



Standard Guide for Metallic Abrasive Blasting to Descale the Interior of Pipe¹

This standard is issued under the fixed designation F 1330; 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 approval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This guide covers metallic abrasive blasting to descale the interior of carbon steel pipe.

1.2 This guide is recommended for use in conjunction with an abrasive reclamation system.

1.3 The values stated in SI units are to be regarded as the standard. The values given in parentheses are for information only.

1.4 *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:

D 2200 Pictorial Surface Preparation Standards for Painting Steel Surfaces²

E 18 Test Methods for Rockwell Hardness and Rockwell Superficial Hardness of Metallic Materials³

2.2 SAE Standards:⁴

J444 Cast Shot and Grit Size Specifications for Peening Cleaning

J827 Cast Steel Shot

2.3 Other Documents:

SSPC SP10 Surface Preparation Specifications⁵

SFSA 20-66 Standard Specification for Cast Steel Abrasives⁶

3. Significance and Use

3.1 The maximum length and minimum diameter of the pipe shall be determined by the capacity of the blast equipment used.

3.2 This guide is recommended for removing mill scale, rust scale, paints, zincs, and oxides.

4. General Requirements

4.1 Before blasting, pipe shall be dry and free of slag and weld spatter which would not be removed by abrasive blasting. Pipe shall also be free of loose dust and debris which might hamper the effectiveness of abrasive blasting.

4.2 Abrasive blasting shall be accomplished in a dry area with the ambient air condition such that condensation does not occur.

4.3 Shot and blasting equipment shall be stored at a temperature not less than -13°C (10°F) above the dew point of the surrounding area.

4.3.1 Abrasive reclamation system shall include a filtration system capable of removing oxides, debris, dust, shot/grit fragments, and fines.

4.4 Compressed air system shall be equipped with moisture removal devices capable of reducing the dew point of the air at the nozzle to -18°C (approximately 0°F) or less.

4.5 Hoses shall have the maximum practical diameter and shall be as short as possible.

4.6 Nozzles shall have the maximum possible aperture as determined by the capacity of the blast equipment and as limited by the pipe diameter.

4.7 Internal pipe cleaning nozzle assemblies are commercially available and shall be used where required.

4.7.1 Internal pipe cleaning nozzle assemblies shall include a carriage which is capable of centering the nozzle concentrically in the pipe being blasted and a nozzle which is capable of producing a consistent 360° blast pattern.

4.7.2 Diagrams of some commercially available internal pipe cleaning assemblies are provided in Figs. 1-4.

4.7.3 If a lance is required, it shall be at least as long as the pipe being blasted.

4.8 Blasting shall be accomplished using an abrasive mixture of cast steel shot and grit, or with iron shot or grit.

4.8.1 Iron or grit may be used if desired.

4.8.2 Cast steel shot and grit mixtures shall be sized in accordance with SAE J444.

4.8.3 Reclaimed shot and grit shall be of the same quality as the original material.

¹ This guide is under the jurisdiction of ASTM Committee F25 on Ships and Marine Technology and is the direct responsibility of Subcommittee F25.11 on Machinery and Piping Systems.

Current edition approved March 15, 1991. Published October 1991.

² *Annual Book of ASTM Standards*, Vol 06.02.

³ *Annual Book of ASTM Standards*, Vol 03.01.

⁴ Available from Society of Automotive Engineers, 400 Commonwealth Dr., Warrendale, PA 15096.

⁵ Available from Steel Structures Painting Council (SSPC), 4400 Fifth Ave., Pittsburgh, PA 15213.

⁶ Available from Steel Founders Society of America (SFSA) Cast Metals Federation Building, 20611 Center Ridge Rd., Rocky River, OH 44116.