

## Product Datasheet

### Resicoat® R4-ES for Electrostatic Spray Application on Preheated Surfaces Code: HLF93QF (Corvel® 10-7208)

#### Product Description

Resicoat® R4 is a high quality thermosetting epoxy powder coating for the corrosion protection of pipes, valves fittings and joints, manufactured from cast iron or steel. The powder coating is applied in one layer on a preheated surface by electrostatic spray application. The resultant thermoset epoxy has a high mechanical resistance with excellent electrical insulation properties. Drinking water approvals are available to confirm the coatings suitability, as a hygienic and environmental friendly coating. The outstanding adhesion of Resicoat R4® epoxy powders to the metal substrate provides long term protection of the coated component. It ensures a reliable conservation to the function and value of the parts for the common water and gas distribution network. The applicator of Resicoat® R4 benefits from a modern and environmentally friendly process. Resicoat® R4-ES HLF93QF complies with AWWA specifications C213-79 and C550-81.

#### Powder Properties

|                                | Typical value                | Method |
|--------------------------------|------------------------------|--------|
| <b>Binder System</b>           | Epoxy                        |        |
| <b>Specific gravity</b>        | 1.42                         |        |
| <b>Coverage (theoretical)</b>  | 135 ft²/lb/mil               |        |
| <b>Gel time @ 400° F</b>       | 30 – 40 seconds              |        |
| <b>Shelf life @ &lt; 80° F</b> | 12 months from delivery date |        |

#### Application Guidelines

| Curing schedule | Temp.  | Postcure / Min. time, min. |
|-----------------|--------|----------------------------|
|                 | 450° F | 4                          |
|                 | 425° F | 8                          |
|                 | 400° F | 12                         |
|                 | 375° F | 16                         |
|                 | 350° F | 20                         |

#### Coating Process

- 1. Pre-cleaning** The surface must be free of oil, grease, salt, and other impurities.
- 2. Blasting** Moulding sand, rust and sharp edges must be removed with angular steel grit. The graphite from the cast iron must be removed from the blasting material according NACE No.2 / SSPC-10 / Sa 2.5. Recommended anchor profile of 1.5 – 3.0 mil should be stored max. 4 hours before pre-heating (dust-free and dry).
- 3. Pre-heating** This form of heating produces a uniform, defined temperature in the component. Any oxidation should be avoided.
- 4. Coating application** Immediately after preheating, the coating process starts without losing any object temperature. The coating is done in the shortest possible time in a single pass with no interruption.
- 5. Coating cure** Curing is achieved by the heat contained in the object. If the heating capacity of the work piece is sufficient. To confirm fully curing, MIBK is dropped for 30 sec. on the film surface with no visible change.

|                                |   | Typical value                           | Method   |
|--------------------------------|---|---|--|
| <b>Coating Test Data</b>       | <b>Abrasion resistance</b>  | < 150 mg                                | ASTM D-1044<br>CS-17, 1000 gms, 5000 cycles                          |
|                                | <b>Adhesion</b>   | excellent                               | Knife-cut  |
|                                | <b>Adhesion-shear</b>   | > 4,000 psi                             | ASTM D-1002<br>½" overlap  |
|                                | <b>Dielectric strength</b>  | > 1000 volts/mil<br>> 600 volts /mil    | ASTM D-149<br>in oil @ 8 – 16 mils<br>in oil @ 8 – 16 mils           |
|                                | <b>Elongation</b>   | 10 %<br>5 %                             | ASTM D-2370<br>8 – 16 mils on steel dogbone<br>8 – 16 mils free film |
|                                | <b>Flexibility</b>  | > 3.0° /LDU @ RT<br>> 3.0° /LDU @ 32° F | 4 point bend 1/8" x 1" x 12"<br>strap, average                       |
|                                | <b>Hardness</b>   | 75                                      | Shore D  |
|                                | <b>Hot water immersion</b>  | no loss of adhesion, no blisters        | 150° F, 500 hrs., scribed  |
|                                | <b>Impact resistance, direct</b>  | 160 in-lbs<br>80 in-lbs                 | 1/8" x 3" x 4" panel, 5/8 lup<br>1/4" x 3" x 4" panel, 5/8 lup       |
|                                | <b>Salt spray</b>   | no effect                               | ASTM B-117, 2000 hrs   |
|                                | <b>Tensile strength, free film</b>  | > 9,000 psi                             | ASTM D-2370  |
|                                | <b>Thermal Shock, 10 cycles</b>   | no effect                               | 16 hrs. @ 40° F/2 hrs. RT/<br>4 hrs. 300° F/2 hrs. RT                |
|                                | <b>Water immersion</b>  | < 0.25 % wt. gain                       | RT, 24 hrs   |
|                                | <b>Water extractables</b>   | < 0.5 mg/in²                            | AWWA C213-79   |
| <b>Drinking Water Approval</b> | US: ANSI/NSF 61 Drinking Water System Components – Health Effects, NSF<br>Listing: CORVEL® 10-7208 GRAY |   |  |
| <b>Date of issue:</b>          | <b>May 19, 2015</b>   |   |  |
| <b>Authorized by:</b>          | <b>GK</b>   |   |  |
| <b>Revision no.:</b>           | <b>1</b>  |   |  |

Disclaimer: This Product Data Sheet is based on the present state of our knowledge and on current laws. The data referring to Powder Properties, Application Data and Physical Tests is based on lab based samples. Factors such as quality or condition of the substrate may have an effect on the use and application of the product. It remains the responsibility of the user to test thoroughly if the product is applicable for the intended use. The use of the product beyond our recommendation releases us from our responsibility, unless we have recommended the specific use in writing. It is always the responsibility of the user to take all necessary steps to fulfil the demands set out in the local rules and legislation. We are not liable for any application-technological advice. The Product Data Sheet shall be updated from time to time. Please ensure you have the latest version before using the product. All products and Product Data Sheets are subject to our standard terms and conditions of sale (GCS). You can receive the latest copy of GCS via internet or our post address. Brand names mentioned in this Product Data Sheet are trademarks of or are licensed to the AkzoNobel group.