

TYPE APPROVAL CERTIFICATE**This is to certify:****That the Foam Fire Extinguishing Liquid**with type designation(s)
STHAMEX-AFFF 3% F15 # 4341

Issued to

**Fabrik Chemischer Präparate von Dr.Richard Sthamer GmbH
& Co.KG
Hamburg, Germany**

is found to comply with

**DNV GL statutory interpretations DNVGL-SI-0364 – SOLAS interpretations
DNV GL rules for classification – Ships
DNV GL offshore standards****Application :****Approved for use as a low expansion foam forming liquid (Type B) in approved fixed and
mobile fire extinguishing systems.****Product(s) approved by this certificate is/ are accepted for installation on all vessels classed
by DNV GL.**Issued at **Hamburg** on **2019-09-26**This Certificate is valid until **2024-09-25**.DNV GL local station: **Hamburg CMC**Approval Engineer: **Andrii Pishchanskyi**for **DNV GL**Digitally Signed By: Drews, Olaf
Location: DNV GL SE Hamburg, Germany
Signing Date: 2019-09-30**Olaf Drews
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.



Product description

“STHAMEX-AFFF 3% F15 # 4341” is a synthetic, aqueous film-forming fire extinguishing foam concentrate (AFFF).

Application/ Limitation

The foam concentrate is approved for use as a low expansion foam concentrate (Type B) against hydrocarbon (non-polar solvent) fires for fixed and mobile fire-fighting systems.

Characteristic	Value
Nominal mixing ratio with seawater ¹⁾	3 %
Kinematic viscosity ¹⁾ (20 °C)	6,3 cSt
pH value ¹⁾ (20 °C)	7.7
Expansion ratio ¹⁾	9,8
Drainage time ¹⁾ (25%)	4:12 (min:s)
Volumetric mass / density ¹⁾ (20 °C)	1,046 g/ml
Storage and application temperature ¹⁾	-21°C up to 50°C
Onboard tank / storage material	Shall be in original packaging as per manufacturer's data sheet No. PD - 4341- V09 - STHAMEX-AFFF 3% F15 # 4341 - EN, Version 09 dated 2019-04-11

Footnote

1) Values from the test report No. 2013-F-0193/Sth 157 dated 2015-03-10 issued by MPA Dresden

This approval does not address the foam generating equipment, only the foam concentrate.

The storage facilities and piping arrangement onboard the vessel are to be designed and constructed with regard to seawater exposure (where applicable) and the minimum allowed temperature for the foam liquid.

Foam concentrate use, packaging, storage and transport are to be in accordance with the manufacturer's instructions:

- Data sheet No. PD - 4341- V09 - STHAMEX-AFFF 3% F15 # 4341 - EN, Version 09 dated 2019-04-11;
- “Safety Data Sheet according to Regulation (EC) No. SD - 4341 - V06 - STHAMEX-AFFF 3% F-15 # 4341 - EN, Version V06 dated 2018-05-09.

Each product is to be supplied with its manual for application, use, storage, transport and maintenance.

The foam concentrate does not contain PFOS.

The validity of the certificate is dependent on the compliance of each manufactured product with the prototype which underwent the type approval tests and such compliance shall be stated in a declaration of conformity by the manufacturer.

Periodical controls of foam concentrates stored on board shall be performed by a shipowner or operator according to IMO MSC.1/Circ. 1312 / Corr.1:

- The foam liquid is to be delivered with a declaration of conformity and a declaration of the main characteristics (sedimentation, pH-value, expansion ratio, drainage time and volumetric mass). The declaration will be the basis for the annual condition test (each year after 3 years).

Job Id: **262.1-032081-1**
Certificate No: **TAF00001B2**

Type Approval documentation

Certification in accordance with Class Programme DNVGL-CP-0338, September 2018.

1. Certificate and test report No. 2013-F-0193/Sth 157 dated 2015-03-10 issued by MPA Dresden;
2. Data sheet No. PD - 4341- V09 - STHAMEX-AFFF 3% F15 # 4341 - EN, Version 09 dated 2019-04-11;
3. Material declaration according to MEPC.269(68) No. MD - 4341 - V02 - STHAMEX-AFFF 3% F-15 # 4341, V02, dated 2018-05-24;
4. Safety data sheet No. SD - 4341 - V06 - STHAMEX-AFFF 3% F-15 # 4341 - EN, Version V06 dated 2018-08-09.

Tests carried out

Tested according to IMO MSC.1/Circ. 1312 / Corr.1.

Marking of product

The packing is to be marked with name of manufacturer, type designation, storage/use, temperature, production date, expiry date and SHE information.

Periodical assessment

DNV GL's surveyor is to be given permission to perform Periodical Assessments at any time during the validity of this certificate and at least every second year. The arrangement is to be in accordance with procedure described in Class Programme DNVGL-CP-0338, Section 4.