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# Technical Data Sheet Humidur® ME

**ACOTEC N.V.**

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**HUMIDUR.**

Let's face corrosion.

## 1. Product Description

Humidur ME is a two-component, solvent-free, modified polyamine cured epoxy system offering the following benefits:

- Long term protection in highly corrosive environments: life expectancy over 30 years
- Single coat system, no primers required
- 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 immediately after application
- Capable of curing at freezing temperatures
- Unlimited overcoating
- Excellent cathodic disbondment resistance
- NDT inspection allowed
- Resistant to temperatures from -30 °C to 90 °C and to most fluids between pH 0 and pH 14 (contact your local Acotec representative for more information)
- Approved for drinking water
- Cost-effective (LCCA conducted by DHV Royal Haskoning)

## 2. Composition

Humidur ME 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 ME is generally applied on structures in salt, brackish, fresh, potable and drinking water, and specific markets such as:

- Static Marine Infrastructure (sheet piling, tubular piles, lock doors, dolphins, berths, jetties, etc...)
- Offshore (platforms, cranes, piling foundations, inside and outside pipelines, etc...)
- Renewables (penstocks, turbines, windmills, tidal and river stream energy, etc...)
- Shipping (ballast tanks, cargo holds, etc...)





Humidur ME comes in two variants: ME and ME Brush.

| PRODUCT USE                        |                 | HUMIDUR ME | HUMIDUR ME BRUSH |
|------------------------------------|-----------------|------------|------------------|
| <b>By brush</b>                    | Stripe coat     | Yes        | Yes              |
|                                    | Thick layers    | Yes        | Yes              |
| <b>By spray<br/>(heated hoses)</b> | One layer       | Yes        | /                |
|                                    | Multiple layers | Yes        | /                |

#### 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](http://www.humidur.com) for reference projects.

#### 5. Product Data

| SPECIFIC DATA   |               | HUMIDUR ME   | HUMIDUR ME BRUSH                                     |
|---|---------------|--|--|
| <b>Density @ 23 °C</b>  | Component A   | ± 1.46 g/cm <sup>3</sup>                             | ± 1.33 g/cm <sup>3</sup>                             |
|   | Component B   | ± 1.06 g/cm <sup>3</sup>                             | ± 1.06 g/cm <sup>3</sup>                             |
|   | Mixture A + B | ± 1.36 g/cm <sup>3</sup>                             | ± 1.27 g/cm <sup>3</sup>                             |
| <b>Solid content</b>  |               | 100 %  | 100 %  |
| <b>Viscosity of the mixture @ 23 °C and CSS 750 Pa</b>  |               | 6.0 ± 1 Pa·s   | 4.5 ± 1 Pa·s   |
| <b>Flash point mixture A + B</b>  |               | > 100 °C   | > 100 °C   |
| <b>Hardness</b>   |               | Shore D > 74   | Shore D > 74   |
| <b>Colour (gloss)</b><br>(For colour stability (only aesthetic), apply Humidur TC on top of Humidur ME) |               | Any RAL colour<br>25 colours immediately deliverable | Any RAL colour<br>25 colours immediately deliverable |



|   |                      |                 |                        |
|---|----------------------|-----------------|------------------------|
| <b>Compatibility with Cathodic Protection Systems (ISO 20340)</b> |                      | Yes             | Yes                    |
| <b>Practical thickness in one layer</b>                           | Brush                | Stripe coat     | 300 µm                 |
|   |                      | Thick layer     | 300 µm                 |
|   | Spray                | One layer       | 400 µm – 800 µm        |
| <b>Minimum thickness in 1 layer</b>                               |                      | 300 µm – 600 µm | 400 µm – 600 µm        |
| <b>Covering capacity (WFT = DFT)</b>                              | Theoretical @ 200 µm |                 | /                      |
|   | Theoretical @ 400 µm |                 | 0.41 kg/m <sup>2</sup> |
|   | Theoretical @ 600 µm |                 | 1.36 kg/m <sup>2</sup> |
| <b>Mixing ratio A : B</b>   | By weight            |                 | 4.4 : 1                |
|   | By volume            |                 | 3.2 : 1                |
| <b>Overcoating time</b>   |                      | Unlimited       | Unlimited              |
| <b>Standard packaging / set</b>                                   |                      | 22 kg or 264 kg | 1 kg or 5 kg           |
| <b>Pot life @ 23 °C</b>   |                      | 45 minutes      | 45 minutes             |
| <b>Shelf life max. 25 °C dry</b>                                  |                      | 12 months       | 12 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    | 10 °C   | 15 °C   | 20 °C    | 25 °C     | 30 °C    |
|------------------|----------|---------|---------|---------|----------|-----------|----------|
| <b>Touch-dry</b> | 48 hours | 7 hours | 6 hours | 5 hours | 4 hours  | 3.5 hours | 3 hours  |
| <b>Full cure</b> | 7 days   | 6 days  | 4 days  | 3 days  | 48 hours | 36 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   |
|---------------------|--------------------|--|---|--------------------|------------|
| <b>Minimum</b>      | St 2 – 3           | Hand tool<br>Power tool (wire brush, needle gun, bristle blaster, grinding disc) | Original profile                        | 15 years           | On request |
| <b>Optimal</b>      | Sa 2 ½<br>Iso 8501 | Grit blasting  | 60 ± 10 µm<br>2/3 reference<br>ISO 8503 | > 30 years         | On request |

## 8. Application

| APPLICATION PARAMETERS                    | HUMIDUR ME       | HUMIDUR ME BRUSH |
|---|------------------|------------------|
| <b>Temperature before mixing</b>          | 18 °C – 25 °C    | 18 °C – 25 °C    |
| <b>Application temperature of mixture</b> | 25 °C ± 5 °C     | 25 °C ± 5 °C     |
| <b>Surface temperature* minimum</b>       | Dew point + 3 °C | Dew point + 3 °C |
| <b>Surface temperature* maximum</b>       | 50 °C            | 50 °C            |
| <b>Humidity* Relative Humidity</b>        | < 95 %           | < 95 %           |
| <b>Humidity* Surface</b>                  | No condensation  | No condensation  |
| <b>Spray nozzle opening</b>               | 0.015" – 0.025"  | /                |
| <b>Spray nozzle angle</b>                 | 30° - 60°        | /                |

\* 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 ME 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 ME 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 ME 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 ME 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 and minimizes loss spray.

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 ME Approval / Certificates

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

- BAW approved: DIN EN ISO 2812-2 , DIN EN ISO 6270-1 , DIN EN ISO 7253
- NIVA Institute: Approved for drinking water applications
- University Ghent: Approval for resistance against Microbially Induced Corrosion (MIC)
- TÜV Rheinland: Approval for combination with cathodic protection systems
- Arcelor Mittal: Performance tests executed by Strako, official applicator of Arcelor Mittal, where Humidur shows excellent adhesion onto the substrate
- SGS Intron: Proven durability over time
- TNO: Equivalent acceptance with regard to PSPC (IMO Resolution MSC.215 (82))
- Approved for pigging application by EnerClear
- NDT inspections allowed (tested on Talisman Energy assets)
- Royal Haskoning: Most cost-effective anti-corrosion solution (Life Cycle Cost Analysis)
- Approved by CCS for above and below ship's waterline and the inside of tanks

## 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](http://www.humidur.com).

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