AR 31-1

Datum jjjj-mm-dd

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Approval requirement 31-1

Sealing material for metallic threaded joints.
part 1: anaerobic jointing compounds

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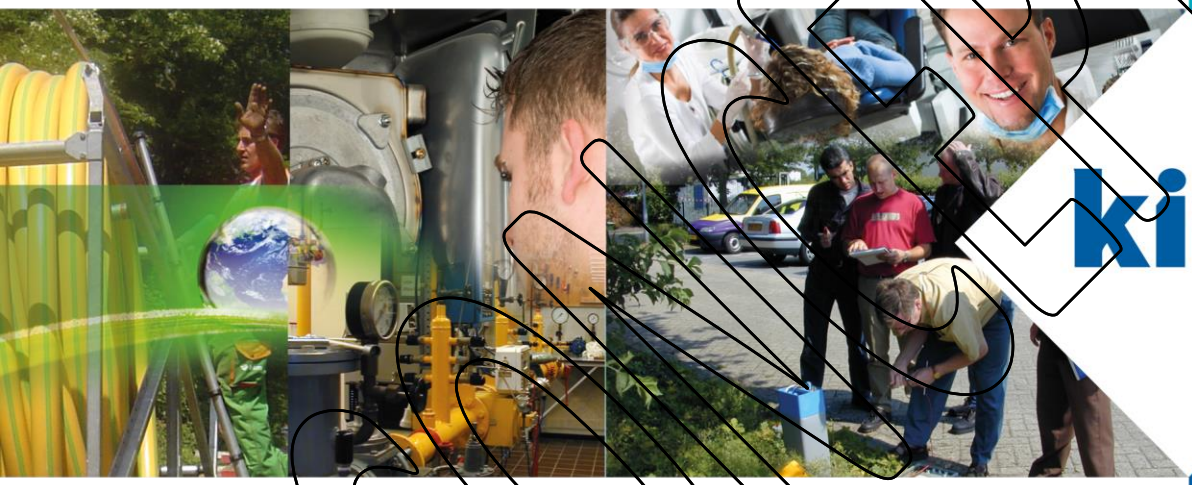

kiwa

GASTEC Qa

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Foreword

This GASTEC QA Approval requirement has been approved by the Board of Experts product certification 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 GASTEC QA Approval requirement will be used by Kiwa Nederland BV in conjunction with the GASTEC QA general requirements and the KIWA regulations for product certification. This regulation details the method employed by Kiwa during product certification.

Approved by Board of Experts : xxx

Accepted by Kiwa Nederland B.V. : xxx

CONCEPT

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Contents

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1 Introduction

1.1 General

This GASTEC QA approval requirement in combination with the GASTEC QA general requirements include all relevant requirements, which are adhered by Kiwa as the basis for the issue and maintenance of a GASTEC QA certificate for Sealing materials for metallic threaded joints. Part 1: Anaerobic jointing compounds,

This GASTEC QA Approval requirements replaces the GASTEC QA Approval Requirements 31-1, Sealing materials for metallic threaded joints in contact with 1st, 2nd and 3rd family gases and hot water – Part 1: Anaerobic jointing compounds, dated March 2012.

List of changes:

- Requirements added for resistance to high temperature
- Update to the new format for GASTEC QA approval requirements
- These approval requirements have been fully reviewed textually.
- All general requirements have been deleted and included in the GASTEC QA general requirements document
- Change of paragraphs
- Update of list of referenced documents

1.2 Scope

These approval requirements apply to anaerobic jointing compounds for metallic threaded joints according to EN 10226-1. The sealing materials are suitable for use in gas installations for 2nd family gases (natural gas) and 3rd family gases (liquefied petroleum gas- LPG) according to EN 437 and for hot water heating systems, for gas and water pressures up to and including 8 bar.

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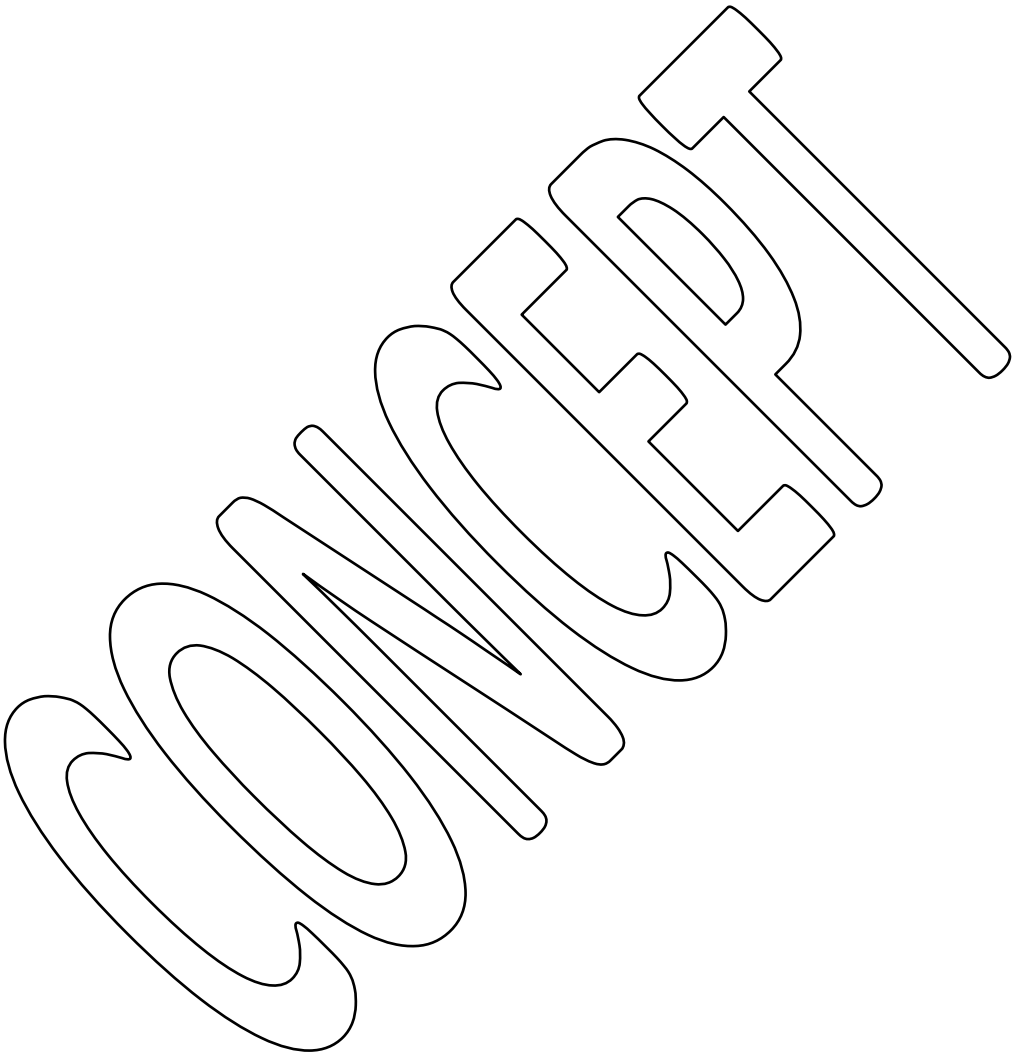
2 Definitions

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

Board of Experts: The Board of Experts Gastec QA.



3 Product requirements

3.1 General

The product shall comply with the requirements described in EN 751-1.

Supplementary to that stated in EN 751-1 the product shall comply with the following product requirement.

3.2 Classification of jointing compounds

Anaerobic jointing compounds shall be suitable for both fine (I) and course (H) threads. The materials shall meet the requirements for both classes I and H according to EN 751-1.

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4 Performance requirements and test methods

4.1 General

Supplementary to that stated in NEN-EN 751-1 the product shall comply with the following performance requirement.

4.2 Leak tightness

Test method

The soundness test described in EN 751-1 chapter 7.2.1.2 shall be performed with the following changes. After assembling the samples shall be left for 0,5 to 1 hour.
The samples shall be pressurized for 15 minutes at a pressure of 12 ± 0,3 bar. During the last 5 minutes the sample is visually inspected for leakage.

4.3 Leak tightness after adjustment

A test assembly according to EN 751-1 chapter 7.2 shall be leak tight after adjustment.

Test method

The threaded joints of two new test assemblies (2 x ¼ and 2 x 1 ½) according to EN 751-1 chapter 7.2 are turned back for 45 ±2° immediately after assembly. The test assemblies shall be allowed to cure during the by the manufacturer prescribed curing time. After curing the leak tightness test according to article 4.2. of this approval requirements shall be performed.

4.4 Resistance to a pressure blast

The test assemblies according to EN 751-1 chapter 7.2 shall be subjected during 10 -0/+5 sec to a pressure blast of 16 ± 0,5 bar after the pressure blast the assemblies shall be leak tight.

Test method

The test assemblies according to EN 751-1 chapter 7.2 shall be allowed to cure during the by the manufacturer prescribed curing time and then subjected during 10 -0/+5 sec. to a pressure blast of 16 ± 0,5 bar with air or nitrogen followed by the leak tightness test according to article 4.2 of this approval requirements.

4.5 Resistance to high temperatures

The steel pipes (including protection/isolation) shall be resistant to a radiation heat of 10 kW/m^2 during 30 minutes. The leakage shall be ≤ 5 l/h after testing.

Test method

The test shall be performed at a temperature of 20 °C ± 5 °C. The test samples shall be assembled according to EN 751-1, clause 7.2 and cure during the by the manufacturer prescribed curing time. The test samples shall be conditioned at least 24h before testing at a temperature of 20 °C ± 5 °C and a 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 to Annex A of EN 1775:2007.

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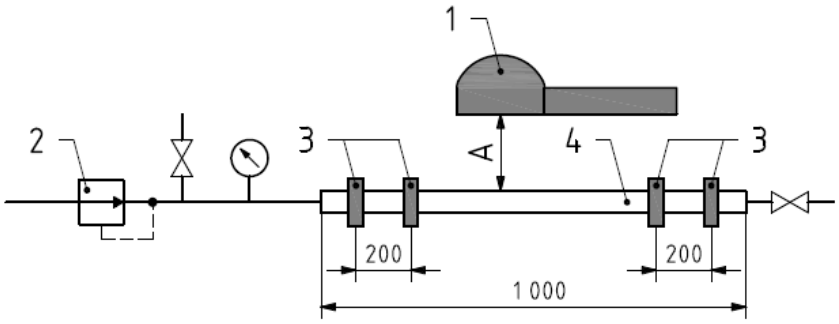

Figure 1

Legend:
1 heat cup
2 measuring system as described in appendix A of NEN-EN 1775:2007
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 during 5 minutes. Record the leakage value (l/h)

Expose the test sample during 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)

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5 Marking and instructions

5.1 Marking

In addition to NEN-EN 751-1, chapter 8, each package of jointing compound shall be additionally marked with the following information;

- the GASTEC QA word mark or logo;
- Pressure class “Klasse 8”
- A note that the anaerobic jointing compound can be used on metallic pipe joints only.
  In Dutch: “Alleen voor metalen pijpschroefdraadverbindingen”

5.2 Instructions

In addition to that stated in NEN-EN 751-1, Article 8 the instructions shall be supplied in the Dutch language.

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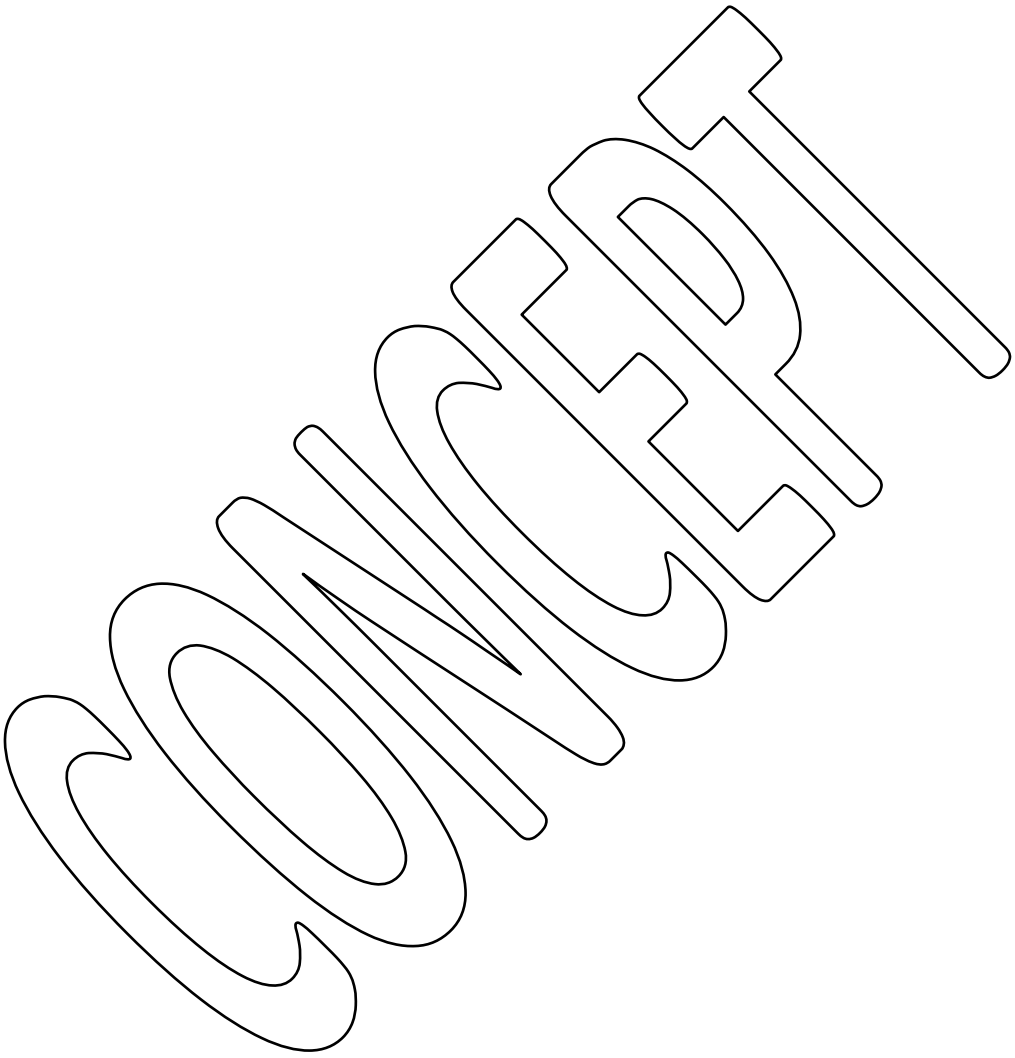
6 Quality system requirements

The supplier shall make a risk assessment of the product and production process according to chapter 3.1.1.1 and 3.1.2.1 of the GASTEC QA general requirements. The risk assessments shall be available to Kiwa for review.



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 NEN-EN 751-1	Test within the scope of		
		Initial product assessment	Product verification	
			Verification	Frequency
Requirements to be met by the jointing compound as received	5.1			
Visual quality	5.1.1	X	X	Once a year
Chemical stability	5.1.2	X		
Corrosive properties	5.1.3	X		
Storage properties	5.1.4	X		
Requirements to be met by the jointing compound after assembly	5.2			
Sealing properties	5.2.1	X		
Leak tightness	5.2.1.1	X	X	Once a year
Resistance to gas condensates	5.2.1.2	X		
Resistance to hot water	5.2.1.3	X		
Resistance to temperature cycling	5.2.1.4	X	X	Once a year
Resistance to vibration	5.2.1.5	X		
Compatibility with foam forming leak testers	5.2.2	X		
Re-test	5.3	X		
Additional GASTEC QA approval requirements 31-1				
Classification of jointing compounds	3.2	X		
Leak tightness	4.2	X		
Leak tightness after adjustement	4.3	X	X	Once a year
Resistance to a pressure blast	4.4	X	X	Once a year
Resistance to high temperatures	4.5	X		
Marking	5.1	X	X	Once a year
Instructions	5.2	X	X	Once a year

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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 437: 2003+A1: 2009	Test gases- test pressure – appliance categories
EN 751-1: 1997	Sealing materials for metallic threaded joints in contact with 1st, 2nd and 3rd family gases and hot water -part 1: anaerobic jointing compounds
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: 2018	Supply for gas with an operating pressure up to and including 500 mbar - Performance requirements - New estate

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