

Classifying and Loading of Crude Oil into Rail Tank Cars

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Classifying and Loading of Crude Oil into Rail Tank Cars

1 Scope

This document provides guidance on the material characterization, transport classification, and quantity measurement for overfill prevention of petroleum crude oil (crude oil) for the loading of rail tank cars. Guidance on the documentation of measurement results is also provided. The criteria for determining the frequency of sampling and testing of petroleum crude oil are identified for transport classification. This document applies only to petroleum crude oil classified as Hazard Class 3—Flammable Liquid under the U.S. *Code of Federal Regulations (CFR)* at the time of publication.

2 Normative References

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

API Manual of Petroleum Measurement Standards (MPMS)

MPMS Chapter 3.1A, Manual Gauging of Petroleum and Petroleum Products

MPMS Chapter 3.1B, Level Measurement of Liquid Hydrocarbons in Stationary Tanks by Automatic Tank Gauging

MPMS Chapter 3.2, Standard Practice for Gauging Petroleum and Petroleum Products in Tank Cars

MPMS Chapter 5 (all parts), Metering

MPMS Chapter 7, Temperature Measurement

MPMS Chapter 8.1-2013, Standard Practice for Manual Sampling of Petroleum and Petroleum Products

MPMS Chapter 8.2, Standard Practice for Automatic Sampling of Liquid Petroleum and Petroleum Products

MPMS Chapter 9.1, Standard Test Method for Density, Relative Density, or API Gravity of Crude Petroleum and Liquid Petroleum Products by Hydrometer Method

MPMS Chapter 9.3, Standard Test Method for Density, Relative Density, and API Gravity of Crude Petroleum and Liquid Petroleum Products by Thermohydrometer Method

MPMS Chapter 11.1-2004 (including Addendum 1-2007), Temperature and Pressure Volume Correction Factors for Generalized Crude Oils, Refined Products, and Lubricating Oils

MPMS Chapter 11.5 (all parts), Density/Weight/Volume Intraconversion

MPMS Chapter 12.1.1, Calculation of Static Petroleum Quantities—Upright Cylindrical Tanks and Marine Vessels

*AAR Pamphlet 34*¹, *Recommended Methods for the Safe Loading and Unloading of Non-Pressure (General Service) and Pressure Tank Cars*

AAR Scale Handbook

*ASTM D4057-12*², *Standard Practice for Manual Sampling of Petroleum and Petroleum Products*

¹ Association of American Railroads, 425 3rd Street, SW, Washington, DC 20024, USA, www.aar.org.

² ASTM International, 100 Barr Harbor Drive, West Conshohocken, Pennsylvania 19428, USA, www.astm.org.