§ 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 which are likely to create sparks or generate a dangerous quantity 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.

§ 173.211 Preparation of Hazardous Materials for Transportation

(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 which are likely to create sparks or generate a dangerous quantity 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.
§ 173.21 TABLE: METHOD OF DETERMINING CONTROL AND EMERGENCY TEMPERATURE.

<table>
<thead>
<tr>
<th>SADT</th>
<th>Control temperature</th>
<th>Emergency temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 20 °C (68 °F)</td>
<td>20 °C (68 °F) below SADT.</td>
<td>10 °C (50 °F) below SADT.</td>
</tr>
<tr>
<td>20 °C (68 °F) &lt; SADT ≤ 35 °C (95 °F)</td>
<td>15 °C (59 °F) below SADT.</td>
<td>10 °C (50 °F) below SADT.</td>
</tr>
<tr>
<td>35 °C (95 °F) &lt; SADT ≤ 50 °C (122 °F)</td>
<td>10 °C (50 °F) below SADT.</td>
<td>5 °C (41 °F) below SADT.</td>
</tr>
<tr>
<td>≥ 50 °C (122 °F)</td>
<td>(F)</td>
<td>(F)</td>
</tr>
</tbody>
</table>

1 SADT: Self-accelerating decomposition temperature.
2 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. For status of approvals previously issued by the Bureau of Explosives, see §171.19 of this subchapter. Methods of stabilization approved by the Associate Administrator are as follows:

(A) A material meeting the criteria of this paragraph (f) may be transported 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.
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 Chapter 7.7 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) A package containing a cigarette lighter, or other similar device, equipped with an ignition element and containing fuel; except that a cigarette lighter or similar device subject to this paragraph may be shipped if the design of the device and its inner packaging has been examined by the Bureau of Explosives and specifically approved by the Associate Administrator. The examination of cigarette lighters and similar devices containing gaseous fuel will include scrutiny for compliance with §173.308 of this part. For the status of approvals previously issued by the Bureau of Explosives, see §171.19 of this subchapter.

(j) An organic peroxide of the “ketone peroxide” category which contains 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
Diacetone alcohol peroxides
Methylcyclohexanone peroxide
Methyl ethyl ketone peroxide
Methyl isobutyl ketone peroxide

(k) Notwithstanding any other provision of this subchapter, including §§171.11 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.


EDITORIAL NOTE: For Federal Register citations affecting §173.22, see the List of CFR Sections Affected which appears in the Finding Aids section of the printed volume and on GPO Access.

§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: