|Denotes PFI Standard ES-29
(Revised April 2019)

INTERNAL ABRASIVE BLAST CLEANING OF FERRITIC PIPING

Prepared by

Pipe Fabrication Institute Engineering Committee

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INTERNAL ABRASIVE BLAST CLEANING OF FERRITIC PIPING

1. Scope

1.1 This standard describes the materials and equipment used for abrasive blast cleaning the inside of ferritic piping and it defines the different levels of surface cleanliness, which can be achieved.

1.2 Other mechanical cleaning methods such as brushing, grinding, chipping, sanding, etc., may be used as a supplement to abrasive blasting when necessary to achieve the required cleanliness level.

1.3 Maintenance of blast cleaned surfaces is not covered by this standard (i.e., use of corrosion inhibitors). If internal coatings are to be applied, refer to coating manufacturers recommendations.

2. Definitions

Contaminant – any undesirable foreign material on the surface to be cleaned

Grit – irregularly shaped particles with sharp edges, to promote high effectiveness in removal of contaminants.

Semi-Sharp Abrasives – irregularly shaped particles with some rounded and some sharp edges on one particle.

Shot – particles that are spherical or near spherical in shape.

3. Equipment for Abrasive Blasting

3.1 Dry direct pressure blast cleaning equipment and compressed air blast nozzles shall be used. Other equipment is permitted provided that the required acceptance criteria can be met.

3.2 Blast nozzle selection. See Table I.

TABLE I

Nozzle Type	Pipe Diameter
Deflection	8" and smaller
Spin blast (1)	10" thru 24"
Conventional or Straight	24" and larger

Note (1) – Spin blast units are mounted on standoff, or centering, devices with wheels which enable the operator to move the unit thru the pipe and maintain a relatively uniform blasting pattern.

4. Abrasives

4.1 Shot, grit, or semi-sharp abrasives may be used alone or in combination with each other. See Table II for a list of commonly used abrasives. The type of blast medium should be agreed upon before use.

TABLE II

Metallic* Abrasives	Synthetic Abrasives	Siliceous Abrasives
Chilled Cast Iron	Silicon Carbide	Garnet
Cast Steel	Aluminum Oxide	Quartz
Malleable Iron	Refractory Slag	Silica
Crushed Steel		Decomposed Rock

Notes Re. Table II:

(1) The hardest material is listed at the top of each group and the others follow in order of decreasing hardness.

*(2) These should not be used on stainless steel.

4.2 Practically all of the grit and some of the shot become semi-sharp abrasives after they have been in use for a short time.

4.3 Shot blasting could result in fine mill scale and other impurities being driven into the surface of the material being blasted.

5. Blast Cleaning Procedure Selection

5.1 The actual blast cleaning procedure to be followed, including the selection of abrasives, depends on:

5.1.1 Size and configuration of the assembly to be cleaned (determines accessibility).

5.1.2 Local environmental conditions and proximity to other facilities.

5.1.3 Contaminants to be removed.

5.1.4 Available equipment.

5.1.5 Cost of reclaiming abrasives.

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