards.² This information

¹ The Commission promulgated the R-value Rule on August 29, 1979 under section 18 of the Federal Trade Commission Act (“FTC Act”), 15 U.S.C. 57a. The Rule became effective on September 30, 1980. See Final Trade Regulation Rule (“Statement of Basis and Purpose” or “SBP”), 44 FR 50218 (1979).

² Home insulation sellers should be aware that additional Commission rules or guides may also apply to them. For example, the Commission’s Rules concerning Disclosure of Written Consumer Product Warranty Terms and Conditions, and the Pre-sale Availability of Written Warranty Terms, 16 CFR Parts 701 and 702, specify requirements

enables consumers to evaluate how well a particular insulation product is likely to perform, to determine whether the cost of the insulation is justified, and to make meaningful, cost-benefit based purchasing decisions among competing products.

II. Overview of the Rule

A. Products Covered

The R-value Rule covers all “home insulation products.” Under the Rule, “insulation” is any product mainly used to slow down the flow of heat from a warmer area to a cooler area, for example, from the heated inside of a house to the outside during the winter through exterior walls, attic, floors over crawl spaces, or basement. “Home insulation” includes insulation used in all types of residential structures. The Rule automatically covers new types or forms of insulation marketed for use in the residential market, whether or not the Rule specifically refers to them. The Rule does not cover pipe insulation, or any type of duct insulation except for duct wrap. The Rule does not cover insulation products sold for use in commercial (including industrial) buildings. It does not apply to other products with insulating characteristics, such as storm windows or storm doors.

Home insulation includes two basic categories: “mass” insulations and “reflective” insulations. Mass insulations reduce heat transfer by conduction (through the insulation’s mass), convection (by air movement within and through the air spaces inside the insulation’s mass), and radiation. Reflective insulations (primarily aluminum foil) reduce heat transfer

concerning warranties; the Commission’s Guides for the Use of Environmental Marketing Claims, 16 CFR Part 260, address the application of section 5 of the FTC Act, 15 U.S.C. 45, to environmental advertising and marketing claims (e.g., claims concerning the amount of recycled material a product contains). Further, section 5 of the FTC Act declares that unfair or deceptive acts or practices are unlawful, and requires that advertisers and other sellers have a reasonable basis for advertising and other promotional claims before they are disseminated. *See Deception Policy Statement*, Letter from the Commission to the Honorable John D. Dingell, Chairman, Committee on Energy and Commerce, U.S. House of Representatives (Oct. 14, 1983), reprinted in *Cliffdale Assocs., Inc.*, 103 F.T.C. 110 (1984); *Statement of Policy on the Scope of the Consumer Unfairness Jurisdiction*, Letter from the Commission to the Honorable Wendell H. Ford, Chairman, Consumer Subcommittee, Committee on Commerce, Science, and Transportation, U.S. House of Representatives, and the Honorable John C. Danforth, Ranking Minority Member, Consumer Subcommittee, Committee on Commerce, Science and Transportation, U.S. Senate (Dec. 17, 1980), reprinted in *International Harvester Co.*, 104 F.T.C. 949 (1984); and *Policy Statement Regarding Advertising Substantiation*, 49 FR 30999 (1984), reprinted in *Thompson Medical Co.*, 104 F.T.C. 839 (1984).

when installed facing an airspace by increasing the thermal resistance of the airspace by reducing heat transfer by radiation through it. Within these basic categories, home insulation is sold in various types (“type” refers to the material from which the insulation is made, e.g., fiberglass, cellulose, polyurethane, aluminum foil) and forms (“form” refers to the physical form of the product, e.g., batt, dry-applied loose-fill, spray-applied, boardstock, multi-sheet reflective).

B. Parties Covered

The Rule applies to home insulation manufacturers, professional installers, retailers who sell insulation to consumers for do-it-yourself installation, and new home sellers (including sellers of manufactured housing). It also applies to testing laboratories that conduct R-value tests for home insulation manufacturers or other sellers who use the test results as the basis for making R-value claims about home insulation products.

C. Basis for the Rule

The Commission issued the R-value Rule to prohibit, on an industry-wide basis, specific unfair or deceptive acts or practices. When it issued the Rule, the Commission found that the following acts or practices were prevalent in the home insulation industry and were deceptive or unfair, in violation of section 5 of the FTC Act, 15 U.S.C. 45: (1) sellers had failed to disclose R-value, and caused substantial consumer injury by impeding the ability of consumers to make informed purchasing decisions; (2) the failure to disclose R-values, which varied significantly among competing home insulation products of the same thickness and price, misled consumers when they bought insulation on the basis of price or thickness alone, (3) sellers had exaggerated R-values, often failing to take into account factors (e.g., aging, settling) known to reduce thermal performance; (4) sellers had failed to inform consumers about the meaning and importance of R-value; (5) sellers had exaggerated the amount of savings on fuel bills that consumers could expect, and often failed to disclose that savings will vary depending on the consumer’s particular circumstances; and (6) sellers had falsely claimed that consumers would qualify for tax credits through the purchase of home insulation, or that products had been “certified” or “favored” by federal agencies. 44 FR at 50222–24.

D. Requirements of the Rule

The Rule requires that manufacturers and others who sell home insulation determine and disclose each product’s R-value and related information (e.g., thickness, coverage area per package) on package labels and manufacturers’ fact sheets. R-value ratings vary among different types and forms of home insulations and among products of the same type and form. The Rule requires that R-value claims to consumers about specific home insulation products be based on uniform R-value test procedures that measure thermal performance under “steady-state” (i.e., static) conditions.³ Mass insulation products may be tested under any of the test methods. The tests on mass insulation products must be conducted on the insulation material alone (excluding any airspace). Reflective insulation products must be tested according to either ASTM C 236–89 (1993) or ASTM C 976–90, which can determine the R-values of insulation systems (such as those that include one or more air spaces).⁴ The tests must be conducted at a mean temperature of 75° F.

When it promulgated the Rule, the Commission found that certain factors, such as aging or settling, affect the thermal performance of home insulation products. 44 FR at 50219–20, 50227–28. To ensure that R-value claims take these factors into account, the Rule mandates that the required R-value tests for polyurethane, polyisocyanurate, and extruded polystyrene insulation products be conducted on test specimens that fully reflect the effect of aging, and for loose-fill insulation products on test specimens that fully reflect the effect of settling.

Specific disclosures must be made: (1) by manufacturers on product labels and manufacturers’ fact sheets; (2) by professional installers and new home sellers on receipts or contracts; and (3) by manufacturers, professional

³ Section 460.5 of the Rule requires that the R-values of home insulation products be based on one of the test procedures specified in the Rule. Most of the test procedures in the Rule specify American Society for Testing and Materials (ASTM) standards. ASTM reviews and revises each of these procedures periodically. Under section 460.7 of the Rule, the Commission will accept, but not require, the use of a revised version of any of these standards 90 days after ASTM adopts and publishes the revision. The Commission may, however, reopen the rulemaking proceeding during the 90-day period or at any later time to consider whether it should require use of the revised procedure or reject it under section 460.5 of the Rule. 61 FR at 13663.

⁴ The R-value of a single-sheet reflective insulation product must be tested under ASTM E408 or another test method that provides comparable results.

installers, and retailers in advertising and other promotional materials (including those on the Internet) that contain an R-value, price, thickness, or energy-saving claim, or compare one type of insulation to another. Manufacturers and other sellers must have a “reasonable basis” for any energy-saving claims they make.⁵

III. Procedural History

A. The 1995 Initial Regulatory Review (“the 1995 Notice”)

On April 6, 1995, as part of its ongoing regulatory review program, the Commission solicited public comments about the economic impact of and current need for the R-value Rule.⁶ 60 FR 17492 (1995). At the same time, the Commission solicited comments on a petition (“Petition”) from Ronald S. Graves, who at that time was a Research Staff Member, Materials Analysis Group, Martin Marietta Energy Systems, Inc. (which operated Oak Ridge National Laboratory (“ORNL”) for the U.S. Department of Energy (“DOE”)). The Petition requested that the Commission approve an additional (fifth) ASTM R-value test procedure as an optional test procedure for determining the R-value of home insulation under the Rule.

B. The 1996 Notice of Continuing Need and Technical Amendments (“the 1996 Notice”)

Based on the comments in response to the 1995 Notice, the Commission determined that there was a continuing need for the Rule, published its determination to retain it, and adopted several technical, non-substantive amendments to support the use of the most current testing procedures

⁵ Although the Rule does not specify how energy saving claims must be substantiated, the Commission explained that scientifically reliable measurements of fuel use in actual houses or reliable computer models or methods of heat flow calculations would meet the reasonable basis standard. 44 FR at 50233–34. Sellers other than manufacturers can rely on the manufacturer’s claims unless they know or should know that the manufacturer does not have a reasonable basis for the claims.

⁶ The Commission previously reviewed the Rule in 1985 under the Regulatory Flexibility Act, 5 U.S.C. 610, to determine the economic impact of the Rule on small entities. Based on that review, the Commission determined that: there was a continuing need for the Rule; there was no basis to conclude that the Rule had a significant impact on a substantial number of small entities; there was no basis to conclude that the Rule should be amended to minimize its economic impact on small entities; the Rule did not generally overlap, duplicate, or conflict with other regulations; and technological, economic, and other changes had not affected the Rule in any way that would warrant amending the Rule. 50 FR 13246 (1985).

available and to streamline the Rule.⁷ 61 FR 13659, at 13659–62, 13665 (March 28, 1996).

C. The 1999 Advance Notice of Proposed Rulemaking (“the ANPR”)

In 1999, based on the comments received in response to the 1995 Notice (that were not otherwise addressed in the 1996 notice), the Commission published an Advance Notice of Proposed Rulemaking (64 FR 48024 (Sept. 1, 1999)). In the ANPR, the Commission proposed limited amendments that were designed to: clarify the Rule; make disclosure requirements consistent for competing types of loose-fill insulation products; require the most current procedures for preparing R-value test specimens and conducting R-value tests; delete disclosures for a type of insulation that no longer is sold; and reduce disclosure requirements for retailers. Regarding those issues, the Commission believed that there was sufficient information to propose amendments. The Commission also requested comments on whether to revise the Rule to: cover additional products; require the disclosure of in-use performance values (as opposed to laboratory tests that are conducted under static, uniform conditions); require the disclosure of the performance of building systems; adopt additional test specimen preparation requirements for specific types and forms of insulation products to account for various factors that affect R-values; adopt additional or updated testing requirements; and change the disclosure requirements for manufacturers’ labels and fact sheets, advertisements and other promotional materials, and for professional installers, new home sellers, and retailers. The comments filed in response to the ANPR are discussed in depth at section V of this document following the brief section-by-section description of the proposed amendments.

⁷ These amendments: (1) revised section 460.5 of the Rule to allow the use of an additional ASTM test procedure as an optional, but not required, test procedure to determine the R-value of home insulation; (2) revised section 460.5 to require the use of current, updated versions of other ASTM R-value test methods cited in the Rule; (3) added an Appendix summarizing the exemptions from specific requirements of the Rule that the Commission previously granted for certain classes of persons covered by the Rule; and (4) revised section 460.10 of the Rule to cross-reference the Commission’s enforcement policy statement for foreign language advertising in 16 CFR 14.9 and deleted the previous Appendix to the Rule because it merely repeated the text of 16 CFR 14.9.

IV. Section-by-Section Description of Proposed Amendments

The following is a brief summary of the amendments the Commission is proposing for the R-value Rule in response to the comments received. These proposed changes are addressed in more detail in section V of this document. Section V also contains a detailed discussion of other issues raised in the 1999 ANPR that are not the subject of a proposed amendment.

Section 460.1 (What This regulation does)

The Commission proposes to amend the monetary penalty reference from \$10,000 to \$11,000 to reflect the current requirements of section 1.98 of the Commission’s regulations. This is a technical, conforming change.

Section 460.5(a) (R-value Tests)

Temperature Differential: The Commission proposes to amend section 460.5, R-value Tests, to specify that tests conducted under section 460.5(a) must be done with a temperature differential of 50° F plus or minus 10° F in addition to the mean temperature requirement currently in the Rule [see section V.D.2.b. of this document].

Update Test Procedure: The Commission proposes to update the reference for ASTM C 739–91 to reflect the most recent version of the procedure (ASTM C 739–97). The reference to ASTM C 236–89 and ASTM C 976–90 would be eliminated and replaced with ASTM C 1363–97, “Standard Test Method for the Thermal Performance of Building Assemblies by Means of a Hot Box Apparatus” [see section V.F. of this document].

Section 460.5(a)(1) (R-value Tests)

Aging of Cellular Plastics: Section 460.5(a)(1) would also be amended under the proposal to require the use of several recent ASTM test procedures to take into account the effects of aging on cellular plastics insulation. These test procedures include ASTM C 578–95, “Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation,” ASTM C 1029–96, “Standard Specification for Spray-Applied Rigid Cellular Polyurethane Thermal Insulation,” and ASTM C 591–94, “Standard Specification for Unfaced Preformed Rigid Cellular Polyisocyanurate Thermal Insulation” [see section V.C.1.a. of this document]

Section 460.5(a)(3) (R-value Tests)

Loose-Fill Settling: The Commission proposes to amend section 460.5(a)(3) to eliminate the reference to the GSA specifications for measuring the settling

of loose fill insulation and insert language indicating that industry members must take into account the effects of settling on the product's R-value for spray-applied cellulose and stabilized cellulose [see section V.C.2. of this document].

Section 460.5(a)(4) (R-value Tests)

Test for Spray-Applied Cellulose Insulation: The Commission proposes to add a new paragraph, section 460.5(a)(4), which would require that tests for self-supported spray-applied cellulose be conducted at the settled density determined pursuant to ASTM C 1149-97 ("Self-supported Spray Applied Cellulosic Thermal Insulation") [see section V.C.2. of this document].

Section 460.5(a)(5) (R-value Tests)

Loose-Fill Initial Installed Thickness: For loose-fill insulations, the proposed amendment would require that manufacturers determine initial installed thickness for their product pursuant to ASTM C 1374, "Determination of Installed Thickness of Pneumatically Applied Loose-Fill Building Insulation," for R-values of 11, 13, 19, 22, 24, 32, and 40 and any other R-values provided on the product's label pursuant to § 460.12 [see section V.E.1.c.ii. of this document].

Section 460.5(b) and Section 460.5(c) (R-value Tests)

These sections applicable to aluminum foil systems would be reorganized and amended as follows:

Tests for Single Sheet Aluminum Foil Systems: Section 460.5(c) would be redesignated as Section 460.5(b) and would be amended to require that single sheet systems of aluminum foil be tested under ASTM C 1371-98 [see section V.D.5.a. of this document].

Test for Multiple Sheet Aluminum Foil Systems: Section 460.5(b) would be moved to Section 460.5(c) and would be amended to indicate that aluminum foil systems with more than one sheet, and single sheet systems of aluminum foil that are intended for applications that do not meet the conditions specified in the tables in the most recent edition of the ASHRAE Handbook, must be tested with ASTM C 1363-97, "Standard Test Method for the Thermal Performance of Building Assemblies by Means of a Hot Box Apparatus," in a test panel constructed according to ASTM C 1224-99, "Standard Specification for Reflective Insulation for Building Applications," and under the test conditions specified in ASTM C 1224-99. To get the R-value from the results of those tests, use the formula specified in ASTM C 1224-99. The tests must be

done at a mean temperature of 75° F, with a temperature differential of 30° F. This amendment would eliminate the references to ASTM C 236-89 and ASTM C 976-90 that are currently applicable to these products [see section V.D.5.a. of this document].

Section 460.5(d) (R-value Tests)

Insulation Material With Foil Facings and Air Space: Section 460.5(d)(1) would be amended to eliminate reference to ASTM C 236-89 and ASTM C 976-90 and replace them with ASTM C 1363-97, "Standard Test Method for the Thermal Performance of Building Assemblies by Means of a Hot Box Apparatus" [see section V.D.5.a. of this document].

Section 460.5(e) (R-value Tests)

Incorporation by Reference: A new paragraph (e) would be added to consolidate information regarding incorporation by reference approvals provided by the Office of the **Federal Register** [see section V.E. of this document].

Section 460.8

R-Value Tolerances for Manufacturers: The Rule's tolerance provision would be amended to clarify that, if you are a manufacturer of home insulation, the mean R-value of sampled specimens of a production lot of insulation you sell must meet or exceed the R-value shown in a label, fact sheet, ad, or other promotional material for that insulation. The Rule also would prohibit an individual specimen of that insulation from having an R-value more than 10% below the R-value shown in a label, fact sheet, ad, or other promotional material for that insulation [see section V.D.3. of this document].

Section 460.12 (Labels)

Labels for Batts and Blankets: The Commission proposes to amend the paragraph at § 460.12(b)(1) to indicate the requirement applies to batts and blankets of any type, not just to those made of mineral fiber [see section V.E.1.b. of this document].

Loose-Fill Labels: The Commission also proposes to amend section 460.12 to eliminate certain information requirements on charts for loose-fill cellulose insulation. The proposed amendment would instead require charts for all forms of loose-fill insulation to show the minimum thickness, maximum net coverage area, number of bags per 1,000 square feet, and minimum weight per square foot at R-values of 11, 13, 19, 22, 24, 32, and 40. The amendment also would require the labels for loose-fill insulation to

display initial installed thickness information determined pursuant to ASTM C 1374, "Standard Test Method for Determination of Installed Thickness of Pneumatically Applied Loose-Fill Building Insulation" and the blowing machine specifications that installers must use for loose-fill products [see section V.E.1.c. of this document].

Section 460.13 (Fact Sheets)

Urea-based Foam Insulation: The Commission proposes to eliminate the requirements in paragraph (d) of this section related to urea-based foam insulation [see section V.E.1.d. of this document].

Section 460.14 (How retailers must handle fact sheets)

Retailers Responsibilities for Fact Sheets: The Commission proposes to amend this section to exempt retailers from making fact sheets available to customers, if they display insulation packages (containing the same information required in fact sheets) on the sales floor where insulation customers are likely to notice them [see section V.E.4. of this document].

Section 460.18 (Insulation ads) and 460.19 (Savings Claims)

Affirmative Disclosures for Radio Ads: The Commission proposes to eliminate the affirmative disclosure requirements for radio ads in sections 460.18 and 460.19 [see section V.E.2.b. of this document].

Advertising for Urea-based Foam Insulation: The Commission proposes to amend this section to eliminate paragraph (e) in section 460.18, which addresses urea-based foam insulation [see section V.E.1.d. of this document].

Section 460.23(a) (Other Laws, rules, and orders)

The Commission plans to amend paragraph (a) to correct a typographical error.

V. Discussion of Comments and Proposed Amendments

The Commission received 21 comments in response to the ANPR.⁸

⁸ Adrian D. Troutman, Jr. for TFOil Enterprises ("TFOil"), (Comment #1); Adrian D. Troutman, Jr. for A&J Insulation Construction ("A&J"), (2); The Polyisocyanurate Insulation Manufacturers Association ("PIMA"), (3); The Cellulose Insulation Manufacturers Association ("CIMA"), (4); The Insulation Contractors Association of America ("ICAA"), (5); The Expanded Polystyrene Molders Association ("EPSMA"), (6); Celotex Corporation ("Celotex"), (7); The Foamed Polystyrene Alliance ("FPSA"), (8); The North American Insulation Manufacturers Association ("NAIMA") (9); Elastizell Corporation of America ("Elastizell"), (10); Uniwood/Fome-Cor Business Unit of

Most of these came from industry members, trade associations or consultants, with three comments from federal governmental agencies (one from the Department of Energy and two from its contractor, Oak Ridge National Laboratory).

A. Disclosing Thermal Performance of Additional Products

1. Residential Pipe and Duct Insulations

Background

In the ANPR, the Commission asked whether it should amend the Rule to cover residential pipe and duct insulations. Currently, the Rule does not cover these types of insulations, but does cover duct wrap. *See* section 460.2. The Commission stated that unless interested parties have information that sellers are misrepresenting the thermal performance of these products to consumers, it would not propose extending the Rule to cover them.

Comments

DOE stated that flexible duct, which includes an integral insulation jacket and does not require a separate duct wrap, has become much more common in residential applications since the Rule's inception. DOE maintained that this type of duct is often marked with an "Average R-value" rating, although, according to DOE, the basis for this rating is unclear. DOE also pointed out that the Council of American Building Officials ("CABO") Model Energy Code ("MEC") and many state codes require an R-value rating for duct insulation. DOE concluded that, although there may be no evidence that the R-value of duct insulation is being misrepresented, consumers and inspectors nevertheless need these R-values to be stated in a uniform manner. DOE acknowledged that it is unclear how the R-value on

International Paper ("Uniwood"), (11); ConsultMort, Inc. ("ConsultMORT"), (12); AFM Corporation ("AFM"), (13); Advanced Foil Systems, Inc. ("AFS"), (14); Carlton Fields for Cellucrete Corporation ("Cellucrete"), (15); Tenneco Building Products ("Tenneco"), (16); Therese K. Stovall for Oak Ridge National Laboratory ("ORNL-1"), (17); The Polyurethane Foam Alliance ("SPFA"), (18); The Reflective Insulation Manufacturers Association ("RIMA"), (19); Dan Reicher, Assistant Secretary for Energy Efficiency and Renewable Energy, for the United States Department of Energy ("DOE"), (20); Therese K. Stovall for Oak Ridge National Laboratory ("ORNL-2"), (21). The comments are on the public record and are available for public inspection in accordance with the Freedom of Information Act, 5 U.S.C. 552, and the Commission's Rules of Practice, 16 CFR 4.11, at the Consumer Response Center, Public Reference Section, Room 130, Federal Trade Commission, 600 Pennsylvania Avenue, NW, Washington, D.C. The comments are organized under the Labeling and Advertising of Home Insulation Rule ("The R-value Rule"), Matter No. R811001, under the category: "ANPR Comments, R-value Rule, 16 CFR Part 460."

duct insulation (duct wrap or flex duct) should actually be reported to the consumer.⁹

NAIMA supported revising the Rule to cover the newer forms of duct insulation that are now sold to consumers in retail stores and building supply outlets. It contended that duct insulations—rigid air ducts, flexible air ducts, and radiant "bubble packs"—are promoted through use of R-value claims and that requiring these products to comply with the Rule may be achieved with little additional burden upon the Commission. NAIMA recommended that the Commission require testing of duct insulations, including radiant "bubble packs," under ASTM C 1363 because it would benefit retail consumers. If all claims were judged by the same method, consumers would have greater confidence in R-value performance and protection against fraudulent claims.¹⁰

NAIMA agreed that the Commission should not apply the Rule to *pipe* insulations because: (1) pipe products are not readily available at retail stores, so consumers do not require protection; (2) the nature of pipe insulation makes required disclosures of R-value difficult—for example, R-values for pipe insulations vary with every gradation of pipe size; (3) the assignment of pipe R-values is based on technical principles so complex and complicated that the average consumer could not begin to comprehend the nuances differentiating the R-value of one pipe insulation from another; and, (4) pipe insulation is not marketed in terms of thermal performance. NAIMA maintained, moreover, that it was not aware of any misrepresentations of R-values for pipe insulation in the marketplace.¹¹ Without elaboration, Elastizell opposed any change to the Rule in this regard.¹²

Discussion

As explained in the ANPR, the Commission excluded pipe insulation from the original Rule's coverage based on uncontested evidence that it was used primarily to prevent moisture condensation on low temperature pipes, rather than energy conservation; that R-value was not a reliable basis for comparing the performance of pipe insulations; and that pipe insulations were not commonly advertised in terms of energy-savings potential. Similarly, it

⁹ DOE (20), p. 2; DOE also recommended that the FTC consider the issue of competitive advantage of installations using duct wrap (which must show an R-value) vs. flex duct (with integral insulation that is not covered by the Rule).

¹⁰ NAIMA (9), pp. 6–7, Appendices 8–10.

¹¹ *Id.* p. 7.

¹² Elastizell (10), p. 1.

excluded duct insulations other than duct wrap because only duct wrap was used extensively in the residential setting. The Commission explained that, since the original proceeding, the staff had reviewed consumer advertising for these products and found no information to indicate that these facts have changed. The Commission concluded that, unless interested parties presented information that sellers are misrepresenting the thermal performance of these products to consumers, the Commission would not propose extending the Rule to cover them. 64 FR at 48027.

Although DOE and NAIMA maintained that the use of flexible duct insulation has become much more common in residential applications than it was when the Rule originally was promulgated, no commenters indicated that sellers are misrepresenting the thermal performance of pipe or duct insulation products to consumers. In addition, although DOE raised doubt concerning the basis for the labeled R-value of these products, NAIMA indicated that its members base their thermal performance claims for all residential rigid and flexible duct products on ASTM test methods referenced in the Commission's Rule. The Commission recognizes that including these products under the Rule may provide some benefit to consumers. Absent evidence of widespread deception, however, it is difficult to conclude that such benefits would be significant enough to support a change to the Rule. Accordingly, the Commission is not proposing amendments on this issue but seeks additional comment including any additional information on industry practice for testing and labeling these products and the costs new FTC testing and labeling requirements would impose in this area.

2. Non-residential Insulations

Background

In the ANPR, the Commission indicated that it did not plan to extend the Rule to cover sales to the commercial market. The Commission did, however, request information about whether sellers in this market are misrepresenting the thermal performance of insulation products or are engaging in other unfair or deceptive practices.

Comments

The Commission received ten comments regarding the extension of the R-value Rule to insulation products used in commercial buildings. PIMA,

Tenneco, and NAIMA agreed with the Commission's preliminary position stated in the ANPR.¹³ NAIMA and Tenneco maintained that commercial buyers generally possess greater knowledge about products used in the regular course of business and are less vulnerable to deceit and confusion. Tenneco explained that commercial professionals must possess working knowledge of thermal properties of entire building systems, well beyond simple R-values, and that they often rely on independent large-scale performance testing or calculations at specific conditions. Tenneco contended that it would be difficult to craft Rule provisions that would adequately address these multiple performance scenarios. PIMA and NAIMA maintained that there is no evidence that manufacturers have engaged in improper marketing claims to commercial or industrial audiences. Finally, NAIMA and its members provide educational materials to commercial and industrial customers that, in their opinion, offer technical detail and comprehensive assessments on topics exclusively pertinent to commercial and industrial interests. NAIMA contended that these materials exceed the information the Rule requires be given to consumers.

Seven comments supported extension of the Rule to cover commercial applications.¹⁴ Celotex stated that, while there is no evidence of misrepresentation, design professionals rely heavily on manufacturers for information and training, and an extension of the Rule's coverage would standardize and simplify the specification process for architects.¹⁵ Information FPSA had gathered suggests a lack of knowledge among architects and specifiers about the proper methods for comparing insulation types.¹⁶ Both Elastizell and Cellucrete, which offered similar comments, stated that competitors had engaged in deceptive advertising of the thermal performance of cellular concrete products.¹⁷

Discussion

As discussed in the ANPR, the Commission recognizes that applying the Rule to thermal insulation products used in commercial buildings might provide information to purchasers that

could improve the energy efficiency of buildings, and otherwise prove useful. In addition, commenters have identified at least one example where sellers of commercial insulations may be engaged in unfair or deceptive practices. There is no indication from the comments, however, that such practices are widespread. Furthermore, as discussed in the ANPR, thermal insulation purchasing decisions for commercial building applications are made by architects or engineers in many instances. These professionals may require R-value and other performance information based on circumstances different from the uniform approach the Commission has determined necessary to provide accurate and understandable information to individual consumers. See discussion at 64 FR at 48027.

As several comments suggest, these architects and engineers may not always have the information or time necessary to consider these matters fully. According to some comments, an extension of the Rule would standardize and simplify the specification process for these professionals. At the same time, however, the Commission recognizes that extending the Rule would impose additional compliance burdens on industry members. Because professionals in the commercial field have greater knowledge compared to residential customers and the lack of evidence indicating unfair and deceptive practices are prevalent, the Commission finds that the potential benefits to commercial users would not justify the additional burdens that an extension of the Rule would impose. Accordingly, the Commission is not proposing to extend the Rule to cover sales to the commercial market. The Commission will continue to address concerns in this area as they arise pursuant to its general authority under section five of the FTC Act.

B. Disclosing In-Use Thermal Performance Values

1. Performance of Insulations in Actual Use

Background

In the ANPR, the Commission discussed earlier comments relating to seasonal factors and other variables that can affect the R-value of insulation products in actual use. 64 FR at 48027. Specifically, previous commenters identified factors that affect performance in attics during winter conditions and factors that affect performance under winter versus summer conditions and stated that the Rule does not sufficiently account for these factors. Some of the comments

addressing this issue pointed to ORNL research that demonstrates a reduction in R-value of very low-density fibrous insulations installed in open or vented attics when the temperature difference between the heated area of a home and its cold attic becomes particularly great. This can occur during the most severe winter conditions in some portions of the United States.

An ORNL representative explained that ASTM was developing a method of determining the thermal performance of attic insulations during winter conditions, ASTM C 1373,¹⁸ and suggested that the Commission incorporate it into the Rule when it is adopted. As discussed in the ANPR, one commenter maintained that several factors, in addition to R-values, that are determined under steady-state conditions have a major effect on product performance, such as air permeability and temperature differential. The commenter contended that a measurement known as the Rayleigh number provides a more complete indication of the effect that the combination of R-value, air permeability, and temperature differential have on insulation materials under specific conditions, and that it represents a more accurate measure of insulating capabilities than R-value alone. This commenter suggested that the Commission require the Rayleigh number on packages and promotional materials of insulation products.¹⁹

The Commission requested comment on alternatives to steady-state R-values, and specifically asked that commenters address six areas: (1) specific alternative measurements that are available to describe the *in situ* use of home insulation products better than the steady-state R-values required by the Rule; (2) which *in situ* conditions should be accounted for; (3) whether different types or forms of home insulation products perform differently under specific *in situ* conditions, and how significant this different performance is under specific circumstances (e.g., how much would the difference in performance in actual

¹³ PIMA (3), pp. 2, 9; Tenneco (16), p. 1; NAIMA (9), pp. 7-9.

¹⁴ EPSMA (6), p. 2; Celotex (7), pp. 1-2; FPSA (8), p. 2; Elastizell (10), pp. 1-4, *passim*; AFM (13), pp. 1-2; Cellucrete (15), pp. 2-4; SPFA (18), p. 1.

¹⁵ Celotex (7), pp. 1-2.

¹⁶ FPSA (8), p. 2.

¹⁷ Elastizell (10), pp. 1-4, *passim*; Cellucrete (15), pp. 2-4.

¹⁸ Standard Practice for Determination of Thermal Resistance of Attic Insulation Systems Under Simulated Winter Conditions ("ASTM C 1373").

¹⁹ The Rayleigh number is a measure of the tendency of air to move. In the context of very low density thermal insulations installed on the floor of an open attic during very cold periods, the Rayleigh number is a ratio between the buoyant force of warmer air (the air at the bottom of the insulation near the heated interior of the house) attempting to move upward and the resistance of the insulation fibers against that upward air movement. The higher the number, the stronger the buoyant force, and the greater the reduction of the insulation's steady-state R-value. 64 FR 48028, n. 22 (1999).

use make on the consumer's annual fuel bill); (4) whether accepted test methods are available to measure *in situ* performance; (5) how the results of *in situ* performance measurements could be described in a meaningful manner to consumers; and (6) the benefits and costs to consumers and sellers that would be associated with the use of the alternatives. 64 FR 48027–29 (discussion of comments from Greenstone/Tranmer).

Comments

Two commenters supported no change to the Rule. PIMA asserted that there are no test procedures currently available for *in situ* applications. It pointed out that ASTM C 236, C 96 and C 1363 (a new standard that combines 236 and 976) are lab methods that require steady-state conditions and are not appropriate for *in situ* measurements. PIMA maintained that, while ASTM C 1041 and C 1046 apply to field use, they are used to measure heat flux on buildings, complicated calculations are necessary to extrapolate R-values, and the results are intended for use by skilled industry practitioners.²⁰

NAIMA contended that it would be impossible to determine new R-value requirements to take these factors into account and that, in the end, such disclosures would create consumer confusion rather than clarity. NAIMA asserted that once results of *in situ* performance of many fibrous insulations over a range of temperature conditions were analyzed, initial concerns raised by the cold-temperature effects abated because these temperatures rarely lasted long enough to result in significant energy loss or economic cost.²¹ NAIMA also maintained that no one term fully explains all aspects of performance. In its view, many consumers would be confused by the use of other terms like the Rayleigh number, and the explanations that would be needed if other factors were included in the Rule would be cumbersome and confusing. NAIMA explained that, even though extreme temperature differentials are a potential problem in a limited part of the country, consumers throughout the country would be exposed to the concern through national marketing programs. NAIMA echoed PIMA's concern that ASTM C 1363 lacks application to a real home setting where conditions are variable and unpredictable. NAIMA maintained that, in light of such variables, the likelihood of obtaining dependable and

authoritative *in situ* R-values remains a distant possibility, and any attempt to explain the myriad of factors would overwhelm consumers and defeat the purpose behind the Rule's disclosure requirements.²²

Two commenters supported a change to the Rule in this regard. CIMA noted that, for dry-applied loose-fill cellulose insulation, large temperature differentials may in fact increase the material's R-value. It referred to tests conducted at ORNL on loose-fill fiberglass insulation that showed a 40% to 50% decrease in R-value in simulated extremely cold climates, while identical tests on dry-applied loose-fill cellulose insulation showed that the R-value actually increased from R-18 at 40° F to R-20.3 at 18°. CIMA maintained that this difference in performance at cold conditions must be addressed in the Rule for competitive fairness and to protect consumers in cold climates. To accomplish this, CIMA recommended that the Commission expand the Rule to cover the airflow resistance of insulation (determined at the insulation's settled density) as well as the laboratory-determined R-value.

CIMA explained that airflow resistance can be determined in the laboratory by measuring simultaneously the pressure difference and airflow rate across a test specimen of known dimensions. This yields the airflow permeability, which can be used to calculate the Airflow Resistance Index ("ARI"), a scale from near zero to approximately 100 that CIMA maintained could provide a simple way for consumers to compare products. CIMA contended that it is possible to calculate the impact of convection on R-value using published technical information, and maintained that a newly adopted ASTM standard (ASTM C 1373) contains a method for measuring the effect of free convection on thermal resistance. CIMA recommended amending the Rule to require disclosure of the ARI-value in labels, fact sheets and ads.²³

Uniwood supported the development of an alternative method of measuring the relative insulating performance because, it maintained, the R-value alone ignores cost considerations and, as such, is misleading to consumers (a goal of the Rule is "meaningful, cost-based purchasing decisions"). It suggested that the Commission convene an advisory panel to recommend alternative methods that would account for all variables, including air permeability and temperature

difference. Until the results of such a panel are implemented, Uniwood suggested that the Rule require the disclosure of Rayleigh numbers.²⁴

Discussion

As the Commission explained in the ANPR, the Rule requires that R-values be determined according to ASTM test methods that provide R-value measurements under "steady-state" or "static" laboratory conditions, which do not take into account transient environmental factors (like circulation) that can affect insulation performance in actual use. Past evidence on the rulemaking record indicates that, although environmental conditions may affect the R-value number determined in steady-state tests, these conditions will affect competing home insulation products in approximately the same manner. See 64 FR 48027–28. Thus, the Commission continues to believe that the ASTM steady-state R-value test methods permit fair comparisons of product R-values on a standardized basis and provide consumers with a reliable, uniform, and comparative basis for their purchasing decisions. See discussion at 64 FR 48028–29.

As CIMA asserted, more recent information may indicate differences in the performance of various home insulation products at very low temperatures. The Commission understands that there are variables for which the uniform test methods specified in the Rule may not account, such as the design characteristics and geographical location of the building, the specific application in which the product is installed, outside and inside temperatures, air and moisture movement, installation technique, and others. The Commission believes that any effort to reflect these variables in the Rule's requirements would significantly complicate both compliance and communication to consumers, without a commensurate level of benefit. Accordingly, the Commission is not proposing to expand the Rule's requirements at this time to cover variables that might affect insulation performance in actual use.

Manufacturers and other sellers, however, may provide additional, truthful, substantiated information voluntarily to consumers about the manner in which their products perform in actual use. For example, if a product exhibits increased performance at high temperature differentials and such performance is not reflected by the disclosure requirements of the R-value Rule, the manufacturer may provide that

²⁰ PIMA (3), pp. 9–10.

²¹ See NAIMA (9), Appendix 14.

²² NAIMA (9), pp. 9–10.

²³ CIMA (4), pp. 3–6.

²⁴ Uniwood (11), pp. 1–2.

information voluntarily to consumers as long as the claims are truthful and substantiated.

2. Performance of Building System Components That Include Insulation

Background

In the ANPR, the Commission sought comments on whether the Rule should require disclosure of thermal performance values of building system components that include insulation. Such systems generally involve structural insulation panels, which are building systems products that include insulation as a major component.

Comments

Three comments opposed requiring the thermal efficiency testing of insulation systems. PIMA asserted that the necessary information is not available to include testing requirements for these systems in the Rule. It contended that a great deal of testing and research would be needed to develop the necessary system evaluation methods.²⁵ EPSMA maintained that it would be difficult to draft testing and disclosure requirements that would be meaningful to consumers.²⁶ NAIMA adamantly opposed requiring disclosure of the overall thermal efficiency of building components because in its view, there is no consensus standard or test procedure capable of quantifying the overall thermal performance of structural insulation panels. NAIMA maintained that even the manufacturers of such products recognize that additional research and development would be necessary before requiring such disclosures. NAIMA explained that the performance of these systems is highly dependent on factors not under the control of the manufacturer, such as air-tightness of joints between the components and other parts of the building envelope (like windows and doors). In NAIMA's view, these factors are extremely difficult, if not impossible, to quantify in a fair and easy-to-understand disclosure that would benefit the general public. Finally, NAIMA pointed out that the Rule does not prevent manufacturers from providing additional information about their products' performance due to factors other than R-value.²⁷

DOE stated that thermal bridging (particularly due to steel studs), other wall elements (windows, doors, and corners), and other construction details all have major effects on actual thermal performance. The Department suggested

that the Commission address these issues by requiring additional disclosures. DOE recommended that the Commission adopt the whole wall rating system developed by ORNL.²⁸

Discussion

The Commission continues to believe that additional research would be required to develop the procedures necessary to implement a requirement that sellers include in their R-value disclosures information about the performance of their products when used in various types of construction. Even if such procedures were developed, as a practical matter, it might be very difficult to draft testing and disclosure requirements that could take the multiple variables involved into account in a manner that would result in a disclosure that would be meaningful to consumers. In addition, it would be difficult to ensure that the benefits from such procedures (e.g., better information for consumers) outweighed the additional costs that would be imposed on industry members (e.g., for additional testing and disclosures). See 64 FR 48029-30.

Accordingly, the Commission is not proposing to amend the Rule at this time to require the disclosure of insulation performance based on testing of home insulation products in different types of applications. Manufacturers and sellers may voluntarily provide additional information about how their products perform in actual use, if they substantiate their claims.

C. Disclosing R-Values That Account for Factors Affecting R-Value

1. Aging

a. Cellular Plastics Insulations

Background

Certain types of cellular plastics insulations (polyurethane, polyisocyanurate, and extruded polystyrene boardstock insulations) are manufactured in a process that results in a gas other than normal air being incorporated into the voids in the products. This gives the product an initial R-value that is higher than it would have if it contained normal air. A chemical process, known as aging, causes the R-value of these insulations to decrease over time as the gas is replaced by normal air. 44 FR at 50219-20. How long the aging process lasts depends on whether the product is faced or unfaced, the permeability of the facing, how well the facing adheres to the product, and other factors. 64 FR 48024 at 48030-31.

The current Rule addresses this aging process by requiring that R-value tests be performed on specimens that "fully reflect the effect of aging on the product's R-value." Section 460.5(a)(1) of the Rule accepts the use of the "accelerated aging" procedure in General Services Administration ("GSA") Purchase Specification HH-I-530A (which was in effect at the time the Commission promulgated the Rule) as a permissible "safe harbor" procedure, but also allows manufacturers to use "another reliable procedure." See discussion at 44 FR at 50227-28. The "accelerated" procedure was designed to age these insulations in a shorter period than they would age under normal usage conditions. Under the "accelerated aging" method in the GSA specification, test specimens are aged for 90 days at 140° F dry heat.

GSA amended its specification in 1982 to allow the use of an optional aging procedure (in addition to the "accelerated" method) under which test specimens are aged for six months ("180 days") at 73° F ± 4° F and 50 % ± 5 percent relative humidity (with air circulation to expose all surfaces to the surrounding environmental conditions). An industry group, the Roof Insulation Committee of the Thermal Insulation Manufacturers Association ("RIC/TIMA"), specified the use of similar conditions in a technical bulletin it adopted at about the same time. In response to adoption of the alternative 180-day aging procedure by GSA and RIC/TIMA, the Commission's staff advised home insulation sellers that the alternative procedure appeared to be reliable and could be used to age cellular plastics insulations. The staff cautioned, however, that manufacturers of insulations faced with materials that significantly retard aging may need to age test specimens for a longer period of time, and that the staff would consider whether the alternative procedure was acceptable for specific products on a case-by-case basis.²⁹

The Commission in the ANPR indicated that Dr. Wilkes from ORNL reported that ASTM was developing a new method of determining the aged R-value of unfaced cellular plastics board stock insulations based on R-value tests of thin samples sliced from the center of the boards. This test procedure has since been published as ASTM C 1303-95. 64 FR at 48031.

²⁵ PIMA (3), p. 10.

²⁶ EPSMA (6), p. 3.

²⁷ NAIMA (9), p. 10.

²⁸ DOE (20), p.2.

²⁹ See, e.g., staff opinion letter dated May 5, 1983, to Manville Corporation. GSA thereafter rescinded its specification (along with other insulation specifications) and now requires that federally purchased insulations comply with ASTM insulation material specifications.

Comments

The comments highlighted the differences of opinion about the appropriate test procedure to account for the aging of cellular plastics. In large part, the primary issue was whether the Commission should amend the Rule to include a relatively new standard, ASTM C 1303-95 ("Estimating the Long-Term Change in the Thermal Resistance of Unfaced Rigid Closed Cell Plastic Foams by Slicing and Scaling Under Controlled Laboratory Conditions"). Comments also addressed the need for the Commission to adopt additional test procedures for the measurement of other materials.

NAIMA stated that the cellular plastics industry has struggled for many years over what methodology should be used to determine the long-term in-service thermal performance of cellular plastics insulations.³⁰ In NAIMA's view, none of the available methods has been agreeable to all industry sectors. Because of this lack of agreement, NAIMA recommended that the Commission adopt aging methods already accepted by the majority of industry representatives and formally approved by ASTM: (1) ASTM C 1289 for polyisocyanurate; (2) ASTM C 578 for extruded polystyrene; and (3) ASTM C 1029 for polyurethane. NAIMA noted, however, that there is currently no acceptable procedure for determining long-term thermal performance of impermeably faced cellular foam insulations. Until a level playing field can be established, NAIMA recommended maintaining and reporting R-values based on aging for the currently accepted 180-day period. NAIMA also indicated that, although the 180-day value does not in its view provide "real design" (actual performance) information, it is a value with which the consumer is familiar.

PIMA generally supported the adoption of ASTM standards, except C 1303. It opposed the incorporation of C 1303 into the Rule because, in its view, the standard does not address the effect of facings and the test's precision for cellular plastics was developed on a limited set of samples, in some cases consisting of experimental products. PIMA maintained that the standard is intended as a laboratory research tool to evaluate chemical changes and should not be used as a test for making R-value claims under the FTC's Rule. In addition, PIMA contended that the codification of C 1303 would impose on manufacturers a significant additional testing cost of \$25,000-30,000 per

product and stated that only a limited number of testing labs perform the test. PIMA asserted that the reason for this high test cost is the level of detail required in C 1303 to provide technical measurements of blowing agent diffusion coefficients and the damaged surface layer caused by slicing.

PIMA did, however, recommend that the Commission adopt C 1289 (for faced rigid cellular polyisocyanurate board); C 1029 (for extruded polystyrene); and C 591 (for polyurethane). PIMA maintained that, for products "with relatively non-permeable facings," the Rule's current aging procedures are adequate. PIMA also suggested that expanded polystyrene insulation products should be required to be tested for aging under suitable procedures similar to those in ASTM C 578. PIMA stated that, as a general matter, ASTM standards should be adopted because they represent the best available techniques developed by industry consensus and they take into account variations in materials and manufacturing as well as the numerous factors that can affect the aging process.³¹

ConsultMORTinc also opposed adoption of ASTM C 1303, suggesting that C 518 is an appropriate test for plastic foams at full product thickness if 180-day lab-conditioned (six-month lab aged) values are used. ConsultMORTinc contended that the ASTM C 1303 test method is only an "estimate" and should not be used for appraising performance in actual use, and stated that the procedure does not address the effects of "manufactured thickness." ConsultMORTinc maintained that its own studies demonstrate that thicker polyurethane foams are protected from gas permeation for one year or more, which suggests that the C 1303 slicing method is inaccurate for thicker foams.³²

SPFA supported full product thickness testing at industry-accepted 180-day lab-conditioned aging, based on ConsultMORTinc data. It advised against the improper use of ASTM C 1303, maintaining that the standard does not account for the effect of extra thickness in protecting the product from outside air infiltration, and does not account for the fact that spray polyurethane foam is applied in several layers, or "lifts," that are surfaced with denser polymer skin, or for substrate or covering in roofing applications.³³

Tenneco opposed adoption of ASTM C 1303 for aging foam plastic

insulations, emphasizing that the test method itself indicates that its precision and accuracy are not yet established, and pointing out that its reproducibility is not yet understood. In addition, Tenneco contended that the test does not accurately reflect long-term aging because it does not account for the effect of skin surface or facings and fails to account for the fact that gas diffusion is multi-dimensional. Speaking as a member of the ASTM C 1303 Task Group, Tenneco maintained that the standard was intended primarily to estimate R-values of core material for purposes of new product development, and stated that concern was expressed during the test's development that it might inappropriately be used as a regulatory tool.³⁴

ESPM suggested a combination of accelerated aging tests and mandatory disclosures about R-values declining significantly with age beyond that indicated by tests. In its view, an accelerated aging test alone does not "fully reflect" the effects of aging. ESPMA pointed out that, according to RIC/TIMA, tests alone are meant to give a standard basis for comparison, not to predict long-term R-values accurately. It also supported exploration and use of limited aging procedures to predict long-term R-values as well as requirements for disclosures when accelerated aging procedures are used. EPSMA suggested that an appropriate R-value aging disclosure can be accomplished either through qualitative disclosure or quantitative disclosure. For instance, EPSMA suggested that one possible qualitative R-value disclosure could read: "The R-value of this insulation has been established using a [identify test procedure] accelerated aging procedure. Because of aging, the longer term R-value of this insulation in your home may be significantly lower than the R-value stated."³⁵

Celotex supported the use of ASTM C 1303 to predict the effects of aging in permeable-faced cellular plastics (polyisocyanurate and polystyrene) blown with a non-air agent, and the use of ASTM C 1289 for impermeable-faced boards. Celotex recommended the implementation of a two-year phase-in period to allow time for industry members to conduct appropriate testing. It contended that the accuracy of the ASTM C 1303 test is demonstrated by consistency with the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. ("ASHRAE") Handbook. In addition, Celotex stated that it had run multiple

³⁰ NAIMA (9), pp. 10-11.

³¹ PIMA (3), pp. 2-6, 10.

³² ConsultMORTinc (12), pp. 1-2.

³³ SPFA (18), p. 1.

³⁴ Tenneco (16), pp. 1-2.

³⁵ EPSMA (6), pp. 3-6.

test programs that indicated that ASTM C 1289 is the most reliable aging method for cellular plastic insulation with impermeable facings blown with non-air agents.³⁶

FPSA also supported adoption of ASTM C 1303 for unfaced and permeable faced products. FPSA recommended the use of a five-year aged value disclosure, which has been given serious consideration in Canada. It urged that a substantively comparable consensus standard should be adopted for faced products. FPSA suggested that the Commission retain currently acceptable tests (such as the 180-day value) for comparison purposes. It also pointed out that ASTM C 591 is outdated and reflects the current FTC guideline for long-term aging. FPSA also noted that expanded polystyrene products are not subject to aging. Finally, FPSA maintained that the 180-day value is not an accurate reflection of long-term aging of polyisocyanurate products, although it is acceptable for polystyrene because of the different aging curves pertaining to the two products.³⁷

ORNL and DOE supported the adoption of ASTM C 1303 because, according to ORNL, it represents a clear, specific, industry consensus standard for unfaced foam products, to the exclusion of the unspecific "or another reliable procedure" the Rule now allows. Alternative methods are inadequate according to ORNL, because it contends the elevated temperature method, which is not correlated to results in normal use, and the 180-day method ignores long-term aging that occurs in all but the thinnest products. ORNL supported direct aging of impermeable-faced foam products because, it maintained, no satisfactory aging method exists, and tests show that some products age at the same rate as unfaced products while others show little aging.³⁸

ORNL also indicated, in a late comment filed in response to statements made in other comments regarding the C 1303 test and the thickness of specimens, that the C 1303 test had been revised and significantly improved. ORNL challenged the assertion that C 1303 cannot account for foam products of different thicknesses. According to ORNL, variation in aging behavior with foam thickness is the very basis for the test procedure's methodology. ORNL also argued that the 180-day full-thickness R-value fails to provide necessary information to building

designers and should not be compared to the R-value of competing products that do not undergo the aging process. ORNL contended that, in contrast, C 1303 provides the product's time-averaged R-value over the product's lifetime, and accurately credits both the high thermal resistance during early years of product use and the lower values during later years.³⁹

Discussion

In considering amendments to the R-value Rule, the Commission, among other things, looks to ensure that consumers receive, wherever possible, the most accurate, dependable information that is reasonably available for residential insulation products. Generally, the Rule requires the use of certain standards to ensure that industry members take into account factors such as aging or settling that can affect the R-value of material. Even if there are no standards for a particular home insulation product, that product is still covered by the Rule and manufacturers and sellers must use a reliable method that will provide a reasonable basis for their R-value claims. If the method used is unreliable and their claims are thus unsubstantiated, they could be subject to enforcement action by the Commission. The Commission does not develop the technical standards for determining the R-value for various types of residential insulations. Instead, it generally looks to those tests that are considered to be reasonable by industry members, academicians, government experts, and others in the technical community.

The comments discussed above suggest industry concerns that the incorporation of new consensus standards may create a real or perceived disadvantage for manufacturers of certain types of insulation. For example, there is disagreement regarding the application of ASTM C 1303 to insulation subject to the effects of aging. Some critics of the standard emphasize the relatively narrow scope of the test, while others maintain that it should not be incorporated into the Rule at all. In contrast, those who endorse the standard believe it would improve the accuracy of the R-values calculated for the products. There is also a Canadian standard (Can/ULC-S 770 "Standard for Determination of Long Term Thermal Resistance of Closed Cell Thermal Insulating Foams") that is designed to account for the effects of aging on the R-value of cellular plastic insulation.

Work is ongoing to improve both ASTM C 1303 and S 770 and reconcile some

of the differences in the two approaches.⁴⁰

The Commission recognizes the need to amend the Rule, when necessary, so that it reflects testing improvements that will provide more accurate information for consumers. The Commission, however, does not propose to amend section 460.5(a)(1) of the Rule to require the use of ASTM C 1303 for homogeneous, unfaced, rigid closed cell polyurethane, polyisocyanurate, and extruded polystyrene insulations. As discussed above, ASTM C 1303 has limited applicability because it only applies to unfaced, homogeneous material. If the FTC adopted this procedure, it is likely very similar products (e.g., insulation boards with paper facing) would continue to be tested under the older approach (the "180-day" accelerated aging test). The Commission is reluctant to incorporate the C 1303 procedure into the Rule at this time because it is unclear whether it is sufficiently broad and adequately developed to warrant its incorporation as a legal requirement for all manufacturers of cellular plastic insulation.

Nevertheless, the Commission is interested in seeking comments on this evolving issue and may reconsider its views if warranted by the comments. The Commission seeks comment on whether the new standards (ASTM C 1303 and Canadian S 770) are sufficiently developed to be imposed on all industry members as a legal requirement in the R-value Rule. In particular, the Commission requests more information regarding the scope of applicability of C 1303 (e.g., for faced and unfaced boards) and likely changes to the procedures in the future. In addition, the Commission also requests comment on whether the differences in results achieved by C 1303 as compared to the current procedure (180-day test) are significant at smaller board thicknesses and whether such thicknesses are prevalent in the residential insulation market. The Commission also would appreciate information about the expected impact that the use of this procedure would have on consumer buying decisions.

If the comments provide new and significant information clearly indicating that ASTM C 1303 should be incorporated into the Rule, the Commission may consider amending the Rule to require use of C 1303 (or perhaps S 770) for those products

³⁶ Celotex (7), p. 2.

³⁷ FPSA (8), pp. 2-6.

³⁸ ORNL-1 (17), p. 1; USDOE (20), p. 1.

³⁹ ORNL-2 (21), pp. 1-2.

⁴⁰ See Stovall et al., "A Comparison of Accelerated Aging Test Protocols for Cellular Foam Insulation," in *Insulation Materials: Testing and Applications: 4th Volume*, ASTM International (2002).

covered by the test procedure.⁴¹ It is likely that such an amendment would displace the 180-day test that is generally used currently for such products. Accordingly, commenters who oppose the incorporation of C 1303 into the Rule and believe that the 180-day test is adequate should submit their views to the Commission.

Although the Commission is not proposing to incorporate ASTM C 1303 into the Rule at this time, it is proposing to amend the Rule to require that other types of polyurethane, polyisocyanurate, and extruded polystyrene insulation be aged using, where appropriate, ASTM C 1029–96 (“Standard Specification for Spray-Applied Rigid Cellular Polyurethane Thermal Insulation”), ASTM C 591–94 (“Unfaced Preformed Rigid Cellular Polyisocyanurate Thermal Insulation”), and ASTM C 578–95 (“Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation”).⁴² For all other polyurethane, polyisocyanurate, and extruded polystyrene insulation subject to aging but not specifically covered by one of the procedures listed above, industry members must use the procedure in paragraph 4.6.4 of GSA Specification HH-I-530A or another reliable procedure. The Commission seeks comment on whether the incorporation of these procedures into the Rule would be appropriate and whether these procedures raise the same or similar types of concerns associated with ASTM C 1303 as discussed above.

b. Reflective Insulations

Background

In the ANPR, the Commission discussed whether the Rule should require that reflective (aluminum foil) insulation products be tested for

⁴¹ The text of such an amendment would appear in section 460.5(a)(1) of the Rule and would likely read: “For polyurethane, polyisocyanurate, and extruded polystyrene, the tests must be done on samples that fully reflect the effect of aging on the product’s R-value. To measure the effect of aging for unfaced homogeneous rigid closed cell plastic foams, follow the procedure in ASTM C 1303–95 (“Estimating the Long-Term Change in the Thermal Resistance of Unfaced Rigid Closed Cell Plastic Foams by Slicing and Scaling Under Controlled Laboratory Conditions”).” The Commission may also consider adopting Can/ULC-S 770 in lieu of C 1303.

⁴² The Commission is not proposing to require ASTM C 1289 (“Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board”) as suggested by some commenters. The current version of this test procedure, ASTM C 1289–02, requires the use of the Canadian test procedure for aging (S 770) which appears in C 1289 as an annex. Because the Commission has decided not to include C 1303 (or S 770) in the Rule at this time, the Commission is not going to require the same or equivalent aging procedure through C 1289.

emissivity and R-value “using samples that fully reflect the effect of aging” on the product’s emissivity and R-value. In particular, the Commission raised concerns about the effects of the accumulation of dust or corrosion on the foil. Because the claims for all types of home insulation products should take into account factors that affect the products’ thermal performance, the ANPR invited comment on whether dusting or corrosion of reflective insulations in actual applications is a problem resulting in lower R-values than claimed, on the extent of any degradation of R-value, and on how the effect of dusting or corrosion on R-value could most accurately be determined.

Comments

Several comments suggested that the collection of dust on foil can significantly decrease the material’s thermal performance. NAIMA maintained that evidence supports that dusting and corrosion on reflective insulations have a detrimental effect on the product’s R-value. NAIMA stated that a satisfactory test method for determining the R-value of reflective insulation must be able to account for the debilitating effect of dust and corrosion on the performance capacity of the insulation.⁴³ According to NAIMA, DOE’s Radiant Barrier Attic Fact Sheet (June 1991) reported laboratory measurements verifying that dust on the surface of aluminum foil increases the product’s emissivity and decreases its reflectivity. NAIMA stated that DOE concluded that dust or other particles on the exposed surface of a radiant barrier will reduce its effectiveness and, therefore, reflective insulations installed in locations that collect dust or other surface contaminant will have a decreasing benefit over time. NAIMA asserted that when DOE monitored reflective insulations installed in a dusty attic, DOE observed that 50% of the insulation’s effectiveness dissipated after the first year of installation.⁴⁴ According to NAIMA, DOE’s findings have been repeated in other studies.⁴⁵

RIMA contended that foil is not subject to significant aging due to corrosion because it oxidizes naturally, providing corrosion protection. RIMA asserted furthermore that ASTM C 1224 (“Standard Specification for Reflective Insulation for Building Applications”)

⁴³ NAIMA (9), pp.11–12. AFS echoed NAIMA’s concerns, contending that dust can create emittance problems for foil in laid down, face-up attic applications, but not in face-down applications. AFS (14), p. 1.

⁴⁴ *Id.* at Appendix 15.

⁴⁵ *Id.* at Appendix 16.

requires testing for corrosion. RIMA maintained that dust was not a great concern for foil because, pursuant to C 1224, these materials are installed in closed-cell cavities regardless of orientation, thus preventing or minimizing dust.⁴⁶

Discussion

The Commission recognizes that the accumulation of dust or corrosion on foil can be significant enough to affect performance. However, as RIMA pointed out, the degree to which performance is affected will depend on the foil’s application. As a general matter, reflective insulations installed in locations that collect dust or experience surface contamination will have a decreasing benefit over time. Claims for all types of home insulation products should take into account factors that affect the products’ thermal performance. Accordingly, while the Commission does not believe an amendment to the Rule is warranted, it notes that manufacturers should always take into account factors that affect their products’ thermal performance when making performance claims for foil products, especially when there is a reasonable expectation that the products will be installed in locations associated with significant dust accumulation. The same holds true for any effects that corrosion may have on the long-term performance of reflective insulations.

2. Settling

a. *Loose-Fill and Stabilized Insulations in Attics*

In the original rulemaking proceeding, the Commission determined that all dry-applied loose-fill insulation products tend to settle after being installed in open (or unconfined) areas such as attics. Settling reduces the product’s thickness, increases its density, and affects its total R-value. The amount of settling depends on several factors, including the raw materials and manufacturing process used, and the installer’s application techniques (which affect the insulation’s initial thickness and density). 44 FR at 50228.

To ensure that claims made to consumers are based on long-term thickness and density after settling, section 460.5(a)(2) of the Rule requires that the R-value of each dry-applied loose-fill home insulation product be determined at its “settled density.” The Rule requires that manufacturers of dry-applied loose-fill *cellulose* insulation for attic applications test and disclose the R-value (as well as coverage area and related information) at the long-term,

⁴⁶ RIMA (19), p. 1.

settled density determined according to paragraph 8 of ASTM C 739–91, commonly referred to as the “Blower Cyclone Shaker” (“BCS”) test.⁴⁷ Because a consensus-based test procedure had not been adopted for determining the long-term, settled density of dry-applied loose-fill mineral-fiber insulation for this type of application, the Rule only requires that R-values be based on long-term thickness and density after settling, and does not specify how to determine a specimen’s density.⁴⁸

Since the Commission promulgated the Rule, new forms of loose-fill home insulation products have been introduced for use in attic applications, including “stabilized” cellulose. “Stabilized” cellulose refers to a form of loose-fill cellulose insulation that contains a glue binder and is applied on attic floors with a small amount of liquid. Application of the insulation with the glue binder and liquid purportedly results in lower-density cellulose insulations that do not settle like dry-applied loose-fill cellulose insulations. The Rule does not currently specify a procedure for determining the long-term, settled density of stabilized cellulose insulation. In addition, questions have been raised regarding the settling of loose-fill insulations in the walls of site-built housing and in both the attics and walls of manufactured housing. 64 FR 48032.

i. Dry-applied Loose-fill Cellulose in Site-Built⁴⁹ Attics.

Comments on Dry-applied, Loose-fill Cellulose Insulations for Use in Site-Built Home Attics

Two commenters addressed the issue of dry-applied loose-fill cellulose in attics. NAIMA supported the current design density test (ASTM C 739–91) (“Standard Specification for Cellulosic Fiber (Wood-Base) Loose-Fill Thermal

Insulation”) required by the Rule for loose-fill cellulose. NAIMA urged the Commission to revise the Rule to require use of sample preparation techniques, stabilization times, and guidance on gauging the specimen’s density in the test area according to ASTM C 687 for *all types* of loose-fill insulations, pointing out that ASTM C 739 already requires cellulose insulation manufacturers to conduct testing as prescribed in C 687. NAIMA also recommended that the Commission require, on dry-applied loose-fill cellulose bags, an installed thickness column that reflects the magnitude of settling and loss of thickness that can be expected.⁵⁰ It cited a Swedish long-term study that showed average settling of 16% to 21% of loose-fill insulation in attics in two test houses studied for up to seven years.⁵¹ The study documented that certain variations in cellulose material directly affect settling. The study suggested that cardboard based cellulose seems to settle more than newsprint and that the degree of grinding also affects settling. The study also suggested that humidity variations, density, and vibration affected settling.

CIMA contended that the BCS test was promulgated about 20 years ago and is probably no longer appropriate for determining the settled density of dry-applied loose-fill insulation. CIMA stated that current studies of actual installations indicate that settlement of loose-fill cellulose insulation is typically between 12% and 20% in residential applications, while the BCS test results suggest a settlement of 30% or more. By specifying a test that significantly overstates cellulose settlement, the Rule, in CIMA’s view, places dry-applied loose-fill cellulose insulation at a competitive disadvantage (compared to fiberglass) that may result in an annual loss of 50 million dollars in revenues to cellulose insulation manufacturers.⁵²

Discussion of Dry Applied Loose Cellulose in Site-Built Attics

In the absence of an accepted alternative to the test procedures in ASTM C 739, the Commission is reluctant to amend the Rule to eliminate the established BCS test. Moreover, the Commission does not believe that further prescriptive requirements, as suggested by NAIMA, are warranted and is thus not proposing the use of sample preparation techniques, stabilization times, and guidance on gauging the specimen’s density in the test area

according to ASTM C 687 for *all types* of loose-fill insulations. This standard practice is already required for loose-fill cellulose insulation through the requirements in ASTM C 739 (currently required by the Rule). It is unclear whether the application of this technique would significantly improve the accuracy of R-value claims for other loose-fill materials. The Commission does propose, however, to update the current reference to the ASTM C 739 in section 460.5(a)(2) to reflect the most current version (1997). The Commission also proposes to address the issue of installed thickness as suggested by NAIMA (*see* § V.E.1.c.ii. of this document).

Although the Rule requires manufacturers of dry-applied loose-fill cellulose to determine the R-value and coverage at the settled density determined according to the BCS procedure, manufacturers who can demonstrate that the BCS procedure is inappropriate for their products can petition the Commission for an exemption that would allow them to determine the settled density of their products according to a more appropriate method. *See* 64 FR 48033.

ii. Dry-Applied Loose-Fill Mineral Fiber in Site-Built Attics

Section 460.5(a)(2) of the Rule specifies the procedures to be used in determining the settled density only for cellulosic, and not mineral fiber, insulation products. When the Commission promulgated the Rule in 1979, it expected that GSA soon would adopt a specific test procedure for determining the settled density of dry-applied loose-fill mineral fiber insulation products. 44 FR at 50228, 50239 n.239. GSA did not do so, and now accepts the use of ASTM standards, which do not specify procedures for determining the settled density of dry-applied loose-fill mineral fiber insulations. Reports of studies conducted by Oak Ridge National Laboratory during the 1980s demonstrate that certain loose-fill mineral fiber insulation products can settle following installation, resulting in a reduction of R-value. The results differed in the amount of settling and the effect of settling on the R-values of the specific insulation products studied, depending on the type of mineral fiber insulations studied (fiberglass versus rock wool products) due to differences in density. 64 FR at 48033.

The Commission indicated in the ANPR that it would be preferable to specify a uniform procedure for determining the long-term, settled density of dry-applied loose-fill mineral

⁴⁷ Standard Specification for Cellulosic Fiber (Wood-Base) Loose-Fill Thermal Insulation (“ASTM C 739–91”).

⁴⁸ When the Commission promulgated the Rule, GSA had proposed adopting a settled density test procedure for loose-fill mineral fiber insulation products similar to the one it had adopted for loose-fill cellulose insulation products. Mineral fiber manufacturers contended, however, that they took settling into account in their coverage charts, and that if their insulations were installed according to their coverage charts, consumers would receive the R-values they claimed. The Commission imposed a general requirement that R-values of dry-applied loose-fill mineral fiber insulations be based on tests that take the adverse effects of settling into account, but did not specify how the settled density was to be determined. 44 FR at 50228. GSA never adopted a procedure for determining the settled density of mineral fiber insulations. *See* 64 FR 48032, n.46 (1999).

⁴⁹ The term “site-built” differentiates attics in manufactured housing.

⁵⁰ NAIMA (9), pp. 12–13.

⁵¹ *Id.*, Appendix 17.

⁵² CIMA (4), p. 3.

fiber insulation products, and solicited comments for this purpose. The Commission specifically requested any data that demonstrate whether any of the following, currently available test procedures, or others, would produce accurate and reliable, long-term settled density results for mineral fiber insulation products in attic applications: the BCS test procedure in ASTM C 739–91 (which currently is required for dry-applied, loose-fill cellulose insulation products); the “Canadian drop box procedure,” which GSA previously proposed for loose-fill mineral fiber insulations under Federal Specification HH-I-1030B;⁵³ the British Standard Vibration Test; and the procedure developed in Scandinavia by Dr. Svennerstedt. *Id.*

Comments on Dry-applied, Loose-fill Mineral Fiber Insulations for Use in Site-Built Home Attics

NAIMA commented that field measurements of the thickness of loose-fill mineral fiber insulation in open-blown attic applications show little or no settling. For example, according to NAIMA, the Mineral Insulation Manufacturers Association (“MIMA”) concluded, with ORNL concurring, that tests demonstrated that settling of loose-fill mineral fiber in attics is a minor factor in the final installed R-value delivered to the customer when the thickness and amount of material required by the bag label is installed. For insulation installed at or above label density and thickness, the calculated final R-values of loose-fill mineral fiber products were always at or above the labeled R-value. NAIMA contended that, because these materials do not settle significantly, no predictive settling method has been validated for these products. NAIMA argued that identical tests should not be required for both cellulose and mineral fiber because such an approach would yield meaningless results from duplicate tests on distinctly different substances, and would not create an even playing field.⁵⁴

CIMA commented that, because there is no specific test for determining the settled densities of dry-applied loose-fill mineral fiber insulation, such materials may have labeled densities that are lower than actual settled densities, thereby depriving consumers of the amount of insulation they think they are purchasing. According to CIMA, recent independent third-party testing confirms that this is the case. CIMA recommended specific Rule language

that would require that all dry-applied loose-fill insulation be subjected to the ASTM C 739–97 test for settled density.⁵⁵

Discussion of Dry-applied, Loose-fill Mineral Fiber Insulations for Use in Site-Built Home Attics

The Commission recognizes that there is no consensus standard currently available to measure the settling of loose-fill mineral fiber insulations for use in site-built attics. In addition, on its face, ASTM C 739 applies to cellulosic fiber only. Thus, it would seem inappropriate for the Rule to require the application of that test procedure to loose-fill mineral fiber insulation. The Commission emphasizes that industry members must have a reasonable basis for their R-value claims that takes into account the effects of settling. In addition, the Commission proposes to amend the Rule to eliminate the reference to the GSA procedure because, as discussed earlier, it is no longer applicable. The Commission seeks further comments on this issue, including whether it would be appropriate to apply the test procedure in ASTM C 739–97 to mineral fiber.

iii. Stabilized Cellulose in Site-Built Attics

In the ANPR, the Commission acknowledged that, due to the manner in which stabilized cellulose insulation is installed, the BCS test procedure may not be appropriate for determining its long-term, settled density. 64 FR at 48033–34. The Commission did not agree with NAIMA, however, that the procedure for determining density in ASTM C 1149 is the appropriate measure of the long-term, settled density of stabilized cellulose insulations installed in attic applications. The Commission explained that ASTM C 1149 is designed for insulations that are sprayed onto walls, and able to support themselves as applied. Such insulations are most often applied to metal walls in commercial buildings, where they are left exposed. The Commission stated that when ASTM, or others, adopt a specific method for determining the long-term density of stabilized cellulose insulation for attic applications the Commission will consider whether to require its use. The Commission reminded manufacturers that, in the meantime, under section 5 of the FTC Act, they must have a reasonable basis for the density at which they conduct the R-value tests required by the Rule

and for the R-value claims they make to consumers. 64 FR 48033.

Comments on Stabilized Cellulose Insulations for Use in Site-Built Home Attics

The Commission received one comment, from NAIMA, on the issue of stabilized cellulose insulations. NAIMA stated that there is little information on long-term thermal effectiveness and overall performance of wet-spray cellulose insulations, that no material specification exists to cover this product, and that there is no standard protocol for determining appropriate test density for labeling purposes. NAIMA reported that ongoing work on a proposed specification has relied on a drop box method under fixed laboratory conditions, but, in NAIMA’s view, data has not been presented suggesting at what level of settlement a product is considered to be stabilized.

NAIMA further contended that the tests do not necessarily represent the material in actual field installations. NAIMA indicated that the product’s settling and shrinkage varies with temperature and humidity and that data supports significant shrinkage at elevated temperatures and increased moisture levels. It is very difficult, in NAIMA’s opinion, to maintain consistent density due to variations in the amount of water used when the product is installed, noting that many contractors say that they have no clear guidelines on drying of wet-spray cellulose. This is particularly significant in new construction where the wet spray insulation may not dry “before the building is completed and the attic is closed up.” NAIMA also stated that it was not aware of any testing conducted by the cellulose industry to provide consumers and installers with useful information and guidance on drying times. It advised the Commission, in light of what it characterized as “this serious variable threatening to degrade the settled density of the cellulose insulation,” to require each manufacturer to provide consumers and customers with reliable guidelines to ensure that the insulation has dried before construction is completed.

NAIMA contended that this measure is particularly crucial because there is no approved test method for determining settled density. Pending the development of an accepted standard protocol (which it maintained the Commission should then require), NAIMA urged the Commission to require producers of stabilized cellulose to disclose to consumers and installers settlement and shrinkage data as a function of moisture application levels

⁵³ See 44 FR at 50228, 50239 n.239.

⁵⁴ NAIMA (9), pp. 1–14.

⁵⁵ CIMA (4), p. 3.

and provide a recommended temperature to guide installers in proper application.⁵⁶

Discussion of Stabilized Insulations for Use in Site-Built Home Attics

Because there is no consensus standard to apply to the testing of stabilized cellulose, the Commission does not plan to prescribe one in the Rule. The Commission is proposing, however, to amend the Rule to clarify that industry members must take settling into account in making their R-value claims for stabilized insulation. The Commission notes that industry members must have a reasonable basis for their claims. It is generally accepted that some settling occurs with these materials. Even though there is no consensus standard for measuring it, manufacturers must take settling into account and use reliable tests to back up their claims. Finally, the Commission notes that if there is information, such as drying times, that are important to the proper installation of the material in question, manufacturers should disclose that information. The Commission seeks comment on this issue.

iv. Loose-fill and Stabilized Insulations Used in Manufactured Housing Attics

The Commission's ANPR also asked whether the procedures currently used to determine the settled density of dry-applied loose-fill insulations or stabilized insulations when they are used in attics of site-built homes, are appropriate for determining their settled density when they are used in attics of manufactured housing. At issue is whether these insulations, which are installed in attic assemblies in a factory and then transported to the site where the manufactured home will be located, settle more, or differently, from those used in site-built homes because of additional vibrations and other factors during transportation. The Commission solicited comments regarding the extent of settling of dry-applied loose-fill insulations and stabilized insulations when they are used in attics of manufactured housing, the density at which the R-value of these insulations should be determined for use in attics of manufactured housing, and how that density should be determined. 64 FR at 48033-34.

Comments on Dry-applied Loose-fill and Stabilized Insulations for Use in Manufactured Housing Attics

NAIMA urged the Commission to adopt testing guidelines similar to the Department of Housing and Urban

Development Code and require over-the-road testing for all insulations installed in attics of manufactured homes. NAIMA doubted the accuracy of current methods used by the cellulose industry to judge the amount of settling of stabilized cellulose in attics of manufactured homes. NAIMA explained that the point of testing is the manufactured housing plant, before the fully constructed home is transported via truck or train to its final destination, and that the disturbances inherent in such transportation tend to alter the level of the cellulose, and thus its R-value.

According to NAIMA, rock wool and slag wool manufacturers rely for their claims on independently conducted third-party-witnessed over-the-road evaluations designed to measure the impact of the effects of transportation on installed rock wool and slag wool insulations. NAIMA contended that cellulose manufacturers did not conduct such over-the-road tests until 1997, when HUD required them to do so. NAIMA stated that, although CIMA has been working with HUD to resolve the issue, NAIMA cannot find evidence that CIMA and its members have rectified the alleged deficiencies in their testing approach to HUD's satisfaction. Accordingly, in NAIMA's view, the durability of thermal performance claims of stabilized cellulose in manufacturing home attics remains unsubstantiated.⁵⁷

Discussion of Dry-applied Loose-fill and Stabilized Insulations for Use in Manufactured Housing Attics

The Commission does not propose to amend the Rule to address the particular settling issues associated with loose-fill and stabilized insulation in manufactured housing attics because, at this time, no industry consensus procedure exists. Nevertheless, the Commission reminds industry members that they must substantiate their product performance claims. Accordingly, all manufacturers of loose-fill and stabilized insulation in manufactured housing attics must take into account, as accurately as possible, any significant effects associated with transporting units from the manufacturing plant to the home site. The Commission's staff is aware that HUD has raised issues concerning these materials with industry members as part of that agency's regulatory program for manufactured housing. No specific HUD code or standard has been identified that would be appropriate for

incorporation into the R-value Rule in this context.

b. Loose-Fill and Self-Supported Insulations in Walls

The ANPR explained that dry-applied loose-fill insulations and spray-applied, self-supported insulations can be installed in walls in residential applications. Dry-applied loose-fill insulations normally can only be applied in existing wall cavities (primarily in retrofit applications). If they are not sufficiently compressed during installation, these insulations may settle when blown into a confined area, such as an enclosed wall cavity, leaving a gap at the top of the wall cavity. Manufacturers who claim an R-value for a dry-applied loose-fill insulation must disclose the R-value at the applied density, determined according to the R-value test procedures specified in the Rule. The Rule, however, does not specify how manufacturers must determine that density in wall applications because there was no standard procedure for measuring the applied density for all product in that context when the Commission promulgated the Rule.

Self-supported, spray-applied insulations, mixed with water and adhesives, are installed pneumatically on-site by professional installers. They may be made of either cellulose or mineral fiber. When applied, this form of insulation requires no support other than the insulation itself or the substrate to which it is attached. These products most often are used in walls in commercial applications, where they may be left exposed after they are installed. They are rarely used in residences, primarily because this application requires the use of more insulation material for a given thickness (*i.e.*, the insulation is installed at a higher density and cost), often without any increase in total R-value, and sometimes at a reduced R-value. They are not used in attics because of their additional weight and cost. Because these products are applied at a greater density than either dry-applied loose-fill or stabilized insulations, they are not likely to settle.

The Commission explained that, although self-supported, spray applied insulation was not discussed during the original rulemaking proceeding and the Rule does not specify how R-value test specimens must be prepared, it is covered by the Rule if it is sold for use in the residential market. Because the density at which these insulations are applied affects their R-values, the Commission's staff has advised industry members that they should prepare test

⁵⁶ NAIMA (9), pp. 14-16.

⁵⁷ NAIMA (9), pp. 16-17.

specimens according to the manufacturer's installation instructions, using equipment, materials, and procedures representative of the manner in which the insulation is applied in the field. In the ANPR, the Commission indicated that the procedures in paragraph 5.1 of ASTM C 1149 ("Self-Supported Spray Applied Cellulosic Thermal Insulation") appear to be appropriate for preparing R-value test specimens of self-supported, spray-applied cellulose insulation products. The Commission proposed to amend the Rule to incorporate this test and solicited comments on the proposal. 64 FR at 48034.

Comments on Loose-Fill Insulations in Walls

NAIMA suggested that the Rule require manufacturers to demonstrate that their products do not settle in wall installations or to disclose the amount of any expected settling on Fact Sheets along with wall coverage charts similar to those required for attic installations. NAIMA recommended that wall coverage charts require R-values, coverages, bag counts, and area weights at standard wall cavity depths for at least 2x4 and 2x6 framing. Acknowledging that no validated test method exists to predict the settling of loose-fill insulations, NAIMA nevertheless maintained that settling in walls is more critical than settling in attics because settling in walls creates uninsulated voids at the top of wall cavities, while settling in attics does not create uninsulated areas. NAIMA claimed that wall insulation settling of 5% can reduce overall wall R-value by 15%.⁵⁸

Discussion of Loose-fill Insulation in Walls

The Commission understands that specific requirements for determining the appropriate density for the R-value test specimen and for disclosures on coverage charts for applications in enclosed wall cavities may provide some benefits to consumers. However, there does not appear to be any generally accepted procedure to determine the density of dry-applied loose-fill insulations when it is installed in enclosed wall cavities. Accordingly, at this time, the Commission is not proposing an amendment to the Rule in this regard, but reminds manufacturers to be careful and cautious about their claims for loose-fill insulation in walls.

⁵⁸ NAIMA (9), p. 17.

Comments on Self-Supported Insulation in Walls

NAIMA encouraged an amendment to the Rule that would require the preparation of R-value test specimens of self-supported spray cellulose according to ASTM C 1149-97. NAIMA maintained that this standard provides adequate test specimen procedures.⁵⁹

Discussion of Self-Supported Insulation in Walls

For self-supported spray-applied cellulose insulation, the Commission proposes to amend the Rule to require the use of ASTM C 1149-97. The procedures in paragraph 5.1 of ASTM C 1149-97, which require that R-value test specimens be prepared using the manufacturer's recommended equipment and procedures and at the manufacturer's maximum recommended thickness, appear to be appropriate procedures for preparing R-value test specimens of self-supported, spray-applied cellulose insulation products. The Commission solicits comment regarding the accuracy and reliability of this procedure, how to define the products to which the procedures apply, and whether the same procedures (or others) should be required for other types of spray-applied insulations (e.g., mineral fiber insulations) that are used in residential applications. If comments indicate that this product is rarely used in the residential market, the Commission will reconsider the need for a specific requirement. The Commission also proposes to indicate that manufacturers must take into account the settling of self-supported insulation in determining the R-value of their products. The Commission accordingly seeks comments regarding the extent to which this insulation is used in the residential market. If the material is not used widely in the residential market, the Commission requests views on whether it is necessary to amend the Rule to specifically address this product.

In the ANPR, the Commission also proposed the incorporation of a portion of HUD UM-80 into the Rule.⁶⁰ The HUD bulletin has not been reviewed or amended since its publication in 1979. To avoid any confusion that may result from requiring two procedures, the Commission does not propose to require HUD UM-80.

⁵⁹ *Id.*

⁶⁰ U.S. Department of Housing and Urban Development Materials Bulletin No. 80 ("HUD UM-80"), dated October 31, 1979.

Discussion regarding the Use of Loose-fill Insulations and Self-supported Insulations in Wall Cavities of Manufactured Housing

As indicated in the ANPR (64 FR at 48035), industry members have raised questions regarding the current procedures for determining the settled density of dry-applied loose-fill insulations or self-supported insulations when they are used in wall cavities of site-built homes. At issue is whether the settling of these insulations, which are installed in wall assemblies in a factory and then transported to the site where the manufactured home will be located, settle more, or differently, than those used in site-built homes because of additional vibrations and other factors during transportation. Because no comments addressed this issue, the Commission is not proposing any amendments to the Rule in this regard.

3. Density Variations

The ANPR asked whether the Rule should require R-value testing of loose-fill insulations at each thickness claimed in order to take into account the density variations that may occur with variations in thickness. 64 FR at 48035. NAIMA recommended that the Commission revise the Rule to require manufacturers to consider density variations in preparing coverage charts.⁶¹ However, without specific data to demonstrate whether or how much the density of particular types of loose-fill varies with differences in thickness, the Commission does not believe that changes to the Rule on this issue would be appropriate. For this issue, the Commission is not proposing any amendments to the Rule.

4. Installations in Closed Cavities of Variable Thickness

The ANPR asked whether the Rule should specify how to determine and disclose R-values for insulation installed in cavities of variable thickness and density (e.g., in manufactured housing attics). 64 FR at 48035. NAIMA opposed a change to the Rule because it would unnecessarily confuse this issue, and venture into system performance and building design.⁶² No other significant comments were received on this issue. Accordingly, the Commission is not proposing any amendments to the Rule regarding this issue.

⁶¹ NAIMA (9), p. 18.

⁶² *Id.*

D. Other Testing Requirements

1. Accreditation of Testing Laboratories

The ANPR solicited comments on whether the Rule should require accreditation of testing laboratories that are used to substantiate R-value and related claims. 64 FR at 48035–36. The Commission received no comments in support of such a change, and the Commission has decided not to propose any amendments to the Rule regarding this issue.

2. Test Temperature Requirements

a. Mean Temperature

The ANPR asked whether the Rule should require a mean test temperature of other than 75° F for R-value tests. One commenter suggested that all products be tested with the cold side at 25° and the hot side at 75°.⁶³ Five other commenters, however, opposed any change to the Rule's mean temperature requirement.⁶⁴ NAIMA stated that the current requirement reflects the most appropriate mean temperature for comparison purposes. As explained in the ANPR, the 75° F mean temperature requirement is an appropriate uniform standard. 64 FR at 48036–37. The Commission believes that there is no compelling need to change the current requirement, and is not proposing any amendments to the Rule regarding this issue.

b. Temperature Differential

Background

The current Rule does not require the use of a specific temperature differential (*i.e.*, the difference in temperature between the hot and cold surface during testing) in conducting the test procedures dictated by section 460.5(a). The ANPR indicated that if evidence demonstrates that different test temperature differentials affect R-value results, then it may be appropriate to consider specifying a test temperature differential in the Rule to ensure the comparability of R-value claims for competing home insulation products. The Commission, therefore, solicited comments on whether, to what extent, and for what types and forms of insulation variations in the test temperature differential affect R-value results; and what specific test temperature differential(s) the Commission should impose for tests conducted according to each of the R-value test procedures cited in the Rule. 64 FR at 48037.

⁶³ Troutman/T-Foil (1).

⁶⁴ PIMA (3), p.11; FPSA (8), p.7; Elastizell (10), pp. 3–4; Tenneco (16), p.2; and NAIMA (9), p.19.

Comments

PIMA, FPSA, and NAIMA supported the adoption of a differential of 50° F plus or minus 10 degrees for tests at a mean temperature of 75° for all products, as specified in ASTM C 1058.⁶⁵ The Commission did not receive any comments opposing such a change.

Discussion

The Commission proposes to amend the Rule at section 460.5(a) to require that tests be conducted with a temperature differential of 50° F plus or minus 10° F. The Rule would continue to require a mean temperature of 75° F. The Commission believes that this amendment will help to ensure comparability of R-value claims for competing home insulations. The thermal properties of a specimen may change both with mean temperature and with the temperature difference across the test specimen. Data and information at standard temperatures are important for valid comparison of thermal properties. The Commission solicits comment on this proposal, including whether the proposed amendment generally is consistent with current industry practice.

3. Tolerance

Background

In the ANPR, the Commission proposed to clarify that the 10% tolerance provision in section 460.8 applies primarily to claims made by manufacturers and not to other sellers or installers who rely on R-value data provided by the manufacturer. The tolerance provision states that the actual R-value of any insulation sold to consumers cannot be more than 10 percent below the R-value shown on a label, fact sheet, ad, or other promotional material for the product. The Commission solicited comments on whether and how it should propose amending the tolerance provision, and the benefits and burdens such an amendment would confer on consumers and insulation sellers. In addition, the Commission sought comments on whether manufacturers currently use sampling procedures that do not result in the selection of test specimens that are representative of ongoing production; on which specific procedures are available for use in sampling from continuing production (or how sampling procedures designed for specific lots could be used to select samples from continuing production); and on whether the Commission should

require the use of specific sampling procedures. 64 FR at 48037–38.

Comments

NAIMA supported amending the tolerance provision of the Rule to clarify that manufacturers are the only parties responsible for complying with the Rule's 10% tolerance provision.⁶⁶ PIMA indicated that the tolerance provision is well understood and that altering it could cause confusion.⁶⁷ T-Foil urged that the Commission eliminate the tolerance provision entirely because it misleads consumers.⁶⁸

Other commenters, however, supported changes to the Rule to provide greater specificity for determining compliance with the 10% tolerance limit. Celotex, for example, suggested a requirement that manufacturers design products to meet 100% of claimed R-value for each thickness marketed.⁶⁹ NAIMA contended that the suggested wording in the ANPR offers clarity,⁷⁰ and would be likely to prevent misinterpretation of the 10% tolerance. NAIMA recommended adopting language that captures the following concepts: “The product must always be produced to the label R-value. The R-value for any four randomly selected samples shall not be more than 5 percent below the listed R-value nor shall any single specimen be more than 10 percent below the listed R-value.”⁷¹ According to NAIMA, this clarification would be consistent with ASTM C 665 and C 764, and would benefit consumers because there would be no room for misinterpretation of the 10% tolerance. In NAIMA's view, this approach also presents a greater probability that the product would be produced to the labeled R-value, and it would impose no burden on consumers or sellers.

On the issue of sampling procedures, most commenters did not support amending the Rule. PIMA argued that current manufacturer sampling and quality control procedures are sufficient and that changes to the Rule are unnecessary because manufacturers continuously test new and existing products for R-value because it is the

⁶⁶ PIMA (3), p. 12. and NAIMA (9), p. 20.

⁶⁷ PIMA (3), p. 12.

⁶⁸ T-Foil (1), p. 1.

⁶⁹ Celotex (7), p. 3.

⁷⁰ We assume that NAIMA refers to language suggested by DOW and quoted in the ANPR (64 FR at 48037): “The mean R-value of sampled specimens of a production lot must meet or exceed the R-value shown in a label, fact sheet, ad or other promotional material. No individual specimen can have an R-value more than 10% below the claimed R-value.”

⁷¹ NAIMA (9), p. 20.

⁶⁵ PIMA (3), pp. 11–12, FPSA (8), p. 7, and NAIMA (9), pp. 19–20.

most important property of insulation.⁷² Celotex argued that a change in the Rule would be burdensome to manufacturers. Instead, it recommended that the Commission require that sampling techniques "used to determine the Design R-value for an insulation must determine the average Design R-value for a full-size board unit."⁷³ FPSA also did not support the addition of sampling procedures to the Rule.⁷⁴

NAIMA agreed that no amendment to the Rule is warranted for sampling procedures. NAIMA stated that manufacturers generally test R-value every shift in the production process, and that this is certainly "representative of ongoing production," so no specific sampling procedures should be required.⁷⁵

T-Foil recommended that the Commission establish a complaint center for ASTM testing errors to prevent companies from "shopping" different labs for test results. T-Foil also recommended a disclosure on labels stating that actual values may differ up to 10% from the stated value, and specifying whether testing was done for summer or winter use (*i.e.*, direction of heat).⁷⁶

Discussion

The Commission proposes to amend § 460.8 of the Rule to clarify that the tolerance limit applies to manufacturers and the manufacturing process (not to installation). The Rule will continue to require that professional installers and new home sellers apply loose-fill insulations according to the manufacturer's installation instructions. It also will continue to allow them to rely on the accuracy of the manufacturer's R-value and installation instructions, unless they have reason to believe that the instructions are inaccurate or not based on the proper tests. By specifying that the tolerance provision applies to manufacturers, the amendment would clarify that the tolerance is not intended to allow installers or new home sellers to deviate from the manufacturer's installation instructions. For instance, the 10% tolerance provision does not apply to the thickness at which loose-fill insulation is installed. Under the current Rule, loose-fill insulation must be installed at a settled thickness equal to or greater than the minimum settled thickness specified by the manufacturer.

The Commission also proposes to amend section 460.8 of the Rule to require that the mean R-value of sampled specimens of a production lot meet or exceed the R-value shown in a label, fact sheet, ad or other promotional material for that insulation. For the purposes of this amendment, the term "production lot" means a definite quantity of the product manufactured under uniform conditions of production. In addition, under the amendment, no individual specimen of that insulation may have an R-value more than 10% below the R-value shown in a label, fact sheet, ad, or other promotional material for that insulation. The Commission believes that this change would clarify existing requirements and foster consistency in the application of the tolerance provision. While this procedure appears to be generally consistent with current industry practice and thus would not impose a significant burden, the Commission seeks comments regarding the impact that the amendment may cause.

The Commission is not proposing a specific sampling procedure. There does not seem to be any clear indication to suggest that manufacturers' implementation of the tolerance provision results in the selection of test specimens that are not representative of ongoing production. The Commission believes that continued flexibility in that area is appropriate.

4. Use of Current Test Data

Background

The ANPR considered whether current conditions would justify a requirement for a more specific retesting quality control mechanism. In this regard, the Commission solicited comments on how often manufacturers test their insulation products, how much the R-value of current production varies (for example, whether the R-value of the insulation being produced is consistently below the R-value claimed and previously determined, even if it is within the Rule's 10% tolerance), how frequently manufacturers change their products, whether they retest products that have changed, and what retesting schedule would be most appropriate to ensure the accuracy of R-value claims made to consumers.

Comments

NAIMA opposed adding requirements to the Rule related to test data. NAIMA maintained that, as a matter of practice, manufacturers should test their products much more frequently than every two or three years to insure

compliance with the 10% R-value tolerance. NAIMA stated that some of its members measure their products' thermal resistance on a daily basis, while others check this attribute monthly. NAIMA contended that this type of testing should be conducted regularly as part of a company's quality-control procedure. According to NAIMA, the three-year test record retention period is sufficient. NAIMA further maintained that, when a manufacturer makes a significant change in a product, the product should undergo testing, and then the three-year cycle should begin again. NAIMA suggested that the Rule require thermal testing at least annually for all insulations covered by the Rule.⁷⁷

Discussion

The ANPR noted that the Commission originally considered, but rejected, a staff recommendation to require manufacturers to repeat their R-value substantiation tests every 60 days because no single retesting frequency would be appropriate for all manufacturers, regardless of the type and amount of insulation they market. 64 FR at 48038. Instead, the Commission crafted the Rule to rely on a tolerance limit provision as the governing quality control mechanism, specifying 10% as the acceptable range of deviation, and requiring manufacturers to institute in-plant quality control procedures to stay within that tolerance. The Rule requires manufacturers to conduct a new R-value test on each new home insulation product, and to disclose the R-value (and related information) of each new product based on the new test. 64 FR at 48038. The Commission does not believe that existing practices justify the imposition of a new requirement for a specific retesting schedule. There is not enough information available to suggest that this issue constitutes a significant problem that warrants a new requirement in the Rule. Accordingly, the Commission is not proposing a Rule amendment in this area.

5. Determining the Thermal Performance of Reflective Insulations

a. Traditional Reflective Insulations

Background

There are two basic forms of reflective insulation products in the residential market: (1) traditional single-sheet and multi-sheet reflective insulations; and (2) single-sheet radiant barrier reflective insulations. Traditional reflective insulation products normally are

⁷² PIMA (3), pp. 12–13.

⁷³ Celotex (7), p. 3.

⁷⁴ FPSA (8), pp. 6–7.

⁷⁵ NAIMA (9), p. 20.

⁷⁶ T-Foil (1), pp. 5–6.

⁷⁷ NAIMA (9), pp. 20–21.

installed in closed cavities, such as walls. Sections 460.5(b), (c), and (d) of the Rule require that manufacturers of traditional reflective insulation products use specific test procedures to determine the R-values of their products, and that manufacturers and other sellers disclose R-values to consumers for specific applications. 64 FR at 48038–39. Section 460.5(c) of the Rule requires the use of ASTM E 408 for single sheet systems. For reflective systems with more than one sheet, section 460.5(b) requires ASTM C 236 and ASTM C 976.

A relatively new ASTM procedure (ASTM C 1371–97, “Determination of Emittance of Materials Near Room Temperature Using Portable Emissometers”) can be used to measure the emissivity (*i.e.*, its power to radiate heat) of single-sheet reflective insulations. The ANPR solicited comments on this and other tests for single-sheet products, and asked whether it should require industry members to measure the emissivity by only one procedure to ensure that emissivity measurements are accurate and reliable.

The Commission indicated that it planned to amend the Rule to require that R-values for traditional multi-sheet reflective insulations be tested according to ASTM C 236–89 (1993) or ASTM C 976–90 in a test panel constructed according to ASTM C 1224–93, and under the test conditions specified in ASTM C 1224–93, and that the R-values be calculated according to the formula specified in ASTM C 1224–93 from the results of those R-value tests. *Id.* at 48039.

Comments

Most of the comments supported the Commission’s proposed changes. For determining single sheet emissivity, PIMA supported C 1371 as discussed by the Commission and suggested that the Rule incorporate ASTM C 835.⁷⁸ NAIMA stated that ASTM E 408, which is currently required by the Rule, provides accurate emissivity results, but recommended that the sample tested reveal the effect of aging on the product’s emissivity. NAIMA indicated that it would not oppose adoption of alternative tests so long as they were as accurate as E 408. It maintained that the proposed tests are necessary because the results reflect the impact of aging, dusting, and corrosion.⁷⁹

⁷⁸ PIMA (3), p. 7. “Standard Test Method for Total Hemispherical Emittance of Surfaces From 20 to 1400 Degrees C” (ASTM C 835–95).

⁷⁹ NAIMA (9), p. 21.

PIMA supported the Commission’s proposal for determining the R-value of multi-sheet reflective insulations.⁸⁰ AFS pointed out that ASTM C 1363, “Test Method for Thermal Performance of Building Assemblies by Means of a Hot Box Apparatus” has replaced C 236, C 976, C 177, and C 518 mentioned currently in C 1224.⁸¹ NAIMA further explained that ASTM C 1363 was developed to combine the requirements of ASTM C 236 and C 976 into a common test procedure. NAIMA indicated that any test apparatus meeting the existing C 236 and C 976 standards could meet the new standard. NAIMA also stated that ASTM C 1363 includes information from the applicable International Organization for Standardization (“ISO”) standard so that conforming to ASTM C 1363 also conforms to the ISO Hot Box standard.⁸²

Discussion

To reflect new procedures as discussed above, the Commission proposes to amend the Rule to reorganize sections 460.5(b), (c), and (d) to require in proposed section 460.5(b) that single sheet systems of aluminum foil (*i.e.*, reflective material) be tested with ASTM C 1371–98, “Standard Test Method for Determination of Emittance of Materials Near Room Temperature Using Portable Emissometers” or E 408 (as currently required). ASTM C 1371 tests the emissivity of the foil. To get the R-value for a specific emissivity level, air space, and direction of heat flow, the amendment would direct industry members to use the tables in the most recent edition of the American Society of Heating, Refrigerating, and Air-Conditioning Engineers’ (“ASHRAE”) Handbook, if the product is intended for applications that meet the conditions specified in the tables. Industry members would have to use the R-value for 50° F, with a temperature differential of 30° F.

In proposed section 460.5(c), the Commission proposes to state that aluminum foil systems with more than one sheet, and single sheet systems of aluminum foil (*i.e.*, reflective insulation) that are intended for applications that do not meet the conditions specified in the tables in the most recent edition of the ASHRAE Handbook, must be tested with ASTM C 1363–97, “Standard Test Method for the Thermal Performance of Building Assemblies by Means of a Hot Box Apparatus,” in a test panel constructed according to ASTM C 1224–99,

⁸⁰ PIMA (3), p. 7.

⁸¹ AFS (14), p. 1.

⁸² NAIMA (9), pp. 21–22.

“Standard Specification for Reflective Insulation for Building Applications,” and under the test conditions specified in ASTM C 1224–99. To get the R-value from the results of those tests, the amendment would require the use of the formula specified in ASTM C 1224–99. The tests must be done at a mean temperature of 75° F, with a temperature differential of 30° F.

Finally, the Commission plans to amend section 460.5(d)(1) to insert a reference to ASTM C 1363–97, “Standard Test Method for the Thermal Performance of Building Assemblies by Means of a Hot Box,” in place of ASTM C 236–89 (Reapproved 1993), “Standard Test Method for Steady-State Thermal Performance of Building Assemblies by Means of a Guarded Hot Box,” and ASTM C 976–90, “Standard Test Method for Steady-State Thermal Performance of Building Assemblies by Means of a Calibrated Hot Box.”

The Commission believes that these changes are appropriate because they account for recent improvements in the applicable test procedures. The Commission solicits comments on this proposal, particularly on any issues related to the accuracy, reliability, and consistency of the procedures for measuring emissivity; the costs of conducting the procedures; and whether the Commission should require that emissivity be measured by only one procedure to ensure that measurements of emissivity are accurate and reliable.

b. Radiant Barrier Products

Background

Radiant barrier reflective insulations are installed in attics facing the attic’s open airspace. Although they are covered by the Rule, R-value claims are not appropriate for them because no generally accepted test procedure exists to determine the R-value of a radiant barrier reflective insulation installed in an open attic. Sellers who make energy-saving claims for radiant barrier insulations must nevertheless have a reasonable basis for the claims under section 460.19(a) of the Rule.

The ANPR noted that ASTM had issued a new standard—ASTM C 1340–96—for evaluating the thermal performance of low-emittance foils used in residential attics to reduce radiative transport across the attic air space. The Commission solicited comments concerning the specific type of performance for radiant barrier products that the standard measures; how the standard may be used to substantiate energy-saving or other performance claims for radiant barrier insulations; the types of installations of radiant

barrier insulations for which the standard may be used; the accuracy of the determinations made under the standard; and whether the Commission should require that energy-saving or other performance claims for radiant barrier insulations be based on the standard. 64 FR at 48039–40.

Comments

NAIMA asserted that the elusive quality of radiant barrier insulation's varying characteristics makes assigning an R-value rating nearly impossible. NAIMA stated that tests conducted at DOE and other labs demonstrate an ability to predict certain energy savings only when no variables interfere with the product's performance.

Unfortunately, according to NAIMA, the DOE study shows that the product is vulnerable to numerous factors that can diminish its effectiveness. NAIMA contended that no single protocol or method currently exists that is capable of consistently rating the thermal performance of radiant barrier insulations. It maintained that, until such a test becomes available, the Commission should prohibit thermal performance claims for these products. NAIMA argued that such a restriction may provide an incentive for radiant barrier producers to develop the standard needed for supporting thermal performance claims.⁸³

RIMA opposed adoption of ASTM C 1340–96. RIMA contended that, while the standard is a useful tool and a good starting point for calculating savings from radiant barriers, it does not account for the presence of air conditioning ducts in attics, which can significantly affect heat gain and overall savings. Without being specific, RIMA suggested that the Commission consider other programs that are more comprehensive in energy-saving determinations.⁸⁴

Discussion

The Commission continues to find that R-value claims are not appropriate for radiant barrier reflective insulations because there is no generally accepted test procedure to determine the R-value of such insulations installed in an open attic or elsewhere. Sellers who make energy-saving claims for radiant barrier insulations, however, must have a reasonable basis for the claims under Section 460.19(a) of the Rule. It should be noted that ASTM C 1340–96 enables a determination of the heat flux through an attic containing a radiant barrier. The results do not provide an R-value rating,

but do yield a performance value that may aid industry members in developing support for their energy-saving claims (and related performance claims) made about radiant barrier insulations. The Commission does not propose any amendments to the Rule on this subject.

6. Additional Laboratory Procedures for Testing Loose-Fill Insulations

The Rule currently specifies only the basic R-value test procedures and test specimen preparation procedures for certain products that are necessary to account for factors that can significantly affect R-value results (e.g., aging, settling). The ANPR asked whether there is a need to specify in more detail the laboratory procedures that should be followed in preparing test specimens and conducting R-value test procedures. The Commission explained that ASTM C 687 ("Standard Practice for Determination of Thermal Resistance of Loose-Fill Building Insulation") is a detailed standard practice, rather than a test procedure, and that it specifies procedures to be followed in testing a variety of loose-fill insulations for use in non-enclosed applications. The Commission considered it unnecessary to require adherence to more detailed standard practice or standard guide specifications, such as ASTM C 687. The Commission did not receive any comments in response to the ANPR supporting a requirement for detailed laboratory operating procedures for these insulations. Accordingly, the Commission is not proposing any amendments to the Rule.

E. Other Disclosure Issues

1. Disclosures on Labels and Fact Sheets

a. "What You Should Know About R-values"

The ANPR sought comment on whether the Rule should require disclosure in fact sheets of additional or different information for consumers to consider when purchasing insulation. Several commenters suggested additional disclosures on fact sheets, including noting that R-values may decrease when insulation material is installed between structural members (e.g., wall studs, floor joists, etc.),⁸⁵ information regarding the impact of long-term aging on material,⁸⁶ and disclosures regarding moisture content.⁸⁷ Both PIMA and NAIMA opposed changes to the Rule in this regard. PIMA stated that the inclusion of

additional factors may create some confusion with consumers. NAIMA indicated that the current requirements are understandable to most consumers and that manufacturers are free to supplement required disclosures with additional fact sheets and materials.

The Commission understands that there are additional disclosures that could be added to fact sheets; however, we are not convinced that the additional burdens imposed by new disclosure requirements would be outweighed by increased consumer benefits. 64 FR at 48041. Thus, the Commission is not proposing any amendments to the Rule regarding this issue.

b. Disclosures for Batt, Blanket, and Boardstock Insulations

Background

Subsections 460.12(b)(1) and (b)(4) of the Rule require manufacturers to label all packages of "mineral fiber batts and blankets" and all board stock insulations with a chart showing the R-value, length, width, thickness, and square feet of insulation in the package, and section 460.13(c)(1) requires that they include the chart on the manufacturer fact sheets. As indicated in the ANPR, NAIMA recommended amending section 460.12(b)(1) to apply to *all* batt and blanket insulation products by deleting the reference to "mineral fiber." NAIMA asserted that batts and blankets made of other materials, such as cotton, other cellulosic materials, and plastic fiber, have been introduced into the marketplace and that the Rule should specify labeling requirements for these new batt and blanket products. 64 FR at 48041.

Comments

In its ANPR comments, NAIMA reiterated its view indicating, among other things, that there is no valid argument to exempt any particular type of batt or blanket.⁸⁸ PIMA also supported deleting the phrase "mineral fiber" to ensure that all types of batt/blanket insulation are consistently covered.⁸⁹

Discussion

The Commission agrees that all types of batt and blanket insulations should be labeled with the same basic R-value and coverage area information, and that manufacturers' fact sheets for these insulation products should include these disclosures. Section 460.12(b) refers to "mineral fiber" batts and blankets because, when the Rule was

⁸³ NAIMA (9), p. 22.

⁸⁴ RIMA (19), p. 1.

⁸⁵ Troutman/T-Foil, (1).

⁸⁶ FPSA (8), pp. 7–8.

⁸⁷ DOE (20), p.1.

⁸⁸ NAIMA (9), p. 23.

⁸⁹ PIMA (3), p. 7.

promulgated, the batt and blanket insulation products being sold in the residential market were mineral fiber insulation products, primarily fiberglass. The Commission, therefore, proposes deleting the phrase “mineral fiber” from section 460.12(b)(1) to clarify that the coverage chart disclosure requirement applies to all types of batt and blanket insulations, and solicits comments on this proposal.

The ANPR discussion of “Disclosures for Batt, Blanket, and Boardstock Insulations” included two other issues regarding whether the Rule should require: (1) manufacturers to mark unfaced batt/blanket insulations with R-value and require installers to apply the products so the marking is visible for post-installation inspections; and (2) disclosure, for batt/blanket and boardstock insulations, of “nominal thickness” instead of “thickness” (which implies exact thickness). The Commission continues to believe, as explained in the ANPR, that it is not necessary to require manufacturers to mark unfaced batt/blanket insulations with R-value and require installers to apply the products so the marking is visible for post-installation inspections. 62 FR 48043. The Commission did not receive any adverse comments on this view. Both NAIMA and PIMA supported an amendment that would require the disclosure of “nominal thickness” for batt/blanket and boardstock insulations instead of “thickness.”⁹⁰ The Commission, however, does not believe this is needed since it is unclear whether such a change would provide a significant benefit to consumers. The Commission is not proposing any amendments to the Rule regarding these issues.

c. Required Disclosures for Loose-fill Insulations

i. R-value Disclosures

Background

Section 460.12(b) of the Rule requires that labels on loose-fill insulation packages disclose the minimum net weight of the insulation in the package and include a coverage chart disclosing minimum thickness (after settling), maximum net coverage area, minimum weight per square foot, and, for loose-fill cellulose insulation only, number of bags per 1,000 square feet for each of several specified total R-values for installation in open attics. The Rule currently specifies different total R-values for which the disclosures must be made for loose-fill cellulose insulations and other types of loose-fill

insulations. To install an adequate amount of insulation, professional installers must calculate the number of square feet to be insulated and install the number of bags indicated on the manufacturer’s coverage chart that are necessary for the desired R-value (commonly referred to as the “bag count”).

In the ANPR, the Commission indicated that there is no longer any justification for requiring different disclosures for different types of loose-fill insulations for application in attics or other open areas, and proposed a single set of disclosure requirements for all types. The Commission solicited comments regarding this proposal, including the total R-values for which it would be most appropriate to require the disclosures, and whether the same disclosures should apply to both dry-applied loose-fill insulations and stabilized insulations.

Comments on R-value Disclosures:

The Commission received one comment on this issue. NAIMA fully supported requiring manufacturers of all loose-fill insulations to disclose minimum settled thickness, maximum net coverage area, and minimum weight per square foot at any R-value listed on the charts required for their products. NAIMA concurred with the Commission that there is no longer a justification for different disclosure requirements for different loose-fill insulations.⁹¹

Discussion of R-value Disclosures:

The Commission continues to believe that it would be appropriate to require the same disclosures for all types of loose-fill insulations for application in attics or other open areas.⁹² The

⁹¹NAIMA (9), p. 24.

⁹²As explained in the ANPR, the Commission originally prescribed separate disclosure requirements for loose-fill cellulose insulations and other types of loose-fill insulations (primarily mineral fiber loose-fill insulations) in response to requests that the Rule, where possible, apply labeling requirements consistent with GSA’s purchasing specifications. GSA’s specifications at that time required that labels for loose-fill cellulose insulation disclose the number of bags required to cover 1,000 square feet, but did not require this disclosure on labels for loose-fill mineral fiber insulation, and it required that the mandatory disclosures be made at different total R-values for the two types of loose-fill insulations. Consistent with the GSA specification, section 460.12(b)(2) of the Rule requires that the disclosures be made at R-values of 11, 19, and 22 for all loose-fill insulation except cellulose, and section 460.12(b)(3) requires the disclosures at R-values of 13, 19, 24, 32, and 40 for loose-fill cellulose insulation. After the Commission promulgated the Rule, GSA eliminated its own specifications and now uses ASTM material specifications for determining which insulation products may be purchased by the federal government (or in connection with programs operated by the federal government). See discussion at 64 FR at 48042.

Commission believes that there no longer is any justification for these different disclosures, and accordingly proposes to amend sections 460.12(a)(2) and (3) to require the same coverage charts for all types of loose-fill insulation at R-values of 11, 13, 19, 22, 24, 32, and 40. The Commission solicits comments on this proposal, including comments addressing any additional compliance costs associated with the proposed change.

ii. Initial Installed Thickness

Background

For loose-fill insulations, the Rule requires: (1) that each manufacturer determine the R-value of its home insulation product at settled density and construct coverage charts showing the minimum settled thickness, minimum weight per square foot, and coverage area per bag for various total R-values; and (2) that installers measure the area to be covered and install the number of bags (and weight of insulation material) indicated on the insulation product’s coverage chart for the total R-value desired. These requirements have been necessary because the claimed total R-value for a specific dry-applied loose-fill insulation can be attained only when the requisite amount of insulation material in both thickness and density has been installed.

Comments

Two commenters addressed the issue of “minimum thickness.” The Insulation Contractors Association of America (“ICAA”) supported an amendment requiring a label disclosure of minimum initial installed thickness applicable to all types of loose-fill insulation, including dry-applied mineral fiber. ICAA indicated that a new test method, ASTM C 1374-97 (“Standard Test Method for Determination of Installed Thickness of Pneumatically Applied Loose-Fill Building Insulation”) offers a reliable and uniform procedure to determine initial installed thickness levels (“minimum initially installed thickness”) for each total R-value claimed on the coverage charts for all loose-fill insulations, including dry-applied loose-fill mineral fiber insulations. ICAA contended that this information would help consumers achieve stated R-values by correct installation, and allow more accurate price comparisons. ICAA maintained that some manufacturers voluntarily include this information now, but that others do not.⁹³

⁹³ICAA (5), pp. 3-4.

NAIMA recommended that the Commission require that dry-applied loose-fill cellulose bags include an installed thickness column that reflects the magnitude of settling and loss of thickness that can be expected.⁹⁴ In addition, NAIMA strongly opposed characterizing "initial installed thickness" or "guaranteed thickness" as the only qualities pertinent in determining whether the quantity of insulation blown in meets or exceeds labeled R-value.⁹⁵ NAIMA maintained that, due to inherent variability of the installation process for loose-fill insulations, the Rule's present requirements for the disclosure of minimum thickness should be retained. In NAIMA's view, the only practical way to ensure that the minimum, long-term thickness and weight per square foot are achieved is to be sure to install at least the minimum number of bags per 1,000 square feet as specified on the bag label coverage chart. The number of bags per 1,000 square feet is based upon net area, which is the total area minus the area covered by framing members and other obstructions, while job size is usually figured as total (or gross) area. Because the net area will always be smaller than the gross, the number of bags per 1,000 square foot of gross area may be reduced slightly, generally 3% to 8%, from the number on the label. NAIMA provides installation guidelines for professional installers. Contractors who follow these and other recommended practices deliver to their customers the appropriate R-value. NAIMA also suggested that references should not be made to R-value for a one-inch thickness because it would encourage consumers to multiply the one-inch R-value by the desired number of inches to attain the total R-value throughout the entire space even though but R-value per inch is not always constant.

Discussion

As discussed in the ANPR (64 FR at 48044), the ICAA has long taken the position that the current requirements of the Rule make it very difficult for installers to ensure that they have installed the correct amount of insulation. The requirement to use bag count (*i.e.*, the weight of insulation material installed) as the measure of their compliance with the Rule creates complications for the installer. ICAA contends that the reason for this problem is that the person applying loose-fill insulation through a blowing hose in the attic has no way of knowing

at any given point how many bags have been loaded into the hopper of the blowing machine located in the truck outside. This may make it difficult to uniformly distribute within the attic the requisite number of bags for the job. In addition, ICAA has indicated in past comments that initial installed thickness information would help prevent their members from installing insulation only to the "minimum thickness" currently required on coverage charts. This "minimum thickness" information refers to the final settled thickness, not the material's thickness immediately after installation. ICAA believes that many installers mistakenly use this information for installation purposes and, as a result, provide inadequate amounts of material. 64 FR at 48043. In addition, the Commission recognizes that the Rule's bag count provisions require installers to make accurate attic measurements to determine the correct number of bags to use. It is possible that irregular attic configurations in many newer homes have made it more difficult to calculate accurate attic coverage areas.

The Commission recognizes that concerns persist about the installation of loose-fill. In some cases, installers fail to install sufficient insulation either because they apply material at the minimum settled thickness by mistake or they simply cheat consumers by providing inadequate amounts. In other instances, some installers inappropriately "fluff" their loose fill material by applying it with more air at a lower density. This practice increases thickness, at least initially, but reduces the density and total R-value. Under the current process, it is difficult for consumers to determine whether the correct insulation amount has been installed because they cannot rely on the installed thickness alone. Accordingly, the Commission believes that it is desirable to consider approaches that would allow consumers to determine, for themselves, whether adequate insulation has been installed. Requiring manufacturers to add a disclosure of "initial installed thickness" to coverage charts would address many of these problems.

In the past, the Commission has declined to require initial installed thickness on labels because there were no recognized procedures available to determine, on a uniform basis, a required initial thickness for all types of dry-applied loose-fill insulations. In addition, it has been unclear whether information about initial installed thickness, alone, would allow installers to provide the correct amount of material without having to count the

number of bags they have installed or otherwise ensuring they have applied the required amount of insulation material.

As ICAA indicated in its ANPR comments,⁹⁶ a relatively new procedure, ASTM C 1374 ("Standard Test Method for Determination of Installed Thickness of Pneumatically Applied Loose-Fill Building Insulation"), has been specifically developed to aid manufacturers in determining an initial installed thickness for their products. The Commission is now proposing to incorporate this procedure into the Rule and is seeking comments on whether this procedure will address the concerns that have been raised about loose-fill insulation. Specifically, the Commission is proposing to:

- Amend section 460.5(b) to add a new subsection (5) that would require manufacturers of loose-fill insulation to determine the initial installed thickness of their product at R-Values of 11, 13, 19, 24, 32, and 40 using ASTM C 1374-97 ("Standard Test Method for Determination of Installed Thickness of Pneumatically Applied Loose-Fill Building Insulation").

- Amend section 460.12 (Labels) to require this initial installed thickness information on product labels.

- Amend section 460.5(b) to require manufacturers of loose-fill insulation to determine the blowing machine adjustments and feed rates necessary to achieve the initial installed thicknesses and indicate such information on the product label.

- Amend section 460.17 to require installers to comply with the initial installed thickness directions on product labels and to use the blowing machine adjustments and feed rates specified by the manufacturer.

Under the proposal, manufacturers would provide initial installed thickness information on labels and fact sheets pursuant to sections 460.12 and 460.13. Pursuant to section 460.17, installers would have to follow the initial installed thickness information on the label to determine whether the appropriate amount of insulation has been installed. They also would have to follow the manufacturer's instructions for blowing machine settings. The Rule would continue to require installers to show fact sheets to consumers (section 460.15) and also provide the consumer with initial installed thickness and R-value information for specific jobs (section 460.17).

Under the Rule's current requirements, it is difficult for

⁹⁴ NAIMA (9), p. 13.

⁹⁵ NAIMA (9), pp. 25-26.

⁹⁶ ICAA (5).

consumers to verify for themselves that the correct amount of insulation has been installed. In addition to considering final settled thickness, they must perform calculations regarding coverage area and bag count to determine if the proper weight per square foot has been applied. The proposed initial installed thickness information should allow consumers, armed with a ruler, to determine whether the sufficient thickness of insulation has been installed. It should also provide installers with more straight-forward instructions for providing consumers with adequate amounts of insulation. In addition, the specific reference to initial installed thickness should reduce the probability that installers will mistakenly follow the settled thickness information on the labels in their initial application of material.⁹⁷

Although we propose to add disclosure requirements for initial installed thickness information, the Commission does not propose to eliminate any of the existing disclosure requirements related to loose-fill such as bag count. Manufacturers would continue to provide information currently required on loose-fill labels such as minimum settled thickness, maximum new coverage area, number of bags per 1,000 square feet, and minimum weight per square foot at various R-values as general guidance for the installer and the consumer. Installers would continue to be required to disclose to customers the number of bags used and the coverage area. This information will provide consumers and inspectors with an additional means to verify that installers have provided an appropriate amount of material. It may discourage unscrupulous installers from intentionally altering the settings on blowing machines to "fluff" material (*i.e.*, increase thickness at the expense of density and total R-value). In addition, it is likely that most contractors would continue to need information about area and bag count for billing purposes.

The Rule would continue to require manufacturers of loose-fill cellulose insulation to conduct their R-value tests at the settled density using ASTM C 739-91 as specified by section 460.5(a)(2). Manufacturers of other loose-fill material also would have to continue to conduct R-value tests based on samples that fully reflect the effect of settling on the product's R-value (see § 460.5(a)(3)). Manufacturers would

have to use this settling information in determining the initial installed thickness for their products.

The Commission has prepared the following questions to facilitate comment on this proposal. Commenters need not limit their comments to the issues raised by the questions:

- Would the information derived from ASTM C 1374 allow installers to provide the appropriate amount of insulation solely through the use of the manufacturer's specified blowing machine settings and the installation of the initial installed thickness specified on the bag label?
- Is ASTM C 1374 an appropriate procedure for determining the initial installed thickness for all loose-fill products?
- Are there other test procedures that should be incorporated into the Rule in lieu of (or in addition to) ASTM C 1374?
- Is it possible for manufacturers to provide information on labels about the appropriate blowing machine adjustments and feed rates required to achieve the initial installed thickness derived from ASTM C 1374?
- Should the Rule specify procedures that installers must follow to measure the thickness of the installed material? If so, what should those procedures be (*e.g.*, one measurement for every 100 square feet)?
- Is it possible for manufacturers to provide information on labels about the appropriate blowing machine adjustments and feed rates required to achieve the initial installed thickness derived from ASTM C 1374?
- Is there any specific rule language that would best achieve the proposal discussed here?

- Would incorporation of ASTM C 1374 significantly change the costs consumers would pay for loose-fill insulation? Are any increased costs offset by benefits?
- If installers follow initial installed thickness information for installation purposes, will it be difficult to provide consumers information on coverage area as required by the Rule? Will installers continue to measure coverage area to estimate the volume and cost associated with a particular job?

iii. Additional Loose-Fill Insulation Issues

In the ANPR, the section on "Disclosures for Loose-fill Insulations" included three other issues: (1) whether the Rule should require disclosure on packages of loose-fill insulations of "net weight" instead of "minimum net weight;" (2) whether the Rule should require manufacturers of loose-fill insulations to include unique tabs on

packages and require installers to attach the tabs to consumer receipts to ensure installation of the proper amount of loose-fill insulations; and (3) whether the Rule should require manufacturers to include, in fact sheets, information on how consumers can verify the total R-value of loose-fill insulations installed in their attics.

The Commission did not receive any comments in support of a change to require disclosure of "net weight" instead of "minimum net weight." NAIMA indicated that the use of unique tabs on packages of loose fill would provide a significant benefit to consumers and urged the Commission to impose such a requirement on a trial basis.⁹⁸ The Commission continues to believe that there is insufficient evidence to suggest that requiring the use of bag tabs would add materially to the benefits conferred by the Rule. Finally, the Commission does not propose to require manufacturers to include, in fact sheets, information on how consumers can verify the total R-value of loose-fill insulations installed in their attics. The installed thickness requirements proposed in this document combined with information already required by the Rule (*e.g.*, bag count, coverage area, and R-value) should provide consumers with adequate information. For these issues, the Commission is not proposing any amendments to the Rule.

d. Disclosures for Urea-based Foam Insulations

Background

In the original 1979 rulemaking proceeding, the Commission determined that the inherent qualities of urea-formaldehyde ("UF") foam insulations, which were being installed at that time in wall cavities only by professional installers, would cause the products to lose volume or "shrink." This shrinkage caused the insulation to pull away from the wall cavity after installation, leaving the wall partially uninsulated and resulting in a lower-than-claimed R-value.⁹⁹ To address this problem, the Rule requires that manufacturers disclose the product's R-value in a manner that accounts for the product's shrinkage, or include a specific disclosure about the effect of shrinkage on R-value (see section 460.13(d) for fact

⁹⁸ NAIMA (9), p.26.

⁹⁹ Although both the rate and extent of shrinkage depended somewhat on the quality of the chemicals and the product's on-site formulation and application, even if a UF insulation product was installed perfectly, it would shrink and its R-value would decrease.

⁹⁷ To improve the clarity of existing language in the Rule, the Commission may consider changing the term "minimum thickness" in § 460.12(b)(2) to "minimum settled thickness." The Commission seeks comment on such an amendment.

sheets and section 460.18(e) for insulation ads). 44 FR at 50220, 50231.

Earlier comments recommended that the Commission revise the statement to refer to “urea-based foam insulation,” because the reference to “foam insulation” implies that all foam-type insulation products (including other types of cellular plastics insulations) shrink after installation, resulting in lower R-values than claimed. One commenter stated that UF insulation is no longer sold, and that the disclosure requirement is unnecessary and may cause consumer confusion about other foam-type insulations. Because UF insulation is no longer sold, the Commission proposed to eliminate the provision altogether (64 FR at 48045).

Comments

In response to the ANPR, PIMA supported the Commission’s proposal to delete required shrinkage disclosures for foam insulation, but recommended that the Commission include procedures to reinstate requirements if the product reappears on the market.¹⁰⁰ NAIMA also supported the proposal, indicating that it did not know of any UF insulation products still being sold or of any insulation products that may be subject to shrinkage.¹⁰¹

Discussion

Because it appears that UF foam insulation no longer is sold, the Commission proposes to delete the obsolete shrinkage disclosure requirements in §§ 460.13(d) and 460.18(e). The Commission solicits comments on this proposal and, in particular, information regarding the likelihood that UF foam insulation products may be sold again in the future. If a significant possibility exists, the Commission may decide to retain the disclosure requirement in the Rule but amend it to clarify that it applies only to urea-based foam insulation.

2. Disclosures in Advertising and Other Promotional Materials

a. Disclosures Required

In the ANPR, the Commission asked whether the Rule should be amended to delete the required R-value disclosure in advertisements and other promotional materials that contain triggering claims (see sections 460.19 and 460.18). One commenter urged the Commission to retain the requirement because it helps avoid confusion.¹⁰² The Commission is

not proposing any amendments to the Rule regarding this issue.

b. Advertising on Radio and Television

Background The Rule as originally promulgated applied affirmative disclosure requirements to television advertisements as well as all other types of advertising and promotional materials (including radio). Unlike other types of advertising, which simply must include the required disclosures “clearly and conspicuously,” the Rule included very specific requirements regarding how required disclosures must be made in television advertising. Four insulation manufacturers appealed the disclosure requirements for television advertising, asserting that the requirements were particularly burdensome for short television ads. The Commission settled the appeal by agreeing not to impose disclosure requirements on television ads without conducting further rulemaking proceedings, and rescinded the requirements in 1986 without conducting further proceedings. No evidence was presented in the original rulemaking or in the appeal concerning any similar burdens that the disclosure requirements would impose on radio ads. In the ANPR, the Commission solicited comments on how the costs of making the required disclosures in radio ads compare to the benefits the disclosures provide to consumers. 64 FR at 48046.

Comments

NAIMA maintained that radio ads are similar to television ads because they both strive for pithy and concise messages and, since ads in both broadcast media are relatively expensive compared to those in other media, a disclosure requirement is particularly burdensome. NAIMA pointed out that television ads may provide printed disclosures without interrupting their oral or visual messages, which cannot be done on radio, so the impact of required disclosures is greater on radio ads than it is on television ads.

NAIMA suggested that the Commission amend the Rule to require that all radio and television ads for insulation products notify audiences that disclosure information required by the Federal Trade Commission may be obtained via a toll-free number. As an alternative, NAIMA suggested that the Commission amend the Rule to remove specific requirements for radio ad disclosures and instead allow radio and television ads simply to note that additional information is available that

is relevant to buying decisions. A third alternative, according to NAIMA, would be to offer radio and television advertisers a significantly condensed version of the disclosure, such as “Ask your seller for all the facts on R-values before making a purchase.” NAIMA contended that this approach would allow for the full benefit of television and radio advertising while protecting consumers by notifying them about relevant information too lengthy for electronic media.¹⁰³ In contrast, PIMA did not support a change to the Rule in this regard.¹⁰⁴

Discussion

The Commission proposes to eliminate current disclosure requirements for radio ads. Such an amendment would treat radio and television ads equally under the Rule. There is no indication that the absence of an affirmative disclosure requirement applicable to television ads has harmed consumers over the years. As NAIMA suggests, the lengthy disclosures required by sections 460.18 and 460.19 are arguably more burdensome for radio than television because the disclosures must necessarily displace significant portions of the ad’s message or increase the duration of the ad and hence the advertiser’s cost. Given the absence of any indication that consumers have been harmed because the Rule does not require disclosures in television ads, the Commission expects that the elimination of radio disclosure requirements will have little impact on consumers. Required information on fact sheets, labels, and print ads will continue to provide consumers with critical performance information when they shop for insulation or use installers. The absence of disclosures in radio ads is not likely to impact their buying decisions adversely. The Commission seeks comment on this proposal.

3. Disclosures by Installers or New Home Sellers

a. Fact Sheets

The Commission asked whether the Rule should require installers and new home sellers to give copies of manufacturers’ fact sheets to consumers after purchase. The Rule already requires installers to show fact sheets to customers before customers agree to buy insulation. In addition, installers and new home sellers must provide insulation information to customers through receipts or contracts. In light of these existing requirements, the

¹⁰⁰ PIMA (3), p. 7.

¹⁰¹ NAIMA (9), p. 27.

¹⁰² *Id.*

¹⁰³ NAIMA (9), p. 27–8.

¹⁰⁴ PIMA (3), p. 14.

Commission believes that requiring these entities to provide copies of fact sheets after purchase would not provide significant benefits to consumers. 64 FR at 48046. Two commenters likewise opposed amending the Rule with regard to this issue.¹⁰⁵ Thus, the Commission is not proposing any amendments to the Rule regarding this issue.

b. Attic Cards and Certifications, and Attic Rulers

Background

The ANPR asked whether there is a need to amend the Rule to require the use of attic cards and attic rulers by installers.

Attic Cards and Certificates. Attic cards are usually posted in the attic near the access opening, for later reference by building code inspectors and homeowners. The ANPR explained that, in the original R-value rulemaking, the Commission determined that a requirement for attic cards was unnecessary in light of the Rule's requirement that new home sellers and retrofit installers give consumers written disclosures in contracts or written receipts. These documents provide the same information that would be disclosed on an attic card or certification. If the seller or consumer prefers, the contract or receipt can be posted in the form of an attic card after the seller has given the written disclosures to the consumer. Moreover, for insulations installed in attics of new residential construction, the CABO/MEC (Model Energy Code) requires that installers provide a signed and dated certification for the insulation installed in each part of the home, listing the type of insulation, the insulation manufacturer, and the total R-value, as well as other information, and post the certification in a conspicuous place. These requirements have been adopted in some form for use in federal government programs covering new residential construction and by 33 states. For these reasons, the Commission did not propose amending the Rule to require additional certification or the use of attic cards.

The Commission solicited comments, however, about (i) whether amending the Rule to require that disclosures be made in certifications or attic cards would provide benefits beyond those currently required by the Rule or the CABO/MEC for consumers or building inspectors, (ii) whether there currently are abuses in the sale and installation of home insulation that could be remedied by including these additional disclosure

requirements in the Rule, and (iii) the costs to installers and new home sellers of providing the disclosures in certifications and attic cards. 64 FR at 48047.

Attic Rulers. Both the required density (and weight per square foot) and thickness of loose-fill and stabilized insulations must be installed to attain a specific R-value. The use of attic rulers could help installers apply a sufficient thickness to achieve a specific total R-value, and apply the insulation in a more level and consistent manner. However, installers would still have to ensure that they apply the required number of bags and weight of insulation material. The Commission suggested in the ANPR that the use of attic rulers could be particularly beneficial if manufacturers included a verified initial installed thickness disclosure or a guaranteed thickness disclosure on the bag label coverage chart. Attic rulers also could give consumers a ready means of determining, both initially and over time, whether the required minimum thickness has been installed.

The Commission pointed out that the CABO/MEC already requires, for new residential construction, that installers apply blown loose-fill or sprayed (e.g., stabilized) insulations in attics with the use of thickness markers labeled in inches, attached to the trusses or joists at least every 300 square feet (28 m²), marked with the minimum initial installed thickness and minimum settled thickness, and installed facing the attic access. Because the CABO/MEC requires the use of attic rulers in new construction, the Commission did not propose amending the Rule to require their use. Nevertheless, the Commission solicited comments on this issue.

Comments

NAIMA suggests that the Commission mandate the use of CABO/MEC guidelines on attic cards, certificates, and rulers by including in the Rule the same language relied upon by these code bodies to encourage utilization of attic cards, rulers, and certificates. NAIMA states that not all jurisdictions are subject to CABO/MEC or any energy code. Further, unlike the Commission, which has responsibility to protect consumers and enforcement power, CABO/MEC owes no duty to act as consumers' guardian and is not empowered to wield the sword of enforcement and issue fines and penalties for failure to comply. Requiring use of attic rulers would deter installers who might consider cheating,

which many believe is a widespread problem.¹⁰⁶

Discussion

The Commission continues to believe that an amendment to the Rule to require attic cards and attic rulers is not warranted at this time. The Rule requirements already in place prohibit installers from engaging in practices that mislead consumers about the amount of insulation installed. The CABO/MEC attic card and ruler requirements augment the current provisions in the R-value rule by imposing additional requirements for new home construction in many jurisdictions. Although insulation added to existing homes is not covered by CABO/MEC, the Commission is not convinced that additional requirements will necessarily address the concerns raised. The existing requirements applicable to installers and new home sellers already make unlawful the practices that deny customers the proper amount of insulation. While additional disclosure requirements will increase the burden on those industry members that are already complying with the Rule, it is not clear that such changes will yield any greater deterrence to those companies that are violating the law by installing inadequate amounts of insulation.

A more direct solution to the problem may be, as the Commission is proposing, to require manufacturers to list an initial installed thickness column on their label that installers must in turn follow as the Commission is proposing. The Commission understands that there is continuing concern surrounding these issues. Therefore, the Commission solicits additional comments on these issues including whether there are other possible Rule changes that would provide additional deterrence against violations of the Rule with respect to the installation of loose-fill material.

c. Initial Installed Thickness

As discussed in detail in section V.E.1.c. above, the Commission proposes to amend § 460.17 to require loose-fill installers to comply with the initial installed thickness instructions provided by manufacturers on their labels. In addition, under this amendment, installers would have to comply with the manufacturers' instructions for blowing machine settings when loose-fill insulation is installed.

¹⁰⁵ PIMA (3), pp. 8, 14; NAIMA (9), p. 28.

¹⁰⁶ NAIMA (9), pp. 28–29.

4. Disclosures by Retailers

Background

Section 460.14 of the Rule requires retailers who sell insulation to do-it-yourself consumers to make the manufacturers' fact sheets available to consumers before purchase in any manner the retailer chooses, as long as consumers are likely to notice the fact sheets. The ANPR explained that the purpose of this requirement is to ensure that consumers have the information about home insulation they need to make cost-based purchasing decisions. When the Commission promulgated the Rule, bulky insulation packages were not normally available on the retail sales floor, so the consumer would not see the disclosures on labels before purchase. In addition, the fact sheets contain information about energy savings and other factors the consumer should consider when purchasing home insulation that is required on labels. 64 FR at 48048.

The ANPR solicited comments on whether the Rule should be amended to excuse retailers from making separate fact sheets available at the point of purchase *if* all the required fact sheet disclosures are made on the insulation package *and if* the insulation packages are available on the sales floor for the consumer to inspect before purchase. *Id.*

Comments

PIMA opposed the Commission's proposal. It indicated that retailers should continue to supply fact sheets or at least make them available to consumers at point of purchase. PIMA maintained that it is inappropriate as well as burdensome to require retailers to determine whether the labels adequately disclose information. PIMA asserted that retailers often open bundles or packages in order to sell individual boards, and packaging labels may be missing or damaged.¹⁰⁷

NAIMA supported an amendment that would relieve retailers of responsibility to provide fact sheets when the same information is on the bag label. NAIMA recommended that the Commission add a provision requiring manufacturers to supply retailers with relevant fact sheets providing the facts omitted from the label in cases in which the labels lack the data required on fact sheets. NAIMA cautioned that, if such a requirement is not in the Rule, some manufacturers may see profit in limiting the amount of information disclosed to their customers.¹⁰⁸

Discussion

In the years since the Commission promulgated the Rule, the nature of retail sales to do-it-yourself home insulation consumers has changed. Today, retailers often sell home insulation directly from warehouse-type sales floors where consumers select the packages of insulation they want. Therefore, the R-value and related information on the packages is available to consumers before purchase. In response to questions from retailers, the Commission's staff has advised informally that retailers need not make separate fact sheets available at the point of purchase *if* all the required fact sheet disclosures are made on the insulation package *and if* the insulation packages are available on the sales floor for the consumer to inspect prior to purchase. As it did in the ANPR, the Commission proposes to amend the Rule to codify this option. The Commission does not believe, as PIMA asserts, that this would impose an additional burden on retailers. The Commission believes that, to the contrary, this amendment would provide retailers with an additional option for ensuring that the appropriate information is available to consumers. In exercising this option, the retailers would have to ensure the labels contain the information provided on the fact sheets. If a retailer does not want to take the time to perform such a comparison, however, it can always use the fact sheets as provided now by the Rule. Retailers could exercise this option only if the package labels are in fact displayed in a way that customers can obtain the required information. As PIMA suggests, if package labels are discarded or damaged due to practices of the retailer, then the retailer would not be able to use this alternative and would have to make the fact sheets available to consumers. The Commission seeks comments on this proposal.

F. Amendments to Update References to ASTM Standards

In addition to the substantive amendments discussed herein, the Commission also proposes to amend certain provisions of the Rule in order to update those referenced ASTM Standards that have been reviewed and updated since the Rule was last amended in 1996. In section 460.5(a), the Commission proposes to update references to: ASTM C 177-85, "Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus" (to C

177-97); ASTM C 518-91, "Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus" (to C 518-98); ASTM C 1045-90, "Standard Practice for Calculating Thermal Transmission Properties Under Steady-State Conditions" (to C 1045-97); and ASTM C 1114-95, "Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Thin-Heater Apparatus" (to C 1114-98), to reflect the most recent versions of those standards. In 460.5(a)(2), the Commission proposes to update the reference to ASTM C 739-91, "Standard Specification for Cellulosic Fiber (Wood-Base) Loose-Fill Thermal Insulation" (to C 739-97). Further, the Commission proposes to add a reference to ASTM C 1363-97, "Standard Test Method for the Thermal Performance of Building Assemblies by Means of a Hot Box," in place of ASTM C 236-89 (Reapproved 1993), "Standard Test Method for Steady-State Thermal Performance of Building Assemblies by Means of a Guarded Hot Box," and ASTM C 976-90, "Standard Test Method for Steady-State Thermal Performance of Building Assemblies by Means of a Calibrated Hot Box" in section 460.5(a) and, as discussed earlier, section 460.5(d)(1). The Commission also proposes to add new paragraph (e) in section 460.5 to consolidate information regarding incorporation by reference approvals by the Office of the **Federal Register**.

VI. Rulemaking Procedures

The Commission finds that the public interest will be served by using expedited procedures in this proceeding. Using expedited procedures will support the Commission's goals of clarifying existing regulations, when necessary, and eliminating obsolete or unnecessary regulation without an undue expenditure of resources, while ensuring that the public has an opportunity to submit data, views and arguments on whether the Commission should amend the Rule. The Commission, therefore, has determined, pursuant to 16 CFR 1.20, to use the procedures set forth in this document. These procedures include: (1) publishing this Notice of Proposed Rulemaking; (2) soliciting written comments on the Commission's proposals to amend the Rule; (3) holding an informal hearing (such as workshop), if requested by interested parties; (4) obtaining a final recommendation from staff; and (5) announcing final Commission action in a notice published in the **Federal Register**.

¹⁰⁷ PIMA (3), p. 8.

¹⁰⁸ NAIMA (9), p. 29.

VII. Requests for Public Hearings

Because written comments appear adequate to present the views of all interested parties, neither a public hearing nor a workshop has been scheduled. As stated earlier in this document, the Commission does not believe that a public workshop or hearing is needed to address the issues raised in this proposed rule. However, if any person would like to present views orally he or she should follow the procedures set forth in the **DATES** and **ADDRESSES** sections of this document.

VIII. Preliminary Regulatory Analysis and Regulatory Flexibility Act Requirements

Under section 22 of the FTC Act, 15 U.S.C. 57b, the Commission must issue a preliminary regulatory analysis for a proceeding to amend a rule only when it (1) estimates that the amendment will have an annual effect on the national economy of \$100,000,000 or more; (2) estimates that the amendment will cause a substantial change in the cost or price of certain categories of goods or services; or (3) otherwise determines that the amendment will have a significant effect upon covered entities or upon consumers. The Commission has preliminarily determined that the proposed amendments to the Rule will not have such effects on the national economy, on the cost of home insulation products, or on covered parties or consumers. The Commission, however, requests comment on the economic effects of the proposed amendments.

The Regulatory Flexibility Act ("RFA"), 5 U.S.C. 601–12, requires that the agency conduct an analysis of the anticipated economic impact of the proposed amendments on small businesses. The purpose of a regulatory flexibility analysis is to ensure that the agency considers impact on small entities and examines regulatory alternatives that could achieve the regulatory purpose while minimizing burdens on small entities. Section 605 of the RFA, 5 U.S.C. 605, provides that such an analysis is not required if the agency head certifies that the regulatory action will not have a significant economic impact on a substantial number of small entities.

Because the R-value Rule covers home insulation manufacturers and retailers, professional installers, new home sellers, and testing laboratories, the Commission believes that any amendments to the Rule may affect a substantial number of small businesses. Nevertheless, the proposed amendments would not appear to have a significant economic impact upon such entities.

Specifically, the Commission is proposing only a few limited amendments that are designed to clarify the Rule, make disclosure requirements consistent for competing types of loose-fill insulation products as well as batt and blanket insulation products, require the most current procedures for preparing R-value test specimens and conducting R-value tests, provide consumers with information about the initial installed thickness of loose-fill insulation, delete disclosures for a type of insulation that no longer is sold, and provide retailers with an optional method for satisfying the Rule's fact sheet disclosure requirement. In the Commission's view, the proposed amendments should not have a significant or disproportionate impact on the costs of small manufacturers, retailers, installers, new home sellers, and testers of home insulation products.

Based on available information, therefore, the Commission certifies that amending the R-Value Rule as proposed will not have a significant economic impact on a substantial number of small businesses. To ensure that no significant economic impact is being overlooked, however, the Commission requests comments on this issue. The Commission also seeks comments on possible alternatives to the proposed amendments to accomplish the stated objectives. After reviewing any comments received, the Commission will determine whether a final regulatory flexibility analysis is appropriate.

IX. Paperwork Reduction Act

The R-Value Rule contains various information collection requirements for which the Commission has obtained clearance under the Paperwork Reduction Act, 44 U.S.C. 3501 *et seq.*, Office of Management and Budget ("OMB") Control Number 3084–0109.¹⁰⁹ As discussed in this document, the Commission is proposing a limited number of amendments that are designed to 1) clarify the Rule; 2) make disclosure requirements consistent for competing types of loose-fill insulation products and batt and blanket insulation products; 3) require the most current procedures for preparing R-value test specimens and conducting R-value tests; 4) improve installation instructions for loose-fill material; 5) delete disclosures for urea-based foam insulation, a type of insulation that no longer is sold; 6) delete mandatory disclosures for radio ads; and 7) provide retailers with an optional method for satisfying the Rule's fact sheet disclosure requirement. In the

Commission's view, the proposed rule changes will not substantially or materially modify the collection of information and related burden estimates submitted to OMB when the Commission last sought renewed clearance for the Rule. See 67 FR 45734 (July 10, 2002).¹¹⁰ To ensure that no significant paperwork burden is being overlooked, the Commission requests comments on this issue, and they should be faxed to OMB (Records Management Center, ATTN: Desk Officer for the FTC, OMB, Room 10102 NEOB, fax: 202/395-6566) and sent to the FTC Secretary at the address stated in the Addresses section of this document.

X. Additional Information for Interested Persons

1. Motions or Petitions

Any motions or petitions in connection with this proceeding must be filed with the Secretary of the Commission.

2. Communications by Outside Parties to Commissioners or Their Advisors

Pursuant to Commission Rule 1.18(c)(1), 16 CFR 1.18(c)(1), the Commission has determined that communications with respect to the merits of this proceeding from any outside party to any Commissioner or Commissioner advisor shall be subject to the following treatment. Written communications and summaries or transcripts of oral communications shall be placed on the rulemaking record if the communication is received before the end of the comment period. They shall be placed on the public record if the communication is received later. Unless the outside party making an oral communication is a member of Congress, such communications are permitted only if advance notice is published in the Weekly Calendar and Notice of "Sunshine" Meetings.¹¹¹

XI. Invitation to Comment and Questions for Comment

Members of the public are invited to comment on any issues or concerns they believe are relevant or appropriate to the Commission's consideration of proposed amendments to the R-value Rule. The Commission requests that factual data upon which the comments are based be submitted with the comments. In addition to the issues raised above, the Commission solicits public comment on the costs and

¹⁰⁹ See 64 FR 36877 (July 8, 1999).

¹¹⁰ The Commission received renewed clearance for the Rule on August 2, 2002.

¹¹¹ See 15 U.S.C. 57a(i)(2)(A); 45 FR 50814 (1980); 45 FR 78626 (1980).

benefits to industry members and consumers of each of the proposals, as well as the specific questions identified below. These questions are designed to assist the public and should not be construed as a limitation on the issues on which public comment may be submitted.

The written comments submitted will be available for public inspection in accordance with the Freedom of Information Act, 5 U.S.C. 552, and Commission regulations, on normal business days between the hours of 8:30 a.m. to 5:00 p.m. at the Federal Trade Commission, 600 Pennsylvania Ave., N.W., Room 130, Washington, D.C. 20580, (202) 326-2222.

Questions

The Commission seeks comments on all proposed changes to the Rule indicated at the end of this document and listed in the section-by-section description at part IV of this document (above). The Commission has sought comments on a variety of issues discussed elsewhere in this document. In addition, the Commission seeks input on the following specific questions:

(1) Should the Commission amend section 460.5(a)(1) of the Rule to require the use of ASTM C 1303-95 for homogeneous, unfaced, rigid closed cell polyurethane, polyisocyanurate, and extruded polystyrene insulations? What market share do unfaced products hold relative to other rigid cellular insulations (such as faced products)? Does C 1303 adequately account for variations in the thickness of the insulations covered? What would be the cost of applying ASTM C 1303 as proposed by the Commission?

(2) Should the Commission require the use of ASTM C 1149 for determining the settled density of self-supported, spray applied cellulose insulation?

(3) Should the Commission amend sections 460.12(a)(2) and (3) to require the same coverage charts for all types of loose-fill insulation at R-values of 11, 13, 19, 22, 24, 32, and 40? Are there any additional, significant compliance costs associated with the proposed change?

(4) Should the Commission amend the testing and labeling provisions of the Rule to require the use of ASTM C-1374 for determining the initial installed thickness of loose-fill insulation (see section V.E.1.c.ii. for additional questions on this subject)?

(5) Are there additional changes to the Rule that have not been addressed that would help to ensure that installers apply the proper amount of insulation, particularly loose-fill?

(6) General Questions: To maximize the benefits and minimize the costs for

consumers and sellers (including specifically small businesses), the Commission seeks views and data on the following general questions for all the proposed changes described in this document:

(a) What benefits would the proposed requirements confer, and on whom?

(b) What paperwork burdens would the proposed requirements impose, and on whom?

(c) What other costs or burdens would the proposed requirements impose, and on whom?

(d) What regulatory alternatives to the proposed requirements are available that would reduce the burdens of the proposed requirements, while providing the same benefits?

(e) What impact, either positive or negative, would the proposed requirements likely have on the environment?

List of Subjects in 16 CFR Part 460

Advertising, Insulation, Labeling, Reporting and recordkeeping requirements, Trade practices.

XII. Proposed Rule Language

For the reasons set out in the preamble, the Commission proposes to amend 16 CFR part 460 as follows:

PART 460—LABELING AND ADVERTISING OF HOME INSULATION

1. The authority citation for Part 460 continues to read as follows:

Authority: Authority: 38 Stat. 717, as amended (15 U.S.C. 41 *et seq.*).

2. Revise § 460.1 to read as follows:

§ 460.1 What this regulation does.

This regulation deals with home insulation labels, fact sheets, ads, and other promotional materials in or affecting commerce, as “commerce” is defined in the Federal Trade Commission Act. If you are covered by this regulation, breaking any of its rules is an unfair and deceptive act or practice or an unfair method of competition under section 5 of that Act. You can be fined heavily (up to \$11,000 plus an adjustment for inflation, under § 1.98 of this chapter) each time you break a rule.

3. Revise § 460.5 to read as follows:

§ 460.5 R-value tests.

R-value measures resistance to heat flow. R-values given in labels, fact sheets, ads, or other promotional materials must be based on tests done under the methods listed below. They were designed by the American Society of Testing and Materials (ASTM). The test methods are:

(a) All types of insulation except aluminum foil must be tested with ASTM C 177-97, “Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus;” ASTM C 518-98, “Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus;” ASTM C 1363-97, “Standard Test Method for the Thermal Performance of Building Assemblies by Means of a Hot Box Apparatus” or ASTM C 1114-98, “Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Thin-Heater Apparatus.” The tests must be done at a mean temperature of 75 degrees Fahrenheit and with a temperature differential of 50 degrees Fahrenheit plus or minus 10 degrees Fahrenheit. The tests must be done on the insulation material alone (excluding any airspace). R-values (“thermal resistance”) based upon heat flux measurements according to ASTM C 177-97 or ASTM C 518-98 must be reported only in accordance with the requirements and restrictions of ASTM C 1045-97, “Standard Practice for Calculating Thermal Transmission Properties from Steady-State Heat Flux Measurements.”

(1) For polyurethane, polyisocyanurate, and extruded polystyrene, the tests must be done on samples that fully reflect the effect of aging on the product’s R-value. To age a sample of polyurethane, polyisocyanurate, or extruded polystyrene insulation, follow, where applicable, ASTM C 578-95, “Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation;” ASTM C 1029-96, “Standard Specification for Spray-Applied Rigid Cellular Polyurethane Thermal Insulation;” and ASTM C 591-94, “Standard Specification for Unfaced Preformed Rigid Cellular Polyisocyanurate Thermal Insulation.” If these tests are not applicable to your product, you must follow the procedure in paragraph 4.6.4 of GSA Specification HH-I-530A or another reliable procedure.

(2) For loose-fill cellulose, the tests must be done at the settled density determined under paragraph 8 of ASTM C 739-97, “Standard Specification for Cellulosic Fiber (Wood-Base) Loose-Fill Thermal Insulation.”

(3) For loose-fill mineral wool, self-supported, spray-applied cellulose, and stabilized cellulose, the tests must be done on samples that fully reflect the effect of settling on the product’s R-value.

(4) For self-supported spray-applied cellulose, the tests must be done at the settled density determined pursuant to ASTM C 1149–97, “Standard Specification for Self-Supported Spray Applied Cellulosic Thermal Insulation.”

(5) For loose-fill insulations, the initial installed thickness for the product must be determined pursuant to ASTM C 1374–97, “Determination of Installed Thickness of Pneumatically Applied Loose-Fill Building Insulation,” for R-values of 11, 13, 19, 22, 24, 32, 40 and any other R-values provided on the product’s label pursuant to § 460.12.

(b) Single sheet systems of aluminum foil must be tested with ASTM E 408–71 (Reapproved 1996), “Standard Test Methods for Total Normal Emittance of Surfaces Using Inspection-Meter Techniques,” or ASTM C 1371–98, “Standard Test Method for Determination of Emittance of Materials Near Room Temperature Using Portable Emissometers.” This tests the emissivity of the foil—its power to radiate heat. To get the R-value for a specific emissivity level, air space, and direction of heat flow, use the tables in the most recent edition of the American Society of Heating, Refrigerating, and Air-Conditioning Engineers’ (ASHRAE) Fundamentals Handbook, if the product is intended for applications that meet the conditions specified in the tables. You must use the R-value shown for 50 degrees Fahrenheit, with a temperature differential of 30 degrees Fahrenheit.

(c) Aluminum foil systems with more than one sheet, and single sheet systems of aluminum foil that are intended for applications that do not meet the conditions specified in the tables in the most recent edition of the ASHRAE Fundamentals Handbook, must be tested with ASTM C 1363–97, “Standard Test Method for the Thermal Performance of Building Assemblies by Means of a Hot Box Apparatus,” in a test panel constructed according to ASTM C 1224–99, “Standard Specification for Reflective Insulation for Building Applications,” and under the test conditions specified in ASTM C 1224–99. To get the R-value from the results of those tests, use the formula specified in ASTM C 1224–99.

(d) For insulation materials with foil facings, you must test the R-value of the material alone (excluding any air spaces) under the methods listed in paragraph (a) of this section. You can also determine the R-value of the material in conjunction with an air space. You can use one of two methods to do this:

(1) You can test the system, with its air space, under ASTM C 1363–97,

“Standard Test Method for the Thermal Performance of Building Assemblies by Means of a Hot Box Apparatus,” which is incorporated by reference in paragraph (a) of this section. If you do this, you must follow the rules in paragraph (a) of this section on temperature, aging and settled density.

(2) You can add up the tested R-value of the material and the R-value of the air space. To get the R-value for the air space, you must follow the rules in paragraph (b) of this section.

(e) The standards listed above are incorporated by reference into this section. These standards were approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies may be inspected at the Federal Trade Commission, Consumer Response Center, Room 130, 600 Pennsylvania Avenue, NW, Washington, DC 20580, or at the Office of the Federal Register, 800 North Capitol Street, NW, Suite 700, Washington, DC. Copies of materials and standards incorporated by reference may be obtained from the issuing organizations listed in this section.

(1) The American Society of Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.

(i) ASTM C 177–97 (Reapproved 1993), “Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus.”

(ii) ASTM C 236–89 (Reapproved 1993), “Standard Test Method for Steady-State Thermal Performance of Building Assemblies by Means of a Guarded Hot Box.”

(iii) ASTM C 518–95, “Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.”

(iv) ASTM C 578–95, “Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation.”

(v) ASTM C 591–94, “Standard Specification for Unfaced Preformed Rigid Cellular Polyisocyanurate Thermal Insulation.”

(vi) ASTM C 739–97, “Standard Specification for Cellulosic Fiber (Wood-Base) Loose-Fill Thermal Insulation.”

(vii) ASTM C 1029–96, “Standard Specification for Spray-Applied Rigid Cellular Polyurethane Thermal Insulation.”

(viii) ASTM C 1045–97, “Standard Practice for Calculating Thermal Transmission Properties from Steady-State Heat Flux Measurements.”

(ix) ASTM C 1114–98, “Standard Test Method for Steady-State Thermal

Transmission Properties by Means of the Thin-Heater Apparatus.”

(x) ASTM C 1149–97, “Standard Specification for Self-Supported Spray Applied Cellulosic Thermal Insulation.”

(xi) ASTM C 1224–99, “Standard Specification for Reflective Insulation for Building Applications.”

(xii) ASTM C 1363–97, “Standard Test Method for the Thermal Performance of Building Assemblies by Means of a Hot Box Apparatus.”

(xiii) ASTM C 1371–98, “Standard Test Method for Determination of Emittance of Materials Near Room Temperature Using Portable Emissometers.”

(xiv) ASTM C 1374–97, “Determination of Installed Thickness of Pneumatically Applied Loose-Fill Building Insulation.”

(xv) ASTM E 408–71 (Reapproved 1996), “Standard Test Methods for Total Normal Emittance of Surfaces Using Inspection-Meter Techniques.”

(2) The American Society of Heating, Refrigerating, and Air-Conditioning Engineers’ (ASHRAE), 1791 Tullie Circle, N.E., Atlanta, Georgia 30329. ASHRAE Fundamentals Handbook (2001 edition).

(3) U.S. General Services Administration (GSA), 1800 F Street, NW Washington, DC 20405. GSA Specification HH-I–530A.

4. Revise § 460.8 to read as follows:

§ 460.8 R-value tolerances.

If you are a manufacturer of home insulation, the mean R-value of sampled specimens of a production lot of insulation you sell must meet or exceed the R-value shown in a label, fact sheet, ad, or other promotional material for that insulation. A production lot for the purposes of this section means a definite quantity of the product manufactured under uniform conditions of production. No individual specimen of the insulation you sell can have an R-value more than 10% below the R-value shown in a label, fact sheet, ad, or other promotional material for that insulation. If you are not a manufacturer, you can rely on the R-value data given to you by the manufacturer, unless you know or should know that the data is false or not based on the proper tests.

5. Revise § 460.12 to read as follows:

§ 460.12 Labels.

If you are a manufacturer, you must label all packages of your insulation. The labels must contain:

(a) The type of insulation.

(b) A chart showing these items:

(1) For batts and blankets of any type: the R-value, length, width, thickness, and square feet of insulation in the package.

(2) For all loose-fill insulation: The minimum settled thickness, initial installed thickness, maximum net coverage area, number of bags per 1,000 square feet, and minimum weight per square foot at R-values of 11, 13, 19, 22, 24, 32 and 40. You must also give this information for any additional R-values you list on the chart. Labels for these products must state the minimum net weight of the insulation in the package. You must also provide the appropriate blowing machine settings necessary to achieve the initial installed thicknesses listed on your label.

(3) For boardstock: the R-value, length, width, and thickness of the boards in the package, and the square feet of insulation in the package.

(4) For aluminum foil: the number of foil sheets; the number and thickness of the air spaces; and the R-value provided by that system when the direction of heat flow is up, down, and horizontal. You can show the R-value for only one direction of heat flow if you clearly and conspicuously state that the foil can only be used in that application.

(5) For insulation materials with foil facings, you must follow the rule that applies to the material itself. For example, if you manufacture boardstock with a foil facing, follow paragraph (b)(3) of this section. You can also show the R-value of the insulation when it is installed in conjunction with an air space. This is its "system R-value." If you do this, you must clearly and conspicuously state the conditions under which the system R-value can be attained.

(6) For air duct insulation: The R-value, length, width, thickness, and square feet of insulation in the package.

(c) The following statement: "R means resistance to heat flow. The higher the R-value, the greater the insulating power."

(d) If installation instructions are included on the label or with the package, add this statement: "To get the marked R-value, it is essential that this

insulation be installed properly. If you do it yourself, follow the instructions carefully."

(e) If no instructions are included, add this statement: "To get the marked R-value, it is essential that this insulation be installed properly. If you do it yourself, get instructions and follow them carefully. Instructions do not come with this package."

6. In § 460.13, remove paragraph (d) and redesignate paragraphs (e) and (f) as paragraphs (d) and (e) respectively.

7. Revise § 460.14 to read as follows:

§ 460.14 How retailers must handle fact sheets.

If you sell insulation to do-it-yourself customers, you must have fact sheets for the insulation products you sell. You must make the fact sheets available to your customers. You can decide how to do this, as long as your insulation customers are likely to notice them. For example, you can put them in a display, and let customers take copies of them. You can keep them in a binder at a counter or service desk, and have a sign telling customers where the fact sheets are. You need not make the fact sheets available to customers if you display insulation packages on the sales floor where your insulation customers are likely to notice them and each individual insulation package offered for sale contains all package label and fact sheet disclosures required by §§ 460.12 and 460.13.

8. Section 460.17 is revised to read as follows:

§ 460.17 What installers must tell their customers.

If you are an installer, you must give your customers a contract or receipt for the insulation you install. For all insulation except loose-fill and aluminum foil, the receipt must show the coverage area, thickness, and R-value of the insulation you installed. The receipt must be dated and signed by the installer. To figure out the R-value of the insulation, use the data that the

manufacturer gives you. If you put insulation in more than one part of the house, put the data for each part on the receipt. You can do this on one receipt, as long as you do not add up the coverage areas or R-values for different parts of the house. Do not multiply the R-value for one inch by the number of inches you installed. For loose-fill, you must follow the manufacturer's label instructions for initial installed thickness and blowing machine settings. For loose-fill, the receipt must show the coverage area, initial installed thickness, R-value, and the number of bags used. For aluminum foil, the receipt must show the number and thickness of the air spaces, the direction of heat flow, and the R-value.

9. In § 460.18, paragraph (e) is removed, and paragraph (f) is redesignated as paragraph (e) and revised to read as follows:

§ 460.18 Insulation ads.

* * * * *

(e) The affirmative disclosure requirements in § 460.18 do not apply to ads on television or radio.

10. In § 460.19, paragraph (g) is revised to read as follows:

§ 460.19 Savings claims.

* * * * *

(g) The affirmative disclosure requirements in § 460.19 do not apply to ads on television or radio.

11. In § 460.23, paragraph (a) is revised to read as follows:

§ 460.23 Other laws, rules, and orders.

(a) If an outstanding FTC Cease and Desist Order applies to you but differs from the rules given here, you can petition to amend the order.

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By direction of the Commission.

Donald S. Clark,

Secretary of the Commission.

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