DNV·GL

Certificate No:
TAK000019R

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Insulation Materials for Gas Carriers

with type designation(s)
FINEpol140-60

Issued to
Dongsung finetec Co., Ltd.
Anseong-Si, Gyeonggi-Do, Republic of Korea

is found to comply with
DNV GL rules for classification – Ships

Application :

Rigid cellular polyurethane foam for insulation

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

Issued at **Hamburg** on **2018-07-05**
This Certificate is valid until **2023-07-04**.
DNV GL local station: **Seoul**

Approval Engineer: **Joachim Rehbein**

for **DNV GL**

Thorsten Lohmann
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 Approval Certificate and not to the approval of equipment/systems installed.

© DNV GL 2014. DNV GL and the Horizon Graphic are trademarks of DNV GL AS.

Job Id: **262.1-028451-1**
Certificate No: **TAK000019R**

Product description

Two - component rigid cellular polyurethane foam

Component A: FINEpol140-60 (premixed polyol)

Component B: Methylene diphenyl diisocyanate (MDI)

Type Approval documentation

Material Properties

Raw materials

Properties	Standard	FINEpol140-60	MDI	Unit
Viscosity at 20°C	ISO 3219	400 ± 100	210 ± 40	mPa·s
Density	ISO 1675	1.19 ± 0.1	1.23 ± 0.1	g/cm³

Foam properties

Density: 50 - 65 kg/m³ according to ASTM D1622

Thermal conductivity at 20°C: ≤ 0.022 W/mK according to ASTM C518 (non-aged)

Flame retardance: B2 according to DIN 4102-1

Limitation

- Approved for conventional LPG tanks Type A and for Type C tanks designed to store LNG,LEG and LPG.

- Application has to be carried out in accordance with the work instruction of manufacturer.

Assessed production site

DONGSUNG FINETEC Co., Ltd
120, Hyeopdongdanji-Gil
Miyang-Myeon
Anseong-si
Gyeonggi-do
Rep. of Korea

Periodical assessment

A production site with a valid Approval of Manufacturer (AoM) certificate for material in question is exempted from the obligation concerning retention and renewal assessments.
For manufacturer without a valid AoM a periodical assessment after 2.5 years and at renewal after 5 years is required.

END OF CERTIFICATE