

STEEL TANK INSTITUTE

Technology Summary

Fireguard®, a Fire-Rated, Lightweight Double Wall Steel Aboveground Storage Tank

(NOTE: This document is only a summary and as such does not contain specific details of the tank construction.)

PREFACE

The Fireguard® Thermally Insulated Aboveground Storage Standard is based on the application of sound engineering principles and the combined experience of STI membership, which includes state-of-the-art manufacturing considerations. It represents a composite of input from users, regulatory authorities, manufacturers, and consultants.

Fireguard® represents the second generation of thermally protected aboveground storage tanks with its unique double wall and insulated design. Other designs have relied upon costly, heavy materials such as concrete to provide secondary containment and insulation. However, Fireguard® uses three inches of lightweight monolithic thermal insulation between the two walls of steel to minimize heat transfer from the outer tank to the inner tank.

The thermal insulation material is a composition of perlite, cement, water and special ingredients carefully mixed to standardized proportions. The light weight of the completed tank unit eases relocation on projects that demand additional fire protection.

1. PRODUCT NAME

Fireguard®, a Fire-Rated, Lightweight Double Wall Steel Aboveground Storage Tank

2. MANUFACTURER

Qualified manufacturers of Fireguard® double-wall aboveground storage tanks are members of Steel Tank Institute (STI), #570 Oakwood Road, Lake Zurich, IL 60047. Phone: (847) 438-8265

3. PRODUCT DESCRIPTION

The Fireguard® design responds to the latest demands of the fuel and chemical storage marketplace where fire-resistance, environmental safety and relocation are primary concerns.

The Fireguard® fuel-storage design provides secondary containment to prevent spillage or pool fires as well as both thermal insulation and emergency venting for a two-hour fire rating. A two-hour fire rating signifies that the structural integrity of the tank will not be compromised, for at least two hours, if a fire were to surround the tank system. The secondary containment provides 110 percent containment of the primary tank's capacity.

The combination of these features represents a commitment to public safety by STI and its members.

The steel outer wall of the tank is coated to prolong the Fireguard® tank's weather resistance and to further reduce maintenance needs.

Fireguard® tanks are built in accordance with Steel Tank Institute Publication No.

F941, “Standard for Thermally Insulated Above-ground Storage Tanks.” Each qualified manufacturer is subject to STI’s exacting quality assurance inspections.

The Fireguard® thermally protected tank is also the core component for the STI UL2244 fueling system. UL2244 pertains to an approved fueling system which includes equipment for overfill prevention, spill and overfill containment, dispensing, and liquid level/leak detection monitoring.

Tank capacities can be specified from less than 200 gallons to 30,000 gallons. Smaller capacities typically provide greater ease of relocation.

4. TECHNICAL DATA

Fireguard® double wall steel aboveground storage tanks are thermally protected tanks that conform with each of the following standard or code requirements:

- UL 2085 Standard for Insulated Secondary Containment Aboveground Tank
- Steel Tank Institute F942 Standard for Thermally Insulated Aboveground Storage Tanks
- UL 142 Standard for Steel Aboveground Tanks for Flammable and Combustible Liquids (inner and outer steel tanks)
- ULC S655 (formerly ULC/ORD C142.16) Standard for Aboveground Protected Tank Assemblies
- ULC S601 Standard for Aboveground Horizontal Shop Fabricated Steel Tanks for Flammable and Combustible Liquids
- ULC S653 Standard for Contained Aboveground Steel Tank Assemblies for Flammable and Combustible Liquids
- 1997 Uniform Fire Code (UFC)

- National Fire Protection Association (NFPA) 30 and 30A Codes, 1996 Edition
- 1999 Building Officials and Code Administrators (BOCA) National Fire Prevention Code
- 1996 Southern Building Code Congress International (SBCCI) Standard Fire Prevention Code
- State of California Air Resources Board
- UFC Impact Resistance
- UFC Projectile Resistance
- UFC Hose Stream Resistance

5. INSTALLATION

Illustrated installation instructions for Fireguard® above ground tanks (Publication No R942, Installation and Testing Instructions for Thermally Insulated Lightweight Double Wall Fireguard® Above-ground Storage Tanks) are available upon request from STI and qualified manufacturers, and a copy is shipped with each tank.

Tank installation is a specialized craft. It is important to assure that installers have the necessary knowledge, skills and equipment to enable proper and safe aboveground storage tank installation.

Concrete or earthen diking is not required for most Fireguard® tanks since integral secondary containment is part of the double wall design.

6. AVAILABILITY

Fireguard® steel double wall aboveground tanks are available from STI member manufacturing plants licensed to produce Fireguard® throughout North America. Contact Steel Tank Institute for a complete list of qualified manufacturers.

Information on tank costs can be obtained

directly from Fireguard® manufacturers. Installation costs should be requested from qualified and experienced tank installation contractors.

7. WARRANTY

For installations in the United States of America, Canada or Puerto Rico, Fireguard® tanks are backed by a 30-year limited warranty against leakage from the secondary containment of the tank, and failure of the primary tank from cracking, breakup or collapse. The warranty also assures that the tank was fabricated in accordance with requirements of UL2085 and UL142, aboveground storage tank manufacturing standards of Underwriters Laboratories. Each Fireguard® tank is registered with STI by its serial number. A copy of the complete Fireguard® warranty is available from qualified STI manufacturers.

Except as specifically provided in the Fireguard® warranty, there are no warranties, express or implied, including, but not limited to, any implied warranties of merchantability or fitness for a particular purpose. In no event shall STI, STI members, STA, Stico, or any subsidiaries thereof, be liable for loss of profits, indirect, incidental, special, consequential, or other similar damages.

8. MAINTENANCE

Above ground tanks are subject to basic maintenance requirements during the service life. A tank operator should perform periodic walk-around inspections to identify areas of damage to the vessel or the coating.

Periodic repainting of the tank's external surface may be required. The frequency of this maintenance procedure will be based upon local environmental factors.

Periodic maintenance should also include

testing for, and removal of, water that may accumulate in the tank.

9. TECHNICAL SERVICES

Engineering and installation assistance can be provided by qualified Fireguard® manufacturers.

Steel Tank Institute's "Fireguard® Thermally Insulated Above-ground Storage Tank Standard," Publication #F941, is available for a nominal fee at the STI website, www.steeltank.com, or from the Steel Tank Association, Inc (STA) by calling (847) 438-0989.