DEPARTMENT OF TRANSPORTATION
HAZARDOUS MATERIALS REGULATIONS BOARD
WASHINGTON, D.C. 20590



[ 49 CFR Parts 173, 179 ]

[Docket No. HM-84; Notice No. 71-12]

# TRANSPORTATION OF HAZARDOUS MATERIALS

## Chlorine in Tank Cars

The Hazardous Materials Regulations Board is considering amendment of §§ 173.314, 179.100, and 179.102 of the Hazardous Materials Regulations as they apply to the shipment of chlorine. It is proposed to: (1) Authorize the use of larger capacity cars; (2) authorize use of weld joint efficiency of 100 percent in design calculations; (3) require any size chlorine tank to be built to specification 105A500W; (4) authorize use of self-extinguishing polyurethane foam as an insulating material; (5) add a requirement for use of specific "fine grain practice" steels in construction; (6) require marking "CHLORINE ONLY" on each tank car; and, (7) prohibit the use of specifications ARA-V and Class 105A cars having forge welded anchors. Many of the changes being proposed appeared a proposals in Docket No. HM-10; Notice No. 68-8 (33 F.R. 17246). These have been segregated from that document and are repeated in this notice directed solely to chlorine in tank cars.

For several years, large quantities of chlorine have been transported under many special permits in 55-, 85-, and 90-ton capacity cars designed with a weld joint efficiency of 100 percent and constructed from AAR specification TC 128-70 steel. They are insulated with a minimum of 4 inches of self-extinguishing polyurethane foam. Experience with the use of these cars in the transportation of chlorine has been satisfactory.

On the basis of this experience, the Board is proposing to incorporate the terms of these special permits into the regulations. Further, it proposes to require that any chlorine tank car must be constructed to specification 105A500W rather than 105A300W, thereby providing an increase of 200 p.s.i. in the minimum design pressure. The increased design pressure will provide an additional safety factor above design parameters relating simply to the vapor pressure of the product. Also, the present AAR embargo on forge welded anchors would be incorporated into the regulations.

In consideration of the foregoing, it is proposed to amend 49 CFR Parts 173 and 179 as follows:

I. *Part 173.* In § 173.314, paragraph (c) Table and Note 12 would be amended; Note 3 would be canceled as follows:

**§ 173.314 Requirements for compressed gases in tank cars.**

* * * * *

(c) * * *

| Kind of gas | Maximum permitted filling density, Note 1 | Required tank car, see § 173.31(a) (2) and (3) |
|---|---|---|
| *Change* | *Percent* | |
| Chlorine | 125 | DOT-106A500X, Note 7. |
| | 125 | DOT-105A500W, Note 12. |

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NOTE 3: Canceled.

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NOTE 12: For special tank requirements applying to chlorine, see § 179.102-2. The quantity of chlorine loaded into a single-unit tank car must not exceed 90 tons. Nominal 16-, 30-, 55-, 85-, or 90-ton tank car tanks must be loaded to the nominal lading weights with a tolerance of plus 0, minus 2 percent. Existing tank cars, not larger than 30-ton chlorine capacity, built to ARA-V, ICC-105A300, or ICC-105A300W, may be continued in service if equipped with excess flow valves in accordance with § 179.102-2. ARA-V and class 105A cars having forge welded anchors must not be used for the transportation of chlorine.

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II. *Part 179.* (A) In § 179.100-6 paragraph (a), the second explanation following the formula would be amended to read as follows:

**§ 179.100 General specification applicable to pressure tank car tanks.**

**§ 179.100-6 Thickness of plates.**

(a) * * *

E=0.9 welded joints efficiency; except E=1.0 for seamless aluminum alloy heads, and for calculating the minimum wall thickness of class 105A tank shells and seamless heads.

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(B) In § 179.102-2, paragraph (a) would be amended to read as follows:

**§ 179.102 Special commodity requirements for pressure tank car tanks.**

**§ 179.102-2 Chlorine.**

(a) Each tank car used to transport chlorine must comply with all of the following:

(1) Each tank must be constructed in compliance with spec. DOT-105A500W. A tank car may be registered and the jacket stenciled either DOT-105A300W or DOT-105A500W, and each tank must be equipped with the safety relief valve required by the specification to which the car is registered.

(2) Interior pipes of liquid discharge valves must be equipped with excess flow valves of approved design.

(3) Insulation must be 4 inches minimum thickness of corkboard or of self-extinguishing polyurethane foam.

(4) Tanks must be fabricated from carbon steel complying with ASTM Specification A-516-69, Grade 70, or AAR Specification TC-128-70, Grade A or B.

(5) Each tank car jacket must be stenciled on both sides, in letters not less than 1½ inches high "CHLORINE ONLY".

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Interested persons are invited to give their views on this proposal. Communications should identify the docket number and be submitted in duplicate to the Secretary, Hazardous Materials Regulations Board, Department of Transportation, 400 Sixth Street SW., Washington, DC 20590. Communications received on or before June 15, 1971, will be considered before final action is taken on the proposal. All comments received will be available for examination by interested persons at the Office of the Secretary, Hazardous Materials Regulations Board, both before and after the closing date for comments.

This proposal is made under the authority of sections 831-835 of title 18, United States Code, and section 9 of the Department of Transportation Act (49 U.S.C. 1657).

Issued in Washington, D.C., on April 12, 1971.

W. F. REA III,
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