DNV·GL

Certificate No:
TAK000013X

TYPE EXAMINATION CERTIFICATE

This is to certify:

That the Adhesive Materials for use in Insulation of Gas Carriers

with type designation(s)
Polyurethane Adhesive; XPU 18045 An/B

Issued to
BOSTIK SA
RIBECOURT DRESLINCOURT, France

is found to comply with
Gaztransport & Technigaz Specification Nr. M3006, Adhesive for Secondary Barrier, Rev. C, February 2010
Gaztransport & Technigaz Specification Nr. M3024, Adhesive, Rev. B, January 2008

Application :

For use in MARK III and CS1 type LNG containment systems built under GTT's license.

Issued at **Høvik** on **2018-02-06**
This Certificate is valid until **2023-02-05**.
DNV GL local station: **Le Havre**

for **DNV GL**

Approval Engineer: **Helene Munkhaugen**

Rikard Törnqvist
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Examination Certificate and not to the approval of equipment/systems installed.

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Product description

XPU 18045 An/B is a flexible two component polyurethane adhesive which cures at ambient temperature or with heating. The product is intended for use at cryogenic conditions.
- XPU 18045 An: Resin
- XPU 18045 B: Hardener

Application/Limitation

XPU 18045 An/B; adhesive used to bond part of insulation panels, top bridge pads, flexible secondary barrier to rigid secondary barrier or plywood.

The products are only approved for use in MARK III type LNG carriers built under licence from GAZTRANSPORT & TECHNIGAZ SA (GTT). Deliveries to actual shipbuilding projects shall be in compliance with the:
- "Adhesive for Secondary Barrier" specification, GTT document no. M3024, Rev. B, January 2008, and
- "Adhesive" specification, GTT document no. M3006, Rev. C, February 2010.

The products shall have a valid approval from GTT.

Type Examination documentation

Tests carried out

Type Testing carried out in accordance with **Type Examination documentation**. The Test results on which this Type Examination is based are found in:
- Approval Report No. MAT-RPT-001185 Rev. 01 of 2014-01-08 and
- Approval Report No. MAT-RPT-001186 Rev. 01 of 2014-01-09.

Marking of product

Product shall be marked with the *manufacturer's name*; **Bostik SA, Ribécourt, France** and *type designation*.

Periodical assessment

The scope of the Periodical Assessment is to verify that the conditions stipulated for the Type Examination is complied with and that no alterations are made to the product design or choice of materials.

Periodical Assessment to be performed after 2 years and 3.5 years (Certificate Retention) and at renewal after 5 years (Certificate Renewal).

The main elements of the Periodical Assessment are to:
- Ensure that **Type Examination documentation** is available.
- Review design, materials, production process, and performance with respect to possible changes, in order to ensure compliance with **Type Examination documentation** and/or referenced material specifications.
- Ensure traceability between manufacturer's product marking and the DNV GL Type Examination Certificate.

END OF CERTIFICATE