



Standard Practice for Handling, Transporting, Shipping, Storage, Receiving, and Application of Thermal Insulation Materials For Use in Contact with Austenitic Stainless Steel¹

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1. Scope

1.1 This practice is intended to provide guidance and direction in the handling, transporting, shipping, storage, receiving, and application of thermal insulating materials to be used as a surface treatment or as part of the thermal insulation system in contact with austenitic stainless steel.

1.2 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:

- C 168 Terminology Relating to Thermal Insulating Materials²
- C 692 Test Method for Evaluating the Influence of Thermal Insulations on the External Stress Corrosion Cracking Tendency of Austenitic Stainless Steel²
- C 795 Specification for Thermal Insulation for Use in Contact with Austenitic Stainless Steel²
- C 871 Test Methods for Chemical Analysis of Thermal Insulation Materials for Leachable Chloride, Fluoride, Silicate, and Sodium Ions²

3. Terminology

3.1 *Definitions*—Terminology C 168 shall apply to this practice.

3.2 *Descriptions of Terms Specific to This Standard:*

3.2.1 *shipment*—that material being received from the same source of manufacture on the same day or each carload, whichever is smaller.

3.2.2 *water damage*—damage caused by water seeping into cartons of insulation or soaking into the insulation that is left exposed to the weather, both of which increase the possibilities of absorption of chloride ion compounds.

3.2.3 *weathertight*—protected from rain and wind. A dry, sheltered condition wherein reasonable precautions are taken to prevent indiscriminate water from coming in contact with the insulation.

4. Significance and Use

4.1 Insulations that are used as a part of the thermal insulation system in contact with austenitic stainless steels may become contaminated with water soluble chloride ions which, in turn, if permitted to reach the stainless steel surface, could contribute to external stress corrosion cracking (ESCC). Therefore, it is important to reduce the exposure of such insulating materials to water-soluble chloride ion compounds at all stages of manufacture, handling, shipping, storage, and application. During manufacture, precautions shall be taken to minimize water soluble-chloride ion content, both in the material and as surface contamination. Once the manufacture is complete, care must be exercised during handling, transporting, shipping, storage, receiving, and application to avoid contamination with chloride ions that can be transported by water through the insulation materials onto the stainless steel surface. This practice presents criteria which, if followed, will minimize the risks of ESCC associated with the application of insulation materials. It should be emphasized, however, that because of the many variable factors present, complete freedom from ESCC can not be assured under all circumstances, even when following the guidance of this practice.

4.2 Continued protection of the insulation and the stainless steel surface from moisture and contamination after the insulation system is installed and over its entire service life is of significant importance. In-service contamination can occur from many sources; for example, from airborne contaminants, rain or salt spray, periodic fire sprinkler system tests, wash-downs, or process leakage. Weather barrier jacketing systems and proper application should be chosen to provide long-term protection in the intended use environment.

4.3 The entire insulation system should be periodically inspected and maintained. Insulation that is suspected of contamination should be retested or immediately replaced. Wash down of insulated pipe and equipment should be avoided. Whenever possible, protective coatings or finishes should be applied directly to the stainless steel surface as the

¹ This practice is under the jurisdiction of ASTM Committee C-16 on Thermal Insulation and is the direct responsibility of Subcommittee C16.20 on Homogeneous Inorganic Thermal Insulation.

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² *Annual Book of ASTM Standards*, Vol 04.06.