



Standard Practice for Installation of Vulcanizable Rubber Tank Linings and Pipe Linings¹

This standard is issued under the fixed designation D 3486; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This practice as outlined in Parts A to G, covers the techniques used to install rubber linings in metal tanks and pipes. Installation requirements, procedures, inspection instructions, and storage conditions for the lined tanks or equipment are outlined.

1.2 The parts appear in the following sections:

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Part A—Requirements for Field Installation of Rubber Sheet Linings	4
Part B—General Procedure for Application of Rubber Sheet Lining	5
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1.3 The values stated in SI units are to be regarded as the standard.

1.4 *This standard may involve hazardous materials, operations, and equipment. This standard does not purport to address all of the safety problems associated with its use. It is the responsibility of whoever uses this standard to consult and establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use. For specific precautionary statements, see Section 4.*

2. Referenced Documents

2.1 NACE Standard:

TM-01-70 Visual Standard for Surfaces of New Steel Airblast Cleaned with Sand Abrasive²

2.2 Steel Structures Painting Council Standard:

SSPC No. 5 Blast Cleaning to "White" Metal³

3. Significance and Use

3.1 The storage of corrosive or abrasive, or both, solutions or suspensions requires that the metal surface of storage tanks, large pipes, or holding vessels be lined with a material that resists such action. Vulcanized rubber that is securely adhered to the tank or other metal surface imparts such resistance. An integral part of the installation of such linings

is the vulcanization operation that produces proper mechanical strength, chemical resistance, and good rubber-to-metal adhesion.

4. PART A—REQUIREMENTS FOR FIELD INSTALLATION OF RUBBER SHEET LININGS

4.1 *General*—Tanks or other equipment too large to ship, or those that have to be erected prior to lining in critical plant areas, can be lined at the purchaser's plant by the applicator in a manner that will be satisfactory in every way for the intended service.

4.2 *Services and Facilities*—The following services and facilities are required to install a rubber sheet lining in the field. Their availability and cost should be agreed upon between the applicator and the purchaser.

4.2.1 *Metal Fabrication*—Metal fabrication and welding shall be in accordance with specified codes. Welds shall have a round and smooth surface suitable for applying rubber lining.

4.2.2 *Protection of Tank*—If the equipment to be lined is located out of doors it will be necessary, in certain latitudes and seasons, to protect the equipment from the weather and to provide the heat necessary to maintain a temperature above 15°C (59°F). In any event, the equipment must be properly protected against rain and in warm weather from direct exposure to the sun. A satisfactory installation cannot be made if conditions are such as to induce condensation on surfaces prior to cementing and lining. Nor can lining be properly cured unless equipment is protected against excessive heat loss during cure.

4.2.3 *Blasting*—Just prior to the application of the first coat of adhesive primer, all metal surfaces to be lined shall be abrasive-blasted to a gray-white (uniform metallic) color, surface finish in accordance with NACE Standard No. 1 TM-01-70 or Steel Structures Painting Council SSPC No. 5. The minimum surface profile shall be 0.051 mm (0.002 in.).

4.2.4 *Scaffolding and Ladders*—On large tanks, scaffolding and ladders must be provided and removed after the lining operation and the initial spark tests are completed.

4.2.5 *Workroom and Cutting Table Storage of Materials*—The workroom and materials storage should be located as close to the equipment being lined as possible. Both areas should be reasonably clean, and the temperature should be maintained above 15°C (59°F). A cutting table with a smooth top shall be provided.

4.2.6 Ventilation and Safety Precautions:

4.2.6.1 Solvent fumes from adhesives may be explosive under certain conditions; therefore, no flame, welding, or smoking shall be permitted during the lining application. Precautions shall be taken to ensure that all electrical

¹ This practice is under the jurisdiction of ASTM Committee D-11 on Rubber and is the direct responsibility of Subcommittee D11.38 on Vulcanized Rubber Tank Linings.

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² Available from the National Association of Corrosion Engineers (NACE), 2400 West Loop South, Houston, TX 77027.

³ Available from the Steel Structures Painting Council (SSPC), 4400 Fifth Ave., Pittsburgh, PA 15213.