

MSS SP-138-2009

**Quality Standard
Practice for
Oxygen Cleaning
of Valves &
Fittings**

Standard Practice
Developed and Approved by the
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FOREWORD

This Standard Practice was developed by a cooperative effort of representatives of manufacturers who produce oxygen clean valves and fittings. It is based on the best practice current at this time and on the collective experience of the industry.

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QUALITY STANDARD PRACTICE FOR OXYGEN CLEANING OF VALVES & FITTINGS

PURPOSE

The purpose of this Standard Practice is to provide standard methods for processing valves and fittings intended to be used for Oxygen Service.

The proper combination of methods depends upon the part, its method of manufacture, and the types of contamination present. It is recommended that prior to implementation of this Standard Practice, an agreement be reached between the purchaser and the product manufacturer as to the appropriate methods to be used for the product to be cleaned.

1. SCOPE

1.1 This Standard Practice outlines the general requirements for cleaning, inspection, testing, and packaging of valves and fittings intended to be used for Oxygen service.

1.2 Proper design and material compatibility for Oxygen systems is outside the scope of this Standard Practice.

2. GENERAL REQUIREMENTS

2.1 Any cleaning agent used must be compatible with the material of the component being cleaned.

2.2 Chloride-free cleaning agents shall be used on stainless steel.

2.3 The handling, storage, and use of all chemicals shall be according to the instructions given in their material safety data sheets (MSDS).

2.4 Used cleaning solutions shall be disposed of in accordance with appropriate hazardous waste regulations.

2.5 Parts of assemblies shall be disassembled and separately cleaned before assembly can render any surface inaccessible to cleaning and inspection.

2.6 Any special tests required for assemblies that employ media that is incompatible with oxygen shall be performed before disassembly for cleaning.

2.7 Cleaning, inspection, post-clean testing, and packaging shall be conducted by properly trained and qualified personnel, knowledgeable of this Standard Practice and of the hazards and potential ignition sources in oxygen systems.

3. CLEANING

3.1 Cleaning must ensure the removal of contaminants that can cause mechanical malfunction, fire, or explosion. Cleaning per this Standard Practice will effectively remove rust, loose scale, dirt, weld splatter, particles, grease and oil.

3.2 No single cleaning process will remove all potential ignition sources. Several cleaning methods will need to be employed depending upon the type of contamination present to pass the post-clean inspection.

3.3 Before detailed cleaning of the parts, heavy oil or grease contamination must be pre-cleaned using alkaline cleaner or detergent. Use brushes as necessary to assist the degreasing action. Residual detergent is to be rinsed from the surface with clean water before proceeding to precision cleaning methods. Mixing of cleaning agent can create chemicals that are hazardous to health and the environment.

3.4 *Mechanical Cleaning*

3.4.1 Mechanical cleaning includes grit blasting, wire brushing, and grinding to remove visible rust, varnish, paint, weld slag, and heavy mill scale. It shall be done before proceeding with solution cleaning. If repeated because of a failed inspection, solution cleaning also needs to be repeated. Grit or shot blasting cleaning of stainless steel parts shall be done with stainless grit or shot that has not been previously used for materials other than stainless steel. Shot and grit blasting equipment should be "dedicated" to stainless steel mechanical cleaning solutions.