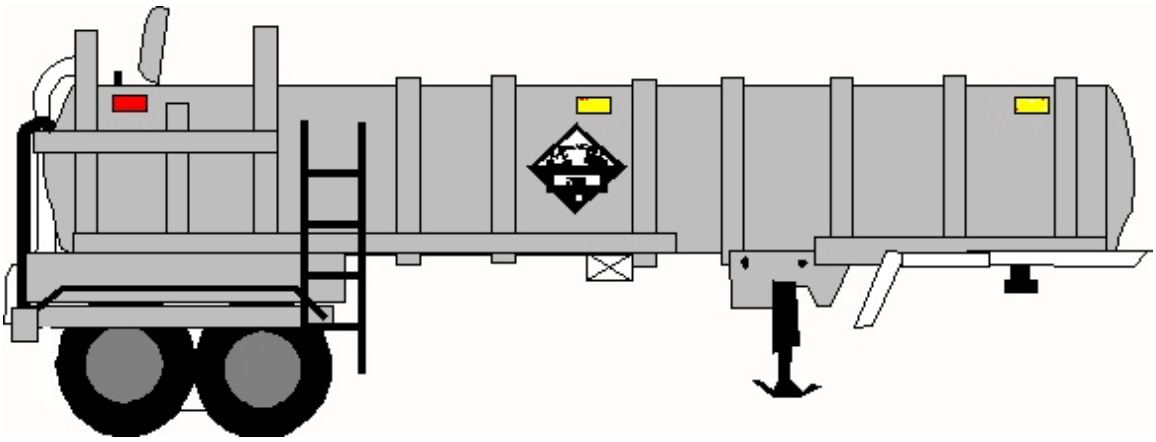
BILINGUAL
HAZARDOUS MATERIALS
GENERAL AWARENESS
TRAINING
Volume VIII

BULK PACKAGING AND CARGO TANKS
PARTS 178 AND 180



ESPECIFICACIONES DE TANQUES DE CARGA

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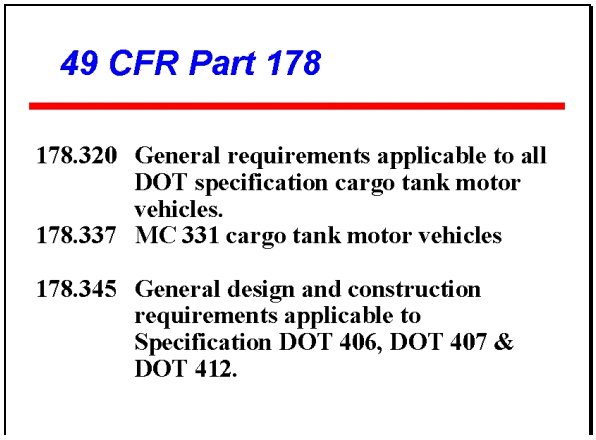
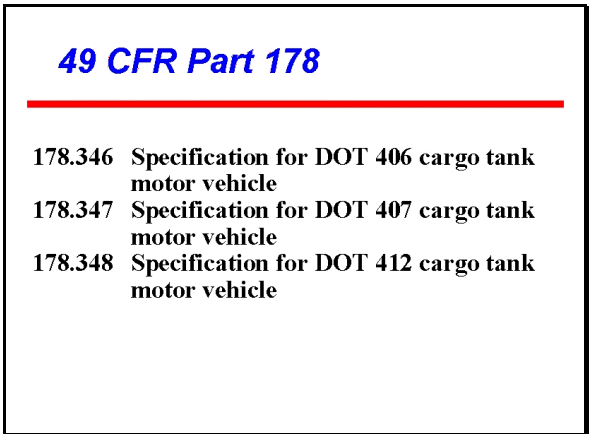
The requirements for design specifications for cargo tanks is contained in 49 CFR Part 178. Section 178.320 contains general requirements applicable for all cargo tanks.





The design specifications for older cargo tanks which are no longer authorized for manufacture that are still authorized for use may be found in the October 1, 1990 49 CFR.

The requirements for testing and inspection of cargo tanks is contained in 49 CFR '180.407. The following charts identifies the types of test required.

Cargo Tank Testing Requirements

Test or Inspection (Cargo tank specification, configuration and service)	Date First Test Req.	Interval period
External Visual Inspection		
All cargo tanks designed to be loaded by vacuum with full opening rear heads	09/01/1991	6 mos
All other cargo tanks	09/01/1991	1 year

Cargo Tank Testing Requirements

Test or Inspection (Cargo tank specification, configuration and service)	Date First Test Req.	Interval period
Internal Visual Inspection		
- All insulated cargo tanks except MC 330, MC 331, MC338.....	09/01/91	1 year
- All cargo tanks transporting lading corrosive to the tank.....	09/01/91	1 year
- All other cargo tanks except MC 338.....	09/01/95	5 years
Lining Inspection		
- All lined cargo tanks transporting lading corrosive to the tank.....	09/01/91	1 year

Cargo Tank Testing Requirements

Test or Inspection (Cargo tank specification, configuration and service)	Date First Test Req.	Interval period
Leakage Test		
- MC 330 and MC 331 cargo tanks in chlorine service.....	09/01/91	2 years
- All other cargo tanks excep MC 338.....	09/01/91	1 year
Pressure Test		
Hydrostatic or pneumatic		
- All cargo tanks which are insulated with no manhole or insulated and lined except MC 338	09/01/91	1 year

Cargo Tank Testing Requirements

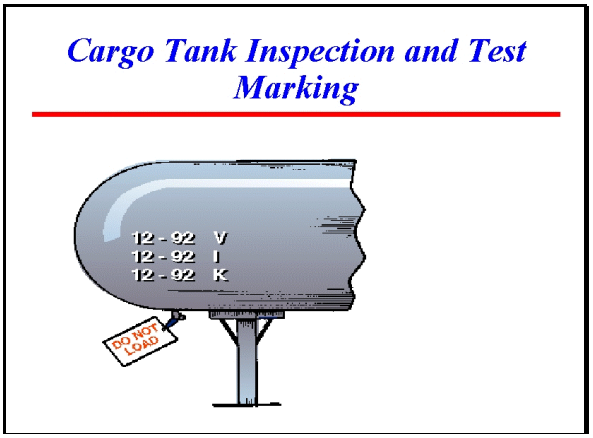
Test or Inspection (Cargo tank specification, configuration and service)	Date First Test Req.	Interval period
Pressure Test (cont)		
- All Cargo Tanks designed to be loaded by vacuum with full opening rear heads.....	09/01/92	2 years
- Mc 330 and MC 331 cargo tanks in chlorine service.....	09/01/92	2 years
- All other Cargo Tanks.....	09/01/95	5 years

Cargo Tank Testing Requirements

Test or Inspection (Cargo tank specification, configuration and service)	Date First Test Req.	Interval period
Thickness Test		
- All unlined Cargo Tanks transporting material corrosive to the tank except MC 338.....	09/01/92	2 years

These inspections must be performed by a person who meets the qualifications contained in 49 CFR ' 180.409 to perform the appropriate test(s)

Each cargo tank that successfully completes the required test and inspection must be marked in accordance with 49 CFR '180.415



The following is a chart identifying the required marking.

Cargo Tank Inspection and Test Marking

- Durably and legibly marked in English
- Date, month and year the test/inspection performed, Example 10/97
- Letters and Numbers at least 32 mm (1.26 inches) high
- Marked on the Tank shell near the specification plate or anywhere on the front head.
- The type of test or inspection may be abbreviated using the following table

Cargo Tank Test Marking

TYPE OF tEST OR INSPECTION	MARKING
EXTERNAL VISUAL INSPECTION & TEST	V
INTERNAL VISUAL INSPECTION	I
PRESSURE TEST	P
LINING INSPECTION	L
LEAKAGE TEST	K
THICKNESS TEST	T

MC-306/DOT-406

General requirements applicable to all DOT specification cargo tanks are contained in 49 CFR 178.320. General design and construction requirements applicable to Dot 400 series tanks may be found in 178.345. The specifications for a DOT-406 cargo tank may be found in 49 CFR 178.346

Usage:

Flammable Liquids w/low vapor pressure -Primarily petroleum products (e.g., Gasoline, diesel fuel)

Similar Tank Specifications:

MC-300, MC-301, MC-302, MC-303, MC-305, NFPA 385, CSFMDA

Design Pressure:

3-5 PSI non- ASME (American Society of Mechanical Engineers) construction

Shell/head Materials:

**	**AL**	**Aluminum (typical)**
	HSLA	**High Strength Low Alloy**
	MS	**Mild Steel**
	SS	**Stainless Steel**

Venting System:

10 in. spring loaded set @ 5PSI w/ fusible vents if necessary

MC-307/DOT-407

General requirements applicable to all DOT specification cargo tanks are contained in 49 CFR 178.320. General design and construction requirements applicable to Dot 400 series tanks may be found in 178.345. The specifications for a DOT-407 cargo tank may be found in 49 CFR 178.347.

Usage:

Flammable liquids w/moderate vapor pressure poisonous liquids Multiple hazard class liquid materials (e.g., flammable, corrosive and poisonous).

Similar Tank Specification:

MC-304

Design Pressure:

25 PSI min. 35 PSI (typical)
ASME design above 50 PSI for MC-307 ASME (American Society of Mechanical Engineers) Code
stamped above 35 PSI for DOT-407

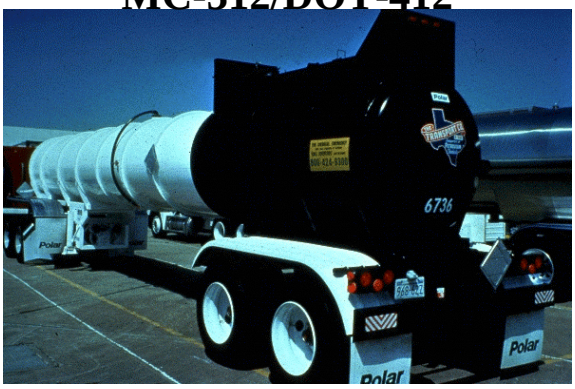
Shell/head Materials:

**** SS Stainless Steel (typical)**
AL Aluminum
May also be made from MS or HSLA

Venting System:

3 in. spring loaded set @ 130% of design pressure
w/ 2 ea. 3 in. fusible vents (typical)

MC-312/DOT-412



General requirements applicable to all DOT specification cargo tanks are contained in 49 CFR 178.320. General design and construction requirements applicable to Dot 400 series tanks may be found in 178.345. The specifications for a DOT-407 cargo tank may be found in 49 CFR 178.348.

Usage:

Corrosive Liquids

Multiple hazard class liquid materials (e.g.,flammable, corrosive and poisonous)

Similar Tank Specifications

MC-310, MC-311

Design Pressure

~3 PSI min. (Minimum design pressure cannot not be less than the pressure used for unloading 49 CFR ' 178.343-1(c) 35 PSI (typical)

ASME (American Society of Mechanical Engineers) Code stamped above 15 PSI

Shell/head Materials:

**** MS Mild Steel (typical)**

SS Stainless Steel

May also be made from AL and HSLA

Venting System:

13 in. spring loaded set @ 130% of design pressure w/ rupture discs @ 150% of design pressure

Often tanks have linings - rubber, teflon, glass, etc

MC-331

General requirements applicable to all DOT specification cargo tanks are contained in 49 CFR 178.320.The specifications for a MC-331 cargo tank may be found in 49 CFR 178.337.

Usage:

Gasses (Liquified Petroleum Gas, Chlorine, Freon, Anhydrous ammonia)

Similar Tank Specification:

MC-330, Non-specification tanks constructed to ASME standards in accordance with 49 CFR 173.315

Design Pressure:

100 PSI min. 500 PSI Max.
265 PSI (typical)
ASME Code stamped

Shell/head Materials:

**	**HSLA**	**High Strength Low Alloy**
	SS	**Stainless Steel**
	MS	**Mild Steel**

Venting System:

Spring loaded

MC-338

General requirements applicable to all DOT specification cargo tanks are contained in 49 CFR 178.320. The specifications for a MC-338 cargo tank may be found in 49 CFR 178.338.

Usage:

Cryogenic Liquids

Similar Tank Specifications:

Tanks constructed under a DOT exemption

Design Pressure:

25.3 PSIG min. 500 PSI max.
ASME construction

Shell/head Materials:

**** HSLA High Strength Low Alloy**
**** SS Stainless Steel**
MS Mild Steel

Shell/head Thickness:

varies HSLA (typical)

Venting System:

Spring loaded w/ rupture disc

Insulated or vacuum thermos bottle design

VACUUM TANKS

Usage:

Hazardous wastes

These tanks are being converted to MC-307/312 specifications on or after 09/01/93.

Similar Tank Specifications:

MC-307/MC-312

Design Pressure:

25 PSI min. internal 35 PSI (typical)
15 PSI external
ASME Code stamped

Shell/head Materials:

**** MS Mild Steel (typical)**
SS Stainless Steel

Shell/head Thickness:

.187 to .250 in. MS (typical)

Venting System:

1 3 in. spring loaded w/ 3 in. rupture disc for corrosive service

A few of the tanks have linings - rubber, teflon, etc.

IM-101/102 Portable Tanks

The specifications for a IM 101 and IM 102 portable tanks may be found in 49 CFR 178.270.

Usage:

Essentially all types of liquids and designed for intermodal transportation

Similar Tank Specifications:

MC-307/312

Design Pressure:

IM-101 - 25.4 to 100 PSIG max. (58 PSI)
IM-102 - 14.5 to 25.4 PSIG max.
ASME design not stamped

Shell/head Materials:

**** SS Stainless Steel**
**** HSLA High Strength Low Alloy**

Shell/head Thickness:

varies HSLA (typical)

Venting System:

Spring Loaded

Both insulated and non-insulated

DOT-51 and DOT-60 Portable Tanks

The specifications for a DOT 57 portable tank may be found in 49 CFR 178.245. The specifications for a DOT 60 portable tank may be found in 49 CFR 178.255.

Usage:

Most types of liquids

Similar Tank Specifications:

None

Design Pressure:

DOT-56 - Not less than 100psig nor more than 500psig

DOT-60 - None

Shell/head Materials:

**** SS Stainless Steel**

**** HSLA High Strength Low Alloy**

MS Mild steel

AL Aluminum

MG Magnesium Alloys

Shell/head Thickness:

varies