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Technical Data Sheet Humidur® FP QR

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HUMIDUR.

Let's face corrosion.

1. Product Description

Humidur FP Quick Repair, with its straightforward application, has been specifically developed for the repair of coatings and for small and/or difficult to reach areas of application. It comes in pre-dosed tubes and is applied by a dispensing gun. Only the amount that is needed, however small, is mixed automatically at the correct ratio in the tip, eliminating waste and mixing errors. Thanks to this unique application technology, the pot life is no longer relevant.

Humidur FP QR is a two-component solvent-free modified polyamine cured epoxy system offering following benefits:

- Compatible with most epoxy, polyester and vinyl ester coatings.
- Long term protection in highly corrosive environments: life expectancy over 30 years on thorough prepared surfaces and 15 years on minimally prepped surfaces
- Single coat system, no primers required
- High chemical resistance to acids, alkalis, acids, oils, lubricants, detergents, ...
- Environmentally friendly (100 % solids, no solvents, no heavy metals, no coal tar)
- Excellent abrasion resistance and impact resistance
- Surface tolerant & outstanding adhesion to substrate and interadhesion between layers
- Capable of curing under water: can be exposed to water and precipitation immediately after application
- Capable of curing at freezing temperatures
- NDT inspection allowed
- Resistant to temperatures from -35 °C to 150 °C and to most fluids between pH 0 and pH 14 (contact your local Acotec representative for more information)
- Cost-effective (LCCA conducted by DHV Royal Haskoning)
- Tested and accepted for applications on sweating lines
- Tested and accepted for CUI applications



2. Composition

Humidur FP QR consists of two components:

A is the base component and contains:

- Non-crystallisable epoxy resins,
- High-tech modifying agents and elastifiers,
- Lamellar abrasion and impact resistant fillers,
- Colouring pigments

B is the hardener and contains:

- Polyamine hardener complex

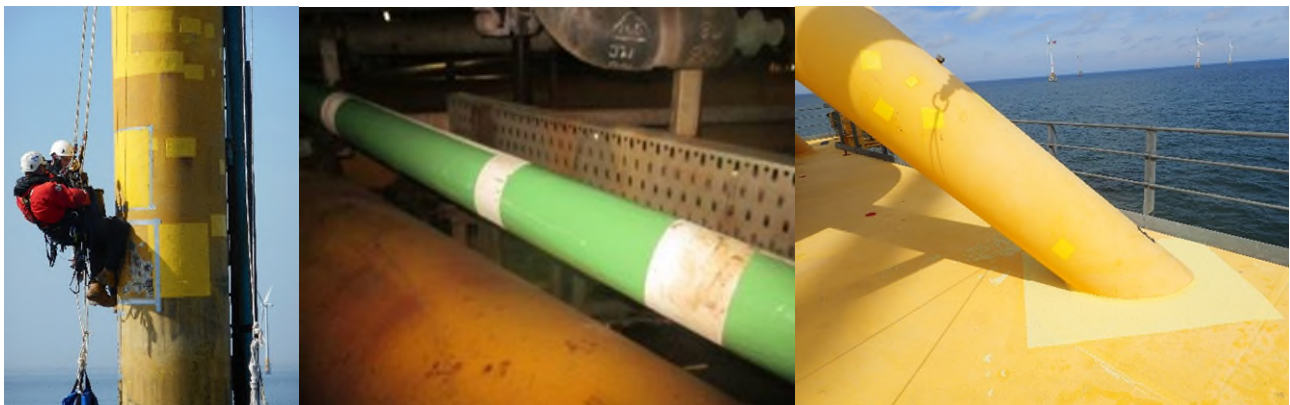
3. Recommended Use

Humidur FP QR has been designed to simplify coating repairs in the most extreme and aggressive environments (marine environment, offshore wind and offshore oil & gas, petrochemical industry, pipelines, ...).

It offers high quality repairs of coating systems in one layer. Humidur FP QR can be easily spread out over the surface by brush.

The application of Humidur FP QR is carried out by means of a dispensing gun, which is available all over the world. Only the amount that is needed, however small, is mixed automatically at the correct ratio in the tip. The pot life becomes irrelevant and the remainder of the tube can be used at a later moment.

Humidur FP QR is therefore ideal for use in the most difficult application conditions (e.g. confined spaces, rope access, ...).



4. Manufacturer's Information

Acotec NV, with registered offices at Aalst, Belgium, is the developer and sole manufacturer of the Humidur products, distributed worldwide through a wide network of agents and cooperative companies. The proven lifetime of the Humidur coatings in practice is more than 30 years.

Contact Acotec directly or visit www.humidur.com for reference projects.

5. Product Data

SPECIFIC DATA		HUMIDUR FP QR
Density @ 23 °C	Component A	± 1.43 g/cm ³
	Component B	± 1.085 g/cm ³
	Mixture A + B	± 1.31 g/cm ³
Solid content		100 %
Flash point mixture A + B		> 100 °C
Hardness		Shore D > 74
Colour (gloss) (For colour stability (only aesthetic), apply Humidur TC on top of Humidur FP QR)		Ask your Acotec representative
Practical thickness in one layer		400 µm
Minimum recommended thickness		400 µm
Covering capacity (WFT = DFT)	Theoretical @ 400 µm	0.52 kg/m ²
Mixing ratio A : B	By weight	2.63 : 1
	By volume	2 : 1
Overcoating time		Before overcoating, carry out a solvent wash and roughen the surface slightly
Standard packaging / set		0.5 kg in pre-dosed tubes
Pot life @ 23 °C		N/A
Shelf life max. 25 °C dry		24 months

6. Curing Time

Humidur coatings have the ability to cure under water. The curing of Humidur is a chemical reaction and is water repellent. The curing times depend on air circulation, temperature and the film thickness. Humidur is able to cure at sub-zero temperatures.

	-5 °C	5 °C	15 °C	25 °C
Touch-dry	36 hours	8 hours	6 hours	4 hours
Full cure	10 days	5 days	48 hours	24 hours



7. Surface Preparation

All surfaces shall be free of oil, grease, dust or any other contamination prior to coating.

SURFACE PREPARATION	CLEANLI-NESS	METHODS	ROUGHNESS	EXPECTED LIFE TIME	WARRANTY
Minimum	St 2 – 3	Hand tool Power tool (wire brush, needle gun, bristle blaster, grinding disc)	Original profile	15 years	On request
Optimal	Sa 2 1/2 Iso 8501	Grit blasting	60 ± 10 µm 2/3 reference ISO 8503	> 30 years	On request

8. Application

APPLICATION PARAMETERS	HUMIDUR FP QR
Temperature before mixing	Room temperature
Application temperature of mixture	25 °C ± 5 °C
Surface temperature* minimum	Dew point + 3 °C
Surface temperature* maximum	50 °C
Humidity* Relative Humidity	< 95 %
Humidity* Surface	No condensation

* These criteria are valid to achieve the most durable protection. If a reduced coating lifetime is desired, application can continue outside this window. The existing warranties do not apply in these conditions. Please contact Acotec NV directly for more information on the expected lifetime in these conditions.

Humidur FP QR is almost always applied in a single coat. If several coats are requested, different Humidur layers can be applied wet-on-wet depending the maximum layer thickness or on top of fully cured layers after removing possible surface contamination/pollution. The overcoating interval is unlimited over time.

9. Environment

Humidur FP QR has been designed to fully respect the environment.

The product contains:

- No VOC (0 %) (100 % solids)
- No solvents or diluents (WFT = DFT)
- No coal tar



- No isocyanates
- No heavy metals

Humidur FP QR is capable of curing under water without leaching taking place and has no detrimental effect on the sediment, fauna and flora in and out of the water. When using Humidur FP QR on static marine structures, the biofilm can form itself on top of the Humidur coating without affecting the substrate and without any loss of the anti-corrosion properties.

As Humidur is a one-layer system, it reduces the amount of waste.

All technical reports are available upon request.

10. Insurance

After application, an adhesion test is performed (according to ISO 4624) for which we commit ourselves to achieve a minimum criterion of 8 MPa.

A corporate warranty can be given under certain conditions. More information upon request.

An insurance policy of 10 years, given by HDI Gerling, is available on all Humidur coatings in case of optimal surface preparation. For the terms and conditions on this warranty, please contact Acotec NV directly.

11. Humidur FP QR Approval / Certificates

Approved in petrochemical industry and offshore oil and gas market by: Shell, Statoil, ConocoPhillips, Talisman Energy, Maersk Offshore, Transocean Drilling, Fairfield Energy

- University Ghent: Approval for resistance against Microbially Induced Corrosion (MIC)
- TÜV Rheinland: Approval for combination with cathodic protection systems
- SGS: Resistance to liquids of Humidur FP QR (EI 1541 + ISO 2812-1)
- Force Technology: Fuel and water resistance testing of Humidur FP QR (MIL-PRF 4456F)
- Norsok M-501: Rev. 6 June 2013, section N° 7, by SGS
- NDT inspections allowed (tested on Talisman Energy assets)
- Royal Haskoning: Most cost-effective anti-corrosion solution (Life Cycle Cost Analysis)
- Humidur FP QR is approved by Saudi Aramco under 09-SAMSS-070, more specifically APCS-19C.

12. Important Note

The English version of the Technical Data Sheet takes precedence over other languages. The latest version of the Technical Data Sheet can be found on our website www.humidur.com.

Should there be any discrepancies between this document and the document online, the online document takes precedence.

