AR 31-2
August 2024

Approval requirement 31-2

Sealing materials for metallic threaded joints.
Part 2: Non-hardening jointing compounds

Trust
Quality
Progress

Foreword

This approval requirement (AR) is approved by the Board of Experts (BoE) GASTEC QA, in which relevant parties in the field of gas related products are represented. This Board of Experts supervises the certification activities and where necessary require the GASTEC QA approval requirement to be revised. All references to Board of Experts in this GASTEC QA approval requirement pertain to the above-mentioned Board of Experts.

This AR will be used by Kiwa Nederland BV in conjunction with the GASTEC QA general requirements and the KIWA regulations for certification.

In this AR is established which requirements a product and the requestor/ certificate holder of the GASTEC QA product certificate should meet and the matter to which Kiwa evaluates this.

Kiwa has a method which is established in the certification procedure for the execution of:

- The investigation for provisioning and maintaining a GASTEC QA product certificate based on this AR.
- The periodic evaluations of the certified products for the purpose of maintaining a provided GASTEC QA product certificate based on this AR.

Approved by the Board of Experts: 16/08/2024

Accepted by Kiwa Nederland B.V.: 05/09/2024

Kiwa Nederland B.V.
Wilmersdorf 50
P.O. Box 137
7300 AC Apeldoorn
The Netherlands

Tel: +31 88 998 33 93
Fax:+31 88 998 34 94
info@kiwa.nl
www.kiwa.nl

2530 60324

Contents

1 Introduction

1.1 General

This GASTEC QA approval requirement (AR) in combination with the GASTEC QA general requirements, is applied by Kiwa as the basis for the issuing and maintaining the GASTEC QA product certificate for sealing materials for metallic threaded joints - non-hardening jointing compounds.

With this product certificate, the certificate holder can demonstrate to his or her customers that an expert independent organization monitors the production process of the certificate holder, the quality of the product and the related quality assurance.

Next to the requirements established in this AR and the general requirements, Kiwa has additional requirements in the sense of general procedural requirements for certification, as laid down in the internal certification procedures.

This GASTEC QA approval requirement replaces version of September 2019.

List of changes:

- These approval requirements have been fully reviewed textually.
- The scope has been revised.
- Change of paragraphs.
- Update of list of referenced documents.

The product requirements have not changed.

1.2 Scope

This approval requirement is applicable for non-hardening jointing compounds for metallic threaded joints according to EN 10226-1.

The sealing materials is suitable for use in gas installations for 2nd family and 3rd family gases according to EN 437.

Note: The non-hardening jointing compound for metal threaded connections according to EN 10226-1 is also suitable for hot water heating systems, but this application is not covered by the GASTEC QA quality mark.

2 Definitions

In this approval requirement, the following terms and definitions are applicable:

Board of Experts (BoE): The Board of Experts GASTEC QA.

Maximum operating pressure (MOP): Maximum pressure that a component is capable of withstanding continuously in service under normal operating conditions.

See also the definitions mentioned in the GASTEC QA general requirements.

3 Material and product requirements

This chapter contains the material and product requirements that the raw materials, materials and products used shall meet.

3.1 General

The product shall comply with the requirements described in EN 751-2.

In addition to the requirements of in EN 751-2, the product shall comply with the product requirements of paragraph 3.2.

3.2 Classification of jointing compounds

In contrast to EN 751-2, chapter 4 following classification shall be used.

“Klasse 0,2” materials shall meet the requirements for Class B of EN 751-2.
“Klasse 8” materials shall meet the requirements for Class AR_p of EN 751-2.
“Klasse 20” materials shall meet the requirements for Class C of EN 751-2.

4 Performance requirements and test methods

In addition to the requirements of EN 751-2, the products shall comply with the performance requirements in the next paragraphs.

4.1 Leak tightness

Contrary to paragraph 7.2.1.2 of EN 751-2 the test pressures shall be according to table 1.

4.1.1 Test method

The test samples shall be tested during 15 minutes at a test pressure according to table 1. During the last 5 minutes the samples are visually inspected for leakage.

Class	***Test pressure in bar during 15 ± 1 min.***
Klasse 0,2 bar	0.3 ± 0.015
Klasse 8 bar	12 ± 0.3
Klasse 20 bar	30 ± 1.5

Table 1

4.2 Leak tightness after adjustment

All classes of non-hardening jointing compounds shall be tested for “limited turn back” properties according to paragraph 7.2.1.3 of EN 751-2. Leak tightness shall be determined according to paragraph 4.1 of this AR.

4.3 Resistance to a pressure blast

The test assemblies in accordance with EN 751-2, paragraph 7.2, shall be leak tight after subjected to a pressure blast.

4.3.1 Test method

The test assemblies shall be subjected to a pressure blast in accordance with table 2. After being subjected to the pressure blast the test assemblies are tested according to paragraph 4.1 of this AR.

Class	***Pressure blast in bar during 10 -0/+5 sec.***
Klasse 0,2 bar	1± 0,01
Klasse 8 bar	16 ± 0,5
Klasse 20 bar	N.A.

Table 2

4.4 Resistance to high temperatures

The sealed metallic threaded joint shall be resistant to a radiation heat of 10 kW/m^2 for 30 minutes. The leakage shall be ≤ 5 liters per hour after testing.

4.4.1 Test method

The test shall be performed at a temperature of 20 ± 5 °C. The test samples shall be conditioned at least 24h before testing at a temperature of 20 ± 5 °C and a relative humidity of 60 ± 20 %.

The test is performed in a horizontally test equipment as shown in figure 1. The leakage shall be measured in accordance with Annex A of EN 1775.

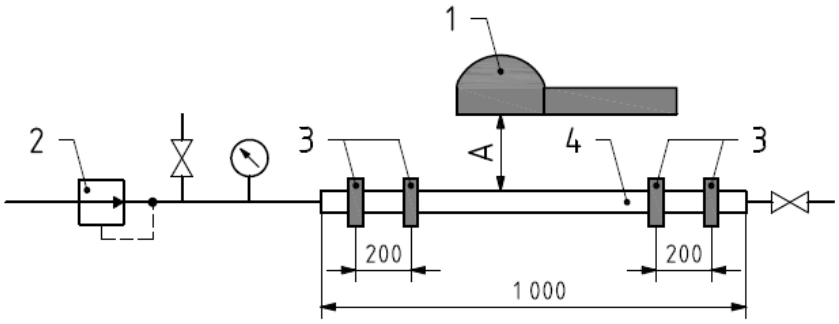

Figure 1

Legend:
1 heat cup
2 measuring system as described in appendix A of EN 1775
3 mounting brackets
4 to be tested sample
A distance between heat cup and surface of the assembled component (for example the outside of a casing)

The test sample shall be mounted in the test equipment without stress or tension on the test sample, see figure 1.

Before the start of the high temperature test, the sample is tested on leakage at 200 mbar for 5 minutes. Record the leakage value (l/h)

Expose the test sample for 30 minutes to a heat radiation of 10 kW/m^2. The distance between the heating cup and the sample shall be calculated with the data on the calibration file of the heating cup.

Determine the leakage after the high temperature test during 5 minutes at 200 mbar. Record the value (l/h).

5 Marking and instructions

5.1 Marking

In addition to the requirements of EN 751-2, chapter 8, each package of jointing compound shall be marked to with the following information:

- GASTEC QA, GASTEC QA word mark or logo.
- Pressure class “Klasse 0,2”, “Klasse 8” or “Klasse 20” as mentioned in table 1.
- A note that the non-hardening jointing compounds can be used on metallic pipe joints only.In Dutch: “Alleen voor metalen pijpschroefdraadverbindingen”.

5.2 Instructions

The manufacturer shall provide instructions according EN 751-2, chapter 8 in the language of the country of its intended destination and in the Dutch language.

6 Quality system requirements

The requirements for the quality system are described in the GASTEC QA general requirements. An important part of this are the requirements for drawing up a risk analysis (e.g., an FMEA) of the product and the production process in accordance with chapters 3.1.1.1 and 3.1.2.1. This risk analysis shall be available for inspection by Kiwa.

7 Summary of tests

This chapter contains a summary of tests to be carried out during:

- The initial product assessment;
- The periodic product verification;

7.1 Test matrix

Description of requirement	Clause EN 751-2	Test within the scope of		
		Initial product assessment	Product verification	
			Verification	Frequency
Requirements to be met by the jointing compound as received	5.1			
General	5.1.1	X	X	Once a year
Corrosive properties	5.1.2	X		
Storage properties	5.1.3	X		
Requirements to be met by the jointing compound after assembly	5.2			
Sealing properties	5.2.1	X		
Soundness	5.2.1.1	X		
Resistance to gas condensates	5.2.1.3	X	X	Once a year
Resistance to hot water	5.2.1.4	X		
Resistance to temperature cycling	5.2.1.5	X	X	Once a year
Resistance to vibration	5.2.1.6	X		
Compatibility with foam forming leak testers	5.2.2	X		
Hardening and dismantling	5.2.3	X		
Re-test	5.3	X		
Additional GASTEC QA approval requirements KE 31-2				
Classification of jointing compounds	3.2	X		
Leak tightness	4.1	X	X	Once a year
Leak tightness after adjustement	4.2	X	X	Once a year
Resistance to a pressure blast	4.3	X	X	Once a year
Resistance to high temperatures	4.4	X		
Marking	5.1	X	X	Once a year
Instructions	5.2	X	X	Once a year

8 List of referenced documents

8.1 Standards / normative documents

All normative references in this Approval Requirement refer to the editions of the standards as mentioned in the list below.

EN 751-2: 1997	Sealing materials for metallic threaded joints in contact with 1st, 2nd and 3rd family gases and hot water -part 2: non-hardening jointing compounds
EN 1775: 2007	Gas supply - Gas pipework for buildings - Maximum operating pressure less than or equal to 5 bar - Functional recommendations

8.2 Source of informative documents

EN 437: 2021	Test gases- test pressure – appliance categories
EN 10226-1: 2004	Pipe threads where pressure tight joints are male on the treads – Part 1 taper external threads and parallel internal threads.
NEN 1078: 2024	Supply for gas with an operating pressure up to and including 500 mbar - Performance requirements - New estate
General requirements GASTEC QA	