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Standard
Recommended Practice

Sheet Rubber Linings for Abrasion and Corrosion Service

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Foreword

Sheet rubber linings are frequently used for the protection of surfaces such as metal, concrete, or fiberglass against chemical attack, abrasion, or both. Selection of proper lining materials and good lining workmanship are important components of lining performance.

The purpose of this standard recommended practice is to outline procedures for providing sheet rubber lining protection to new and used equipment, such as piping and vessels. Included are recommendations for surface preparation and the dimensions of piping that can be rubber lined. An explanation of types of rubber lining materials available and their methods of cure are also given.

This standard is useful to the specification writer as well as the end user. This standard can be used alone or in conjunction with detailed specifications addressing special needs of the end user.

This standard was prepared by NACE International Task Group T-6A-62, a component of Unit Committee T-6A on Coating and Lining Materials for Immersion Service, and is issued by NACE under the auspices of Group Committee T-6 on Protective Coatings and Linings.

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Section 1: General

1.1 This standard provides requirements for sheet rubber lining of various equipment for protection against corrosion and/or abrasion. This standard can be used in design, installation, inspection, testing, and storage of rubber-lined equipment.

1.2 This standard addresses sheet rubber (both natural and synthetic) applied over surfaces such as metal and concrete substrates.

1.3 Brushed, trowel-applied, or sprayed rubber linings are outside the scope of this standard.

Section 2: Definitions

Adhesion: The bond between a rubber surface and a nonrubber surface (e.g., metal, wood); the strength of the bond between two uncured rubber surfaces or plies.

Adhesive: Part of a cement system applied over prepared surfaces for bonding them to rubber.

Autoclave: A heavy steel vessel in which rubber articles are vulcanized by means of steam under pressure.

Blister: A cavity within the lining material, between the lining material layers, or between the lining and substrate.

Butt joint: A joint made in a rubber part before or after vulcanization by placing the two pieces to be joined edge-to-edge.

Calender: A machine equipped with two or more heavy, internally heated or cooled rolls used for the continuous sheeting or “plying up” of rubber compounds.

Closed skive: A reverse-angle cut along the edge of a rubber panel. This enables the installer to stitch down the cut edge so that the bottom layer of rubber is protected from exposure to the commodity.

Curing: The act of vulcanization; a description of a definite time and temperature of vulcanization.

Defect: An abnormal flaw in the lining that prevents it from performing its function.

Durometer gauge: Apparatus for determining the hardness of rubber by measuring its resistance to the penetration of a blunt indenter point impressed on the surface by spring action.

Durometer hardness: An arbitrary numerical value that measures the resistance to indentation of the blunt indenter point of the durometer.

Extruder: A machine for continuous forming of rubber by forcing through a die.

Fisheye: A thin, elongated void in a calendered sheet that is not detrimental to the lining.

Lap joint: A joint made by overlapping the edge of one piece of material flat over the edge of another.

Overlay: The addition of another layer of lining over an in-place lining construction before vulcanization.

Patch or **repair:** Remedy of a defect in the lining after vulcanization; involves applying sheet stock to fully cured or vulcanized lining.

Pinhole: A small, pore-like defect or leak extending entirely through the lining thickness and appearing as a discontinuity; synonymous with “holiday.”

Ply: One layer in a laminated structure.

Primer: The first coat of an adhesive system applied over a prepared surface for adhesion of rubber.

Rubber: Natural rubber or any synthetic, elastomeric material with physical properties similar to those of natural rubber.

Skive: A cut made on an angle to the surface, producing a tapered or feathered edge.

Spark tester: A high-voltage test unit used to detect breaks or holes in a lining.

Substrate: The surface on which a lining is applied.

Surface imperfection: Condition on the surface of rubber that results in a nonuniform appearance but is not detrimental to the serviceability of the lining.

Tie gum: A backing layer of rubber employed to promote bonding of two surfaces; usually a soft rubber compound.