

EXAMINATION REPORT

Elastomeric seals for use in flue liners

REPORT NUMBER

LC 16002

AUTHORISATION

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Elastomeric seals for use in flue liners

Manufacturer: Primasil Silicones Ltd.

Place of production: Weobley (UK)

Reference number: 180701419

According to standard: EN 14241-1:2013 *“Chimneys - Elastomeric seals and elastomeric sealants -Material requirements and test methods - Part 1: Seals in flue liners”*

1. Order

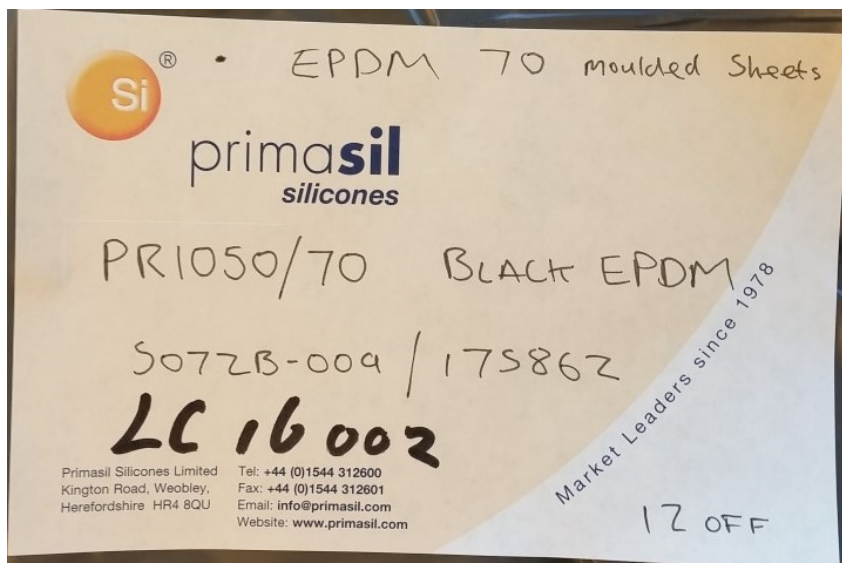
By order of Kiwa Nederland B.V., the sample mentioned below was tested by Lab C for determination of physical and mechanical properties according to EN 14241-1.

2. General

The sample was received on 30-07-2018 and registered with number LC 16002. The test was started on 07-08-2018 and was carried out by Mr A.J. Rikers.

3. Sample description

Samples:	12 moulded rubber test sheets 305 x 305 x 2 mm, 16 buttons \varnothing 13,2 x 6,5 mm, 1 moulded rubber test sheet 150 x 50 x 6 mm
Classification:	T 80 W 1 K2 LI
Material description:	EPDM 70, black (PR1950/70)
Marking:	see picture below
Date of production:	not specified



4. Test conditions

The tests for determination of the properties were carried out at a temperature of $23 \pm 2^\circ\text{C}$.

5. Apparatus

Tensile-pressure machine, ozone equipment, cooling-heating equipment and measuring equipment.

6. Preservation of the samples

In case of failure the samples will be kept for 3 months.

7. Test results

Temperature class:	T 080 (nominal temperature 80 °C)
Condensate resistance class:	W (for chimneys operating under wet conditions)
Corrosion resistance class:	1
Construction class:	K2 (direct exposure to the flue gas and/or condensate)
Location:	LI (for internal installation)

Physical and mechanical properties

Properties	Test method	Units	Requirements	Test results
Density	ISO 2781	Mg/m ³	n.a.	1,38
Tensile strength	ISO 37 type 2	MPa	n.a.	6,9
Elongation at break	ISO 37 type 2	%	n.a.	235
Modulus at 100% elongation	ISO 37 type 2	MPa	n.a.	3,65
Hardness	ISO 7619-1	Shore A	n.a.	73
Long-term resistance to thermal load	ISO 188			
Change after 28 days at 80 °C:				
Tensile strength	ISO 37 type 2	%	n.a.	+ 10
Elongation at break	ISO 37 type 2	%	n.a.	- 9
Modulus at 100% elongation	ISO 37 type 2	%	n.a.	- 18
Hardness	ISO 7619-1	Shore A	n.a.	- 5
Long-term resistance to thermal load	ISO 188			
(table 4 – A of EN 14241-1)				
Change after 56 days at 80 °C:				
Tensile strength	ISO 37 type 2	%	≤ 30	- 13
Elongation at break	ISO 37 type 2	%	≤ 30	- 12
Modulus at 100% elongation	ISO 37 type 2	%	≤ 35	+ 27
Hardness	ISO 7619-1	Shore A	≤ 7	+ 7
Compression set after				
24 h. at 80 °C with 25% deformation	ISO 815-1	%	≤ 25	16
Long-term resistance to condensate exposure K2				
Change after 28 days at 90 °C:				
Tensile strength	ISO 37 type 2	%	n.a.	+ 20
Elongation at break	ISO 37 type 2	%	n.a.	- 2
Modulus at 100% elongation	ISO 37 type 2	%	n.a.	- 13
Hardness	ISO 7619-1	Shore A	n.a.	+ 4

Long-term resistance to condensate exposure K2 (table 5 – A of EN 14241-1) Change after 56 days at 90 °C:				
Tensile strength	ISO 37 type 2	%	≤ 30	+ 15
Elongation at break	ISO 37 type 2	%	≤ 30	- 13
Modulus at 100% elongation	ISO 37 type 2	%	≤ 35	+ 20
Hardness	ISO 7619-1	Shore A	≤ 7	+ 3
Volume change	ISO 1817	%	- 5 / + 25	+ 6
Stress relaxation in compression				
After 21 days at 80 °C	ISO 3384-1	%	≤ 50	27
Cyclic condensate resistance test				
Visual inspection at 100% elongation	-		no damage/cracks	no cracks

n.a.: not applicable

8. Conclusion

The test pieces meet the requirements for the investigated aspects in accordance with EN 14241-1.