

## § 173.14

(ii) The inner packaging must be placed in a hermetically sealed barrier bag which is impervious to the lading.

(iii) The barrier bag and its contents must be placed in a fiberboard box that is placed in a hermetically-sealed barrier bag which is impervious to the lading.

(iv) The intermediate packaging must be placed inside an outer packaging conforming to §173.211.

(v) Not more than four intermediate packagings are permitted in an outer packaging.

(d) The outside of the package must be marked, in association with the proper shipping name, with the statement: "This package conforms to 49 CFR 173.13."

[Amdt. 173-253, 61 FR 27173, May 30, 1996, as amended at 65 FR 50460, Aug. 18, 2000; 66 FR 45381, Aug. 28, 2001; 70 FR 3309, Jan. 24, 2005; 71 FR 54395, Sept. 14, 2006; 75 FR 27215, May 14, 2010]

### § 173.14 Hazardous materials in equipment in use or intended for use during transport.

(a) Except for transportation by aircraft, hazardous materials (*e.g.*, lithium batteries, fuel cell cartridges) contained in equipment, such as data loggers and cargo tracking devices, attached to or placed in packages, overpacks, or containers are not subject to this subchapter other than the following:

(1) The equipment must be in use or intended for use during transportation;

(2) The hazardous materials (*e.g.*, lithium batteries, fuel cell cartridges) must meet the applicable construction and test requirements specified in this subchapter;

(3) The equipment must be capable of withstanding the shocks and loadings normally encountered during transport and must be safe for use in the environments to which it may be exposed; and

(4) When offered for transport by vessel, the requirements in §176.76(a)(9) of this subchapter apply.

(b) For transportation by aircraft, lithium batteries contained in equipment such as data loggers and cargo tracking devices, attached to or placed in packages containing COVID-19 pharmaceuticals, are not subject to the marking and documentation require-

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ments of §173.185(c)(3) and (c)(4)(iv). This same package, when shipped without the COVID-19 pharmaceuticals for the purpose of use or reuse, is also not subject to the marking and documentation requirements of §173.185(c)(3) and (c)(4)(iv), as applicable, provided prior arrangements have been made with the operator.

(c) The exception provided by this section does not apply to hazardous materials shipped as cargo. Hazardous materials contained in equipment as described in this section, when transported as a cargo, are subject to, and must be transported in accordance with, all applicable requirements of this subchapter.

[87 FR 44991, July 26, 2022]

### Subpart B—Preparation of Hazardous Materials for Transportation

#### § 173.21 Forbidden materials and packages.

Unless otherwise provided in this subchapter, the offering for transportation or transportation of the following is forbidden:

(a) Materials that are designated "Forbidden" in Column 3 of the §172.101 table.

(b) Forbidden explosives as defined in §173.54 of this part.

(c) Electrical devices, such as batteries and battery-powered devices, which are likely to create sparks or generate a dangerous evolution of heat, unless packaged in a manner which precludes such an occurrence.

(d) For carriage by aircraft, any package which has a magnetic field of more than 0.00525 gauss measured at 4.5 m (15 feet) from any surface of the package.

(e) A material in the same packaging, freight container, or overpack with another material, the mixing of which is likely to cause a dangerous evolution of heat, or flammable or poisonous gases or vapors, or to produce corrosive materials.

(f) A package containing a material which is likely to decompose with a self-accelerated decomposition temperature (SADT) of 50 °C (122 °F) or less, or polymerize at a temperature of

54 °C (130 °F) or less with an evolution of a dangerous quantity of heat or gas when decomposing or polymerizing, unless the material is stabilized or inhibited in a manner to preclude such evolution. The SADT may be determined by any of the test methods described in Part II of the UN Manual of Tests and Criteria (IBR, see §171.7 of this subchapter).

(1) A package meeting the criteria of paragraph (f) of this section may be required to be shipped under controlled temperature conditions. The control temperature and emergency temperature for a package shall be as specified in the table in this paragraph based upon the SADT of the material. The control temperature is the temperature above which a package of the material may not be offered for transportation or transported. The emergency temperature is the temperature at which, due to imminent danger, emergency measures must be initiated.

TABLE 1 TO PARAGRAPH (f)(1)—METHOD OF DETERMINING CONTROL AND EMERGENCY TEMPERATURE

SADT <sup>1</sup>	Control temperatures	Emergency temperature
SADT ≤20 °C (68 °F) ...	20 °C (36 °F) below SADT.	10 °C (18 °F) below SADT.
20 °C (68 °F) <SADT ≤35 °C (95 °F).	15 °C (27 °F) below SADT.	10 °C (18 °F) below SADT.
35 °C (95 °F) <SADT ≤50 °C (122 °F).	10 °C (18 °F) below SADT.	5 °C (9 °F) below SADT.
50 °C (122 °F) <SADT	(2) .....	(2)

<sup>1</sup> Self-accelerating decomposition temperature.

<sup>2</sup> Temperature control not required.

(2) For self-reactive materials listed in §173.224(b) table control and emergency temperatures, where required are shown in Columns 5 and 6, respectively. For organic peroxides listed in The Organic Peroxides Table in §173.225 control and emergency temperatures, where required, are shown in Columns 7a and 7b, respectively.

(3) Refrigeration may be used as a means of stabilization only when approved by the Associate Administrator. Approvals issued by the Bureau of Explosives are no longer valid (see §171.19 of this subchapter). Methods of stabilization approved by the Associate Administrator are as follows:

(i) For highway transportation:

(A) A material meeting the criteria of this paragraph (f) may be trans-

ported only in a transport vehicle, freight container, or motor vehicle equipped with a mechanical refrigeration unit, or loaded with a consumable refrigerant, capable of maintaining the inside temperature of the hazardous material at or below the control temperature required for the material during transportation.

(B) Each package containing a material meeting the criteria of this paragraph (f) must be loaded and maintained at or below the control temperature required for the material. The temperature of the material must be determined by appropriate means and entered on a written record at the time the packaging is loaded.

(C) The vehicle operator shall monitor the inside temperature of the transport vehicle, freight container, or motor vehicle and enter that temperature on a written record at the time the package is loaded and thereafter at intervals not exceeding two hours. Alternatively, a transport vehicle, freight container, or motor vehicle may be equipped with a visible or audible warning device that activates when the inside temperature of the transport vehicle, freight container, or motor vehicle exceeds the control temperature required for the material. The warning device must be readily visible or audible, as appropriate, from the vehicle operator's seat in the vehicle.

(D) The carrier shall advise the vehicle operator of the emergency temperature for the material, and provide the vehicle operator with written procedures that must be followed to assure maintenance of the control temperature inside the transport vehicle, freight container, or motor vehicle. The written procedures must include instructions for the vehicle operator on actions to take if the inside temperature exceeds the control temperature and approaches or reaches the emergency temperature for the material. In addition, the written temperature-control procedures must identify enroute points where the consumable refrigerant may be procured, or where repairs to, or replacement of, the mechanical refrigeration unit may be accomplished.

(E) The vehicle operator shall maintain the written temperature-control

procedures, and the written record of temperature measurements specified in paragraph (f)(3)(i)(C) of this section, if applicable, in the same manner as specified in §177.817 of this subchapter for shipping papers.

(F) If the control temperature is maintained by use of a consumable refrigerant (e.g., dry ice or liquid nitrogen), the quantity of consumable refrigerant must be sufficient to maintain the control temperature for twice the average transit time under normal conditions of transportation.

(G) A material that has a control temperature of 40 °C (104 °F) or higher may be transported by common carrier. A material that has a control temperature below 40 °C (104 °F) must be transported by a private or contract carrier.

(ii) For transportation by vessel, shipments are authorized in accordance with the control temperature requirements in 7.3.7 of the IMDG Code (IBR, see §171.7 of this subchapter).

(g) Packages which give off a flammable gas or vapor, released from a material not otherwise subject to this subchapter, likely to create a flammable mixture with air in a transport vehicle.

(h) Packages containing materials (other than those classed as explosive) which will detonate in a fire.

(1) For purposes of this paragraph, “detonate” means an explosion in which the shock wave travels through the material at a speed greater than the speed of sound.

(2) When tests are required to evaluate the performance of a package under the provisions of this paragraph, the testing must be done or approved by one of the agencies specified in §173.56.

(i) Except for a package containing a lighter design sample that meets the requirements of §173.308(b)(2), a package containing a lighter (see §171.8 of this subchapter) containing a Division 2.1 material, of a design that has not been examined and successfully tested by an authorized person under the criteria specified in §173.308(a)(4) or, a lighter design containing a Class 3 material, that has not been approved by the Associate Administrator.

(j) An organic peroxide of the “ketone peroxide” category which con-

tains more than 9 percent available oxygen as calculated using the equation in §173.128(a)(4)(ii). The category, ketone peroxide, includes, but is not limited to:

Acetyl acetone peroxide  
Cyclohexanone peroxide(s)  
Diacetone alcohol peroxides  
Methylcyclohexanone peroxide(s)  
Methyl ethyl ketone peroxide(s)  
Methyl isobutyl ketone peroxide(s)

(k) Notwithstanding any other provision of this subchapter, including subpart C of part 171 and 175.10(a)(2) of this subchapter, an oxygen generator (chemical) as cargo on a passenger-carrying aircraft. This prohibition does not apply to an oxygen generator for medical or personal use of a passenger that meets the requirements of §175.10(a)(7) of this subchapter.

[Amdt. 173–224, 55 FR 52609, Dec. 21, 1990]

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting §173.21, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at [www.govinfo.gov](http://www.govinfo.gov).

### § 173.22 Shipper’s responsibility.

(a) Except as otherwise provided in this part, a person may offer a hazardous material for transportation in a packaging or container required by this part only in accordance with the following:

(1) The person shall class and describe the hazardous material in accordance with parts 172 and 173 of this subchapter, and

(2) The person shall determine that the packaging or container is an authorized packaging, including part 173 requirements, and that it has been manufactured, assembled, and marked in accordance with:

(i) Section 173.7(a) and parts 173, 178, or 179 of this subchapter;

(ii) A specification of the Department in effect at the date of manufacture of the packaging or container;

(iii) National or international regulations based on the UN Recommendations (IBR, see §171.7 of this subchapter), as authorized in §173.24(d)(2);

(iv) An approval issued under this subchapter; or

(v) An exemption or special permit issued under subchapter A of this chapter.