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Prior to the third issue, the requirements for products covered by this Outline were included in the first and second issues of the Outline of Investigation for Oxygen-Fuel Gas Combination Flash Arrester and Back-Pressure Check Valves.

1

UL 1357

**OUTLINE OF INVESTIGATION
FOR
OXYGEN-FUEL GAS FLASH ARRESTER AND COMBINATION FLASH
ARRESTER AND BACK-PRESSURE CHECK VALVES**

Issue Number: 6

March 26, 2013

Summary of Topics

This sixth issue of the Outline of Investigation for Oxygen-Fuel Gas Flash Arrester and Combination Flash Arrester and Back-Pressure Check Valves includes a revision to the Moist Ammonia-Air Stress Cracking Test.

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CONTENTS

INTRODUCTION

1 Scope	4
2 Limitations of Use	4
3 Glossary	5

CONSTRUCTION

4 General	5
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PERFORMANCE

5 General	6
6 External Leakage Test	7
7 Seat Leakage Test	8
8 Back Pressure Check Valve Endurance Test	8
9 Pressure Activated Shutoff Valve Operation Test	8
10 Hydrostatic Pressure Strength Test	9
11 Moist Ammonia-Air Stress Cracking Test	9
12 Fuel Gas Compatibility Test	10
13 Oxygen Compatibility Test	10
14 Continuous Flame Test	11
15 Flashback Cycling Test	11
16 Explosion Test	11
17 Accelerated Aging Test	13
18 Heat Sensitive Device Operation Test	13
19 Start-To-Discharge/Resealing Pressure Test	14

MANUFACTURING AND PRODUCTION TESTS

20 General	14
------------------	----

MARKING

21 General	15
------------------	----

INTRODUCTION

1 Scope

1.1 These requirements cover combination liquid and dry-type flashback arresters and combination flashback arresters with back-pressure check valves for use with oxygen and fuel gas consuming equipment.

1.2 Devices covered by these requirements are intended for use in supply piping, regulator outlets, or torch inlets in accordance with the following standards:

- a) Standard for the Design and Installation of Oxygen-Fuel Gas Systems for Welding, Cutting and Allied Processes, NFPA 51 and
- b) Safety in Welding and Cutting and Allied Processes, AWS Z49.1.

2 Limitations of Use

2.1 The maximum service pressure rating of a device for acetylene shall be 15 psig.

2.2 The maximum service pressure rating of a device for oxygen and fuel gases other than acetylene shall be specified by the manufacturer.

2.3 The largest size (ID) of hose or pipe intended for use with the device shall be specified by the manufacturer and piping representing this maximum size shall be used for the Flashback Cycling Test and Explosion Test, Sections 15 and 16, respectively.

2.4 If the device is for limited use such as a maximum number of flashbacks (such as 5 or less) or a short length of time (such as 12 months or less), these limitations shall be stated in the manufacturer's instructions provided with each device. In this case, the Flashback Cycling Test, Section 15, is not conducted.

2.5 If a device is to be marked with the term "Fuel Gas" and not the specific fuel gas(es), the device shall be suitable for all gases specified in 3.3. The maximum service pressure for these gases, other than acetylene, shall be the same.

2.6 Installation instructions shall be provided with each device.

3 Glossary

3.1 For the purpose of this outline, the following definitions apply.

3.2 COMPRESSED GAS IN SOLUTION (ACETYLENE) – A nonliquefied compressed gas that is dissolved in a solvent.

3.3 FUEL GAS – Acetylene, hydrogen, natural gas, liquefied petroleum gas (LP-Gas), methylacetylene-propadiene stabilized gas (MPS-Gas), natural gas, methane and propylene.

3.4 LIQUEFIED COMPRESSED GAS – A gas which under the charged pressure is partially liquid at a temperature of 70.0°F (21.1°C).

3.5 MPS-GAS – Methylacetylene-propadiene, stabilized; a mixture of gases that, in the liquid phase conforms to the following:

- a) Methylace-propadiene (in combination, with a maximum ratio of 3.0 moles of methylacetylene per mole of propadiene in the initial liquid phase in a storage container) – 68 mole percent maximum;
- b) Propane, butane, isobutane (in combination) – 24 mole percent minimum of which at least 1/3 (8 mole percent of total mixture) shall be butane and/or isobutane;
- c) Propylene – 10 mole percent maximum; and
- d) Butadiene – 2 mole percent maximum.

CONSTRUCTION

4 General

4.1 A device shall include all of the components necessary for its intended function and installation and shall be furnished as a single unit or assembly.

4.2 A seat disc shall be attached to its poppet or holder, or otherwise assembled to prevent it from becoming dislocated under service conditions. The means to secure the disc shall not rely on cement or adhesive.

4.3 A brazing material used for joining liquid-confining parts of a device shall have a melting point (solidus temperature) not less than 1000°F (538°C).

4.4 A part in contact with the gas to be handled shall be resistant to the action of such gas.

4.5 If corrosion of a part will interfere with the intended function of the device the part shall be of a corrosion-resistant material or be provided with a corrosion-resistant protective coating.