Certificate No:
TAF00001JZ

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Jet Fire Protection

with type designation(s)
"Humidur Char" - Jet fire

Issued to
Acotec N.V.
Aalst, **Belgium**

is found to comply with
DNV GL offshore standards

Application :

Approved for use as a jet fire protection of structural I sections.

Issued at **Høvik** on **2021-09-13**
This Certificate is valid until **2026-09-12**.
DNV local station: **Belgium CMC**

Approval Engineer: **Helge Bjørnarå**

for **DNV**

Helene David-Andersen
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.

Product description

"Humidur Char" – Jet fire
The system consists of a two-component intumescent epoxy coating applied to steel substrates prepared to ISO 8501-1 St2 or Sa2.5. The system has been tested and approved without primer.

The materials are manufactured at the following locations:

- ACOTEC N.V., Aalst, Belgium.

Application/Limitation

The "Humidur Char" system is approved for use as jet fire protection of structural I sections.

Any project specific design solutions arrived at on basis of this certificate are to be further validated by project specific approvals carried out by the appointed verifying authority for each project in each case at the detail engineering stage.

Thickness of "Humidur Char" for jet fire exposure may be determined by adding a "Jet fire erosion factor" as shown in Table 1 to the thickness required for hydrocarbon pool fire as given in the DNV Type approval certificates for structural I sections (TAF00001JY).

Table 1: Additional thickness of "Humidur Char" system to be applied to account for jet fire erosion for I sections:

Core temp. [°C]	Jet fire erosion factor [mm] *)														
	10 min	15 min	20 min	25 min	30 min	35 min	40 min	45 min	50 min	55 min	60 min	65 min	70 min	75 min	80 min
400															
540															

*) Total minimum thickness shall not be less than 6.4 mm.

The protective coating is not defined as non-combustible and should not be used in accommodation or in enclosed areas.

Mass density of "Humidur Char":
Spray: 1.42 g/cm^3
Trowel: 1.42 g/cm^3

The approval refers only to the fire resistance properties of the system.

All tests have been performed with nominal dry film thickness (DFT). Workmanship is subject for acceptance by the relevant authority of the project.

The application (spray and/or trowel) of the protective coating is to be performed in accordance with the manufacturer's application manual. Alternative primers and topcoats may be used provided they have been tested and approved by the manufacturer.

Each product is to be supplied with its manual for application and maintenance.

Type Approval documentation

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

Application Guide, Humidur Char, Rev. 06, dated 16 February 2021 from maker.
"Coating Procedure Specification and Application Guideline for Humidur Char" document No. Aco_2019_CPS_001 Rev. 4 from maker.

Test report No. Gexcon-20-F100914a-RA-11, Rev. 00, dated 22 January 2021 from Gexcon, Bergen, Norway.
Test report No. Gexcon-21-F100914a-RA-06, Rev. 00, dated 22 January 2021 from Gexcon, Bergen, Norway.
Test report No. Gexcon-21-F100914a-RA-07, Rev. 00, dated 24 January 2021 from Gexcon, Bergen, Norway.
Test report No. Gexcon-21-F100914a-RA-08, Rev. 00, dated 24 January 2021 from Gexcon, Bergen, Norway
Test report No. Gexcon-21-F100914a-RA-04, Rev. 00, dated 25 January 2021 from Gexcon, Bergen, Norway.
Test report No. Gexcon-21-F100914a-RA-09, Rev. 00, dated 29 January 2021 from Gexcon, Bergen, Norway
Test report No. Gexcon-21-F100914a-RA-14, Rev. 00, dated 29 January 2021 from Gexcon, Bergen, Norway

Tests carried out

Tested according to ISO 22899-1.

Marking of product

The product is to be marked with name of manufacturer and type designation.

Periodical assessment

DNV'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.