BAM
Bundesanstalt für Materialforschung und -prüfung

Report
on Testing a Gasket Material for Reactivity with Oxygen

Reference Number	2-1911/2014 II E
Copy	1. Copy of 2 Copies
Customer	Frenzelit-Werke GmbH Frankenhammer 95456 Bad Berneck GERMANY
Order Date	July 31, 2014
Reference	EMP / BWI
Receipt of Order	August 7, 2014
Test Samples	Gasket material Novapress® Multi II, undisclosed batch, for use in flanged connections in piping, valves and fittings or other components for gaseous oxygen service at 130 bar and 60 °C; BAM Order-No.: 2.1/52 217
Receipt of Samples	August 5, 2014
Test Date	December 3, 2014
Test Location	BAM - Working Group "Safe Handling of Oxygen"; building no. 41, room no. 073
Test procedure according to	DIN EN 1797:2002-02 „Cryogenic Vessels - Gas/Material Compatibility" ISO 21010:2004-07 „Cryogenic Vessels - Gas/Material Compatibility" Annex of pamphlet M 034-1 (BGI 617-1) "List of nonmetallic materials compatible with oxygen by BAM Federal Institute for Material Research and Testing.", by German Social Accident Insurance Institution for the raw materials and chemical industry, Edition: March 2014; TRGS 407 Technical Rules for Hazardous Substances "Tätigkeiten mit Gasen - Gefährdungsbeurteilung" chapter 3 "Informationsermittlung und Gefährdungsbeurteilung" and chapter 4 "Schutzmaßnahmen bei Tätigkeiten mit Gasen" Edition: June 2013

All pressures of this report are excess pressures.
This test report consists of page 1 to 3 and annex 1.

TEST REPORT

1 Documents and Test Samples

The following documents and samples were submitted to BAM:

1 Test Application

15 Disks gasket material Novapress® Multi II, undisclosed batch
Outer-Ø: 140 mm; Thickness: 3 mm

2 Test Methods

To evaluate the compatibility of the nonmetallic material Novapress® Multi II, undisclosed batch, for use as a gasket material in flanged connections in piping, valves and fittings or other components for gaseous oxygen service at 130 bar and 60 °C, a flange test was carried out.

A determination of the autogenous ignition temperature (AIT) and an investigation of the aging resistance in high pressure were not necessary as Novapress® Multi II, undisclosed batch, is not for use at temperatures greater than 60 °C.

3 Results

3.1 Flange Test

According to the above-mentioned maximum operating conditions of Novapress® Multi II, undisclosed batch, for use as a gasket material, the flange test was performed at 130 bar oxygen pressure and at a temperature of 60 °C. The test method is described in annex 1.

Results:

Test No.	Oxygen Pressure [bar]	Temperature [°C]	Notes
1	130	60	Only those parts of the gasket burn that project into the pipe.
2	130	60	same behavior as in test no. 1
3	130	60	same behavior as in test no. 1
4	130	60	same behavior as in test no. 1
5	130	60	same behavior as in test no. 1

In five tests at 130 bar oxygen pressure and 60 °C, only those parts of the gasket burn that project into the pipe; the fire is neither transmitted to the steel nor does the gasket burn between the flanges. The flange remains gas-tight.

4 Summary and Evaluation

In five tests of the flange test at 130 bar oxygen pressure and 60 °C, only those parts of the gasket burn that project into the pipe; the fire is neither transmitted to the steel nor does the gasket burn between the flanges. The flange remains gas-tight.