

(h) For all coal loaded on a vessel, other than an unmanned barge, the atmosphere above the coal must be routinely tested for the presence of methane, carbon monoxide, and oxygen, following the procedures in the Appendices to the schedules for Coal and Brown Coal Briquettes as contained in the IMSBC Code (incorporated by reference, see §148.8). This testing must be performed in such a way that the cargo hatches are not opened and entry into the hold is not necessary.

(i) When carrying a coal described in paragraph (e) of this section, the atmosphere above the coal must be monitored for the presence of carbon monoxide as prescribed in paragraph (h) of this section. The results of this monitoring must be recorded at least twice in every 24-hour period, unless the conditions of paragraph (m) of this section are met. If the level of carbon monoxide is increasing rapidly or reaches 20 percent of the lower flammability limit (LFL), the frequency of monitoring must be increased.

(j) When a cargo of coal has a potential to self-heat or has been observed to be heating, the hatches should be closed and sealed and all surface ventilation halted except as necessary to remove any methane that may have accumulated.

(k) If the level of carbon monoxide monitored under paragraph (i) of this section continues to increase rapidly or the temperature of coal carried on board a vessel exceeds 55 °C (131 °F) and is increasing rapidly, the master must notify the nearest Coast Guard Captain of the Port of—

- (1) The name, nationality, and position of the vessel;
- (2) The most recent temperature, if measured, and levels of carbon monoxide and methane;
- (3) The port where the coal was loaded and the destination of the coal;
- (4) The last port of call of the vessel and its next port of call; and
- (5) What action has been taken.

(l) If the level of methane as monitored under paragraph (h) of this section reaches 20 percent of the LFL or is increasing rapidly, ventilation of the cargo hold, under paragraph (f) of this section, must be initiated. If this ventilation is provided by opening the

cargo hatches, care must be taken to avoid generating sparks.

(m) The frequency of monitoring required by paragraph (f) of this section may be reduced at the discretion of the master provided that—

(1) The level of gas measured is less than 20 percent of the LFL;

(2) The level of gas measured has remained steady or decreased over three consecutive readings, or has increased by less than 5 percent over four consecutive readings spanning at least 48 hours; and

(3) Monitoring continues at intervals sufficient to determine that the level of gas remains within the parameters of paragraphs (m)(1) and (m)(2) of this section.

#### § 148.242 Copra.

Copra must have surface ventilation. It must not be stowed against heated surfaces including fuel oil tanks which may require heating.

#### § 148.245 Direct reduced iron (DRI); lumps, pellets, and cold-molded briquettes.

(a) Before loading DRI lumps, pellets, or cold-molded briquettes—

(1) The master must have a written certification from a competent person appointed by the shipper and recognized by the Commandant (CG-5223) stating that the DRI, at the time of loading, is suitable for shipment;

(2) The DRI must be aged for at least 3 days, or be treated with an air passivation technique or some other equivalent method that reduces its reactivity to at least the same level as the aged DRI; and

(3) Each hold and bilge must be as clean and dry as practical. Other than double bottom tanks, adjacent ballast tanks must be kept empty when possible. All wooden fixtures, such as battens, must be removed from the hold.

(b) Each boundary of a hold where DRI lumps, pellets, or cold-molded briquettes are to be carried must be resistant to fire and passage of water.

(c) DRI lumps, pellets, or cold-molded briquettes that are wet, or that are known to have been wetted, may not be accepted for transport. The moisture content of the DRI must not exceed 0.3 percent prior to loading.

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(d) DRI lumps, pellets and cold-molded briquettes must be protected at all times from contact with water, and must not be loaded or transferred from one vessel to another during periods of rain or snow.

(e) DRI lumps, pellets, or cold-molded briquettes may not be loaded if their temperature is greater than 65 °C (150 °F).

(f) The shipper of DRI lumps, pellets, or cold-molded briquettes in bulk must ensure that an inert atmosphere of less than 5 percent oxygen and 1 percent hydrogen, by volume, is maintained throughout the voyage in any hold containing these materials.

(g) When DRI lumps, pellets, or cold-molded briquettes are loaded, precautions must be taken to avoid the concentration of fines (pieces less than 6.35mm in size) in any one location in the cargo hold.

(h) Radar and RDF scanners must be protected against the dust generated during cargo transfer operations of DRI lumps, pellets, or cold-molded briquettes.

**§ 148.250 Direct reduced iron (DRI); hot-molded briquettes.**

(a) Before loading DRI hot-molded briquettes—

(1) The master must have a written certification from a competent person appointed by the shipper and recognized by the Commandant (CG-5223) that at the time of loading the DRI hot-molded briquettes are suitable for shipment; and

(2) Each hold and bilge must be as clean and dry as practical. Except double bottom tanks, adjacent ballast tanks must be kept empty where possible. All wooden fixtures, such as batens, must be removed.

(b) All boundaries of a hold must be resistant to fire and passage of water to carry DRI hot-molded briquettes.

(c) DRI hot-molded briquettes must be protected at all times from contact with water. They must not be loaded or transferred from one vessel to another during periods of rain or snow.

(d) DRI hot-molded briquettes may not be loaded if their temperature is greater than 65 °C (150 °F).

(e) When loading DRI hot-molded briquettes, precautions must be taken to

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avoid the concentration of fines (pieces less than 6.35mm in size) in any one location in the cargo hold.

(f) Adequate surface ventilation must be provided when carrying or loading DRI hot-molded briquettes.

(g) When DRI hot-molded briquettes are carried by unmanned barge—

(1) The barge must be fitted with vents adequate to provide natural ventilation; and

(2) The cargo hatches must be closed at all times after loading the DRI hot-molded briquettes.

(h) Radar and RDF scanners must be adequately protected against dust generated during cargo transfer operations of DRI hot-molded briquettes.

(i) During final discharge only, a fine spray of water may be used to control dust from DRI hot-molded briquettes.

**§ 148.255 Ferrosilicon, aluminum ferrosilicon, and aluminum silicon containing more than 30% but less than 90% silicon.**

(a) This section applies to the stowage and transportation of ferrosilicon, aluminum ferrosilicon, and aluminum silicon containing more than 30 percent but less than 90 percent silicon.

(b) The shipper of material described in paragraph (a) of this section must give the master a written certification stating that after manufacture the material was stored under cover, but exposed to the weather, in the particle size in which it is to be shipped, for at least three days before shipment.

(c) Material described in paragraph (a) of this section must be protected at all times from contact with water, and must not be loaded or unloaded during periods of rain or snow.

(d) Except as provided in paragraph (e) of this section, each hold containing material described in paragraph (a) of this section must be mechanically ventilated by at least two separate fans. The total ventilation must be at least five air changes per hour, based on the empty hold. Ventilation must not allow escaping gas to reach accommodation or work spaces, on or under deck.

(e) An unmanned barge which is provided with natural ventilation need not comply with paragraph (d) of this section.