

STANDARD FOR PROTECTION OF AUSTENITIC STAINLESS STEEL AND NICKEL ALLOY MATERIALS

Prepared by
Pipe Fabrication Institute Engineering Committee



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Standard for Protection of Austenitic Stainless Steel and Nickel Alloy Materials

1. Scope

- 1.1 This standard describes recommended methods for the handling, storage and fabrication of austenitic stainless steel and nickel alloy materials to avoid surface contamination. This standard applies during handling, receiving and storage of raw materials and during all phases of fabrication, inspection and shipment.

2. Handling & Storage

- 2.1 Austenitic stainless steel and nickel alloy material shall be handled with nylon slings or equipment protected with a non-contaminating buffer material.
- 2.2 When receiving these alloys, a visual examination of both internal and external surfaces shall be conducted to detect existing contamination or gouges caused by contact with contaminating material.
- 2.3 Fittings shall be stored on pallets or shelving constructed of non-contaminating material.
- 2.4 Storage areas for these materials shall be separate from the areas where carbon steel material is stored.
- 2.5 If stainless steel material is stored outdoors in a salt air environment, the material shall be covered with a water repellent sheet.
- 2.6 Carbon steel strapping shall only be used if a durable, non-contaminating material is used to isolate the strapping from contact with the stainless steel or nickel alloy. Suggested neutral material includes clean wood, cardboard, cloth, paper and stainless steel buffers.
- 2.7 Walking on the austenitic stainless steel or nickel alloy material shall be avoided.

3. Fabrication

- 3.1 Surfaces of tools and equipment containing carbon steel, zinc, copper or their alloys which come into contact with austenitic or nickel alloy materials shall be covered with a non-contaminating material.

- 3.2 Tools such as grinding wheels and wire brushes previously used on carbon steel shall not be used on austenitic stainless steel or nickel alloy materials.

- 3.3 Grinding discs, abrasive discs and belts shall be made of resin-bonded alumina, silicon carbide or zirconium carbide. Sulphurized compounds shall not be used as a bonding material.

- 3.4 Only 300 series stainless steel brushes shall be used on austenitic and nickel alloys.

- 3.5 All material removal and cleaning tools shall be marked to identify that they are to be used on austenitic and nickel alloy materials only. Marking shall be visible while a tool is in use.

- 3.6 Areas used for fabrication of austenitic and nickel alloy materials shall be separated from carbon steel areas by methods suitable to prevent contamination by carbon steel shavings, grinding dust, and zinc dust from painting operations.

- 3.7 Where tape is used for back purging, the tape shall use an adhesive with a water soluble chloride content not exceeding 50 ppm.

- 3.8 After pressure-sensitive and adhesive-backed tapes are no longer required, they shall be removed along with any residual adhesive using a suitable solvent or abrasive.

- 3.9 When hydrostatic testing is required, the test fluid shall not contain more than 50 ppm chlorides. Piping shall be properly drained following testing.

- 3.10 Cutting fluids or oils shall be low halogen, low sulphur and shall be completely removed from all surfaces prior to any hot forming, welding, or heat treating operations.

4. Shipping

- 4.1 Packing materials and shipping protectors such as PVC caps, plugs, adhesive tapes shall be new and not contain substances that could be harmful to these alloys.