



Certificate No:
TAK00001ZE

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Insulation Materials for Gas Carriers

with type designation(s)
FINEfoam 140

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 **2021-03-15**

This Certificate is valid until **2026-03-14**.

DNV local station: **Seoul**

for **DNV**

Approval Engineer: **Joachim Rehbein**

.....
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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Form code: TA 251

Revision: 2021-03

www.dnv.com

Page 1 of 2

Product description

FINEfoam 140: preformed rigid cellular polyurethane modified polyisocyanurate foam

Foam properties

Density: $\geq 40 \text{ kg/m}^3$ according to ASTM D1622
Thermal conductivity at 20°C: $\leq 0.023 \text{ W/(m K)}$ according to ASTM C518 (non-aged)
Flame retardance: B2 according to DIN 4102-1

Application/Limitation

Insulation panel for conventional cryogenic tanks Type A, Type B and Type C designed to store LNG, LEG and LPG and for insulation of cargo piping.

Application shall be carried out in accordance with the relevant rules of the Society and the work instruction of the manufacturer.

Any significant changes in design and/or quality of the material will render the approval invalid.

Type Approval documentation

Assessed production site

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

Periodical assessment

A condition for retention of the TA certificate in its validity period is that periodical assessments are successfully carried out.

The objective of the periodical assessment is to verify that the conditions for the TA have not been altered.

Periodical assessments will be required after two years and after 3.5 years (retention survey) and for renewal after 5 years (renewal survey). Reference is made to class programme CP-0338.

END OF CERTIFICATE