FUTURE TANK CAR

Rail tank cars are a critical part of establishing a secure and energy independent North America. “Future” tank cars that carry crude oil and ethanol were proposed to the U.S. Department of Transportation by the Railway Supply Institute Committee on Tank Cars (RSICTC) in 2014 in connection with the federal agency’s ongoing rulemaking efforts to revise tank car standards. Since 2011, the railway supply industry, including manufacturers, owners, and lessors, has voluntarily invested more than $7 billion to put 57,000 enhanced, “good faith” tank cars into service by 2015.

In 2014, the RSICTC recommended that DOT adopt tank car standards consistent with the features depicted below for newly built tank cars that would be assigned to crude oil and ethanol service.

**Insulation** - Many “future” tank cars would have a layer of fiberglass insulation between the tank shell and jacket to keep the contents at an appropriate temperature during shipping, loading and unloading.

**Thermal Blanket** - RSICTC’s HM-251 proposal calls for a half-inch thermal blanket on newly built “future” cars carrying Class 3 materials in Packing Groups I and II, for added fire protection.

**Capacity** - Jacketed “future” cars would have various capacities, one example being 28,371 gallons.

**Gross Rail Load** - Jacketed “future” cars require a weight limit of 286,000 lbs. due to the added weight of steel jackets and other components.

**Top Fittings** - RSICTC’s HM-251 proposal calls for top fittings protections, including ¾” structural steel housings and high-flow capacity pressure relief valves.

**Light Weight** - Under RSICTC’s proposal a typical empty car would weigh about 83,200 lbs.

**Full-Height Head Shield** - RSICTC’s HM-251 proposal calls for full-height head shields on “future” cars carrying Class 3 materials in Packing Groups I and II, which includes crude and ethanol. The half-inch steel shield protects each end of the tank car from puncture. The half-inch steel shield is intended to reinforce the ends of the tank car.
In 2011, the tank car industry voluntarily began building rail tank cars to the Association of American Railroads CPC-1232 specification for tank cars in crude oil and ethanol service, with the “good faith” belief that the DOT would adopt standards consistent with this specification. The industry estimates that more than $7 billion has already been invested to put 57,000 CPC-1232 tank cars into service by 2015. Some of the key features are shown in the diagram below.

**Head Shield** - Half-inch steel plating is added to reinforce the ends of the tank car. Some cars have full-height head shields, while others have half-height head shields.

**Insulation** - Jacketed tank cars have a layer of insulation between the tank shell and jacket to keep the contents at an appropriate temperature during shipping, loading and unloading.

**Tank Jacket** - The tank jacket is a sheet of 1/8” steel surrounding the entire tank. The jacket is an effective means of protecting a car after a derailment occurs, reducing the chances of leaks.

**Capacity** - Jacketed cars would have various capacities, one example being 28,371 gallons.

**Gross Rail Load** - Jacketed tank cars have a gross rail load of 286,000 lbs. due to the added weight of steel jackets and other components.

**Top Fittings** - Tank cars have top fittings protection including a 3/4” structural steel housing, with the safety valve contained within the housing.

**Tank Shell** - Tank shells are made of normalized steel that has been heat-treated and air-cooled for a more uniform structure. Some CPC-1232 tank cars substitute half-inch, normalized steel tank shells in place of jackets.

**CURRENT REGULATORY STANDARDS TANK CAR**

Crude oil and ethanol is transported in many non-pressurized tank cars built to the current U.S. Department of Transportation specifications for DOT-111 tank cars. The diagram below shows the elements of a typical DOT-111. DOT-111 tank cars are configured to carry a variety of commodities.

**Head** - The protective housing includes a 1/8” steel housing.

**Tank Jacket** - Some cars include a 1/8” steel jacket to surround the car and protect it in the case of derailment.

**Tank Shell** - Tank shells are made of 7/16” steel.

**Gross Rail Load** - Regulations limit the gross rail load to 263,000 lbs.

**Capacity** - Jacketed tank cars have a typical capacity of 25,498 gallons. Non-jacketed tank cars have a typical capacity of 30,145 gallons.