Storing and Handling Ethanol and Gasoline-ethanol Blends at Distribution Terminals and Filling Stations

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Contents

1 Scope 1

2 Normative References 1

3 Terms, Definitions, Acronyms, and Abbreviations 2

3.1 Terms and Definitions 2
3.2 Acronyms and Abbreviations 6
4 Ethanol and Ethanol Blend Characteristics 8

4.1 General 8
4.2 Vapor Pressure 8
4.3 Vapor Density 8
4.4 Liquid Density 8
4.5 Flash Point 9
4.6 Flammability 9
4.7 Flame Visibility 9
4.8 Electrical Conductivity 9
4.9 Water and Gasoline Solubility 9
5 Distribution Terminals 9

5.1 General 9
5.2 Product Receipts 10
5.3 Blending 12
5.4 Terminal Material Compatibility 17
5.5 Terminal Fuel Quality 18
5.6 Terminal Spill and Runoff Management at Terminals 19
5.7 Terminal Source Segregation 20
5.8 Terminal Aboveground Storage Tanks 20
5.9 Terminal Tank Vents and Air Dryers 22
5.10 Terminal Flame and Detonation Arrestors 22
5.11 Terminal Pipe, Valves, Pumps, and Piping Systems 23
5.12 Terminal Metering 23
5.13 Terminal Vapor Control Systems 24
5.14 Terminal Permits 24
6 Tank Truck and Railroad Tank Car Transportation 25

6.1 Compatibility 25
6.2 Truck Loading 25
6.3 Railroad Tank Car Loading 27
7 Filling Stations 27

7.1 General 27
7.2 Material Compatibility 28
7.3 Compatibility Requirements for New Facilities 29
7.4 New Filling Stations with Aboveground Tanks 34
7.5 Converting Existing Filling Stations to Ethanol Blends 34
7.6 Converting Existing USTs to High Ethanol Blend Fuels 34
7.7 Converting Existing Aboveground Storage Tanks to High Ethanol Blends 35
7.8 Water in Storage Tanks 36
7.9 Accelerated Corrosion and Conductivity 38
7.10 Tank Truck Unloading 38
7.11 Quality Assurance 39
7.12 Recordkeeping 39
8 Releases 40

8.1 General 40

8.2 Spill Causes 40
8.3 Spill Response 40
8.4 Reporting Requirements 41
8.5 Training 41
8.6 Emergency Response and External Communication 41
8.7 Consumer Concerns 41
9 Fire Protection 42
9.1 General 42
9.2 Firefighting Agents for High-ethanol Blends 42
9.3 Firefighting at Facilities Handling Multiple Fuel Types 43
Annex A (informative) Generally Accepted Values for Gasoline and Gasoline-ethanol Blend Properties 47
Annex B (informative) Components that Require Listing as an Approved Device 48
Annex C (informative) Orderly Approach to Assure that Proper Equipment and Procedures Are Used in Preparation of Underground Storage Tanks, Piping, and Dispensing Equipment 49

Figures

1 Splash Blending Schematic 13
2 Sequential Blending—Dedicated Meters and Control Valves 15
4 Ratio Blending Schematic 16
5 UST System Showing Location of Flame Arrestors for Storage of High Ethanol Blends 35

Tables

1 Internal Tank Coating Comparisons 22
2 USDOT Hazard Class Identification 27
A.1 Ethanol and Gasoline-Ethanol Blend Properties 47
B.1 Components that Require Listing as an Approved Device from a Nationally Recognized Testing Laboratory 48

Introduction

Ethanol is widely blended with gasoline in concentrations up to 10 % (E10). E85, a high-ethanol/gasoline blend, is available in many parts of the US. Also, there is interest in increasing the ethanol percentage in gasoline to 15 %, and some retailers offer higher blends of ethanol with gasoline.

This recommended practice (RP) provides guidance for designers and operators of terminals and filling stations in ethanol fuel blend service. This document helps interested parties understand the properties of ethanol fuel blends and how they differ from gasoline. It assists in the design and selection of equipment that will promote safe storage, handling, and dispensing of quality ethanol blends.

Storing and Handling Ethanol and Gasoline-ethanol Blends at Distribution Terminals and Filling Stations

1 Scope

This publication describes recommended practices for the storing, handling, and fire protection of ethanol and gasoline-ethanol blends from distribution terminals and filling stations. An increasing amount of equipment and components is compatible and listed up to E25, however due diligence is necessary based on the application and local requirements.

This document is current at the time of publication, but changes to regulations and listings may affect the accuracy certain recommended practices.

While this publication does not address second or future generation biomass-based alcohols which use feedstocks and manufacturing processes that are different than those employed for current U.S. ethanol supplies, it is unlikely that sugar or cellulosic ethanol will alter the overall recommendations in this RP.

Future generation bioethanol fuels may have different properties and the practices described in this publication may not be applicable.

This publication does not address ethanol diesel blends, gasoline blends with alcohols other than ethanol, and makes a distinction between low- and high-ethanol blends at 10 volume percent.

This publication does not address health effects or the remediation of ethanol or gasoline-ethanol blend spills or releases.

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 Standard 620, *Design and Construction of Large, Welded, Low-pressure Storage Tanks*

API Standard 650, *Welded Tanks for Oil Storage*

API Recommended Practice 651, *Cathodic Protection of Aboveground Storage Tanks*

API Recommended Practice 652, *Lining of Aboveground Petroleum Storage Tank Bottoms*

API Standard 653, *Tank Inspection, Repair, Alteration, and Reconstruction*

API Standard 2610, *Design, Construction, Operation, Maintenance, and Inspection of Terminal and Tank Facilities*

API Specification 12F, *Specification for Shop Welded Tanks for Storage of Production Liquids*

STI SP001[1], *A Standard for Inspection of In-Service Shop Fabricated Aboveground Tanks for Storage of Combustible and Flammable Liquids*

[1] Steel Tank Institute/Steel Plate Fabricators Association, 944 Donata Court, Lake Zurich, IL 60047, www.stisfpa.org.