

## Product Datasheet

### Resicoat® R4-ES for Electrostatic Spray Application on Preheated Surfaces Code: HKF47R

#### Product Description

Resicoat® R4-ES HKF47R is a spray applied Fusion Bonded Epoxy Coating designed for corrosion protection of earth-laid valves and fittings, hydrants, pumps and pipe drains. Resicoat® R4-ES HKF47R is suitable as a general purpose industrial coating on steel exposed to highly corrosive environments. It can be used on a variety of metal substrates. For detailed information please contact your AkzoNobel representative.

Resicoat® R4-ES HKF47R meets the requirements of AWWA C-213, AWWA C-550 and NSF Std. 61. The coating is resistant against waste water and various chemicals.

For Pipe Internal please refer to the specific Product Datasheet of PI application.

	Typical value	Method	
<b>Powder Properties</b>	<b>Binder System</b>	Epoxy resin	
	<b>Density</b>	1.46 – 1.56 g/cm <sup>3</sup>	ISO 8130-2
	<b>Gel time at 200 °C</b>	110 – 130 sec.	modified ISO 8130-6
	<b>Particle size distribution</b>	< 32 µm (1.28 mils) = 25 – 45 % < 160 µm (6.40 mils) = 99 – 100 %	ISO 8130-1
	<b>Storage stability</b>	12 months from date of manufacture at ≤ 80 °F (27 °C)	
<b>Application Data</b>	<b>Surface preparation</b>	Near-White Blast acc. SSPC SP 10 with 1.5 – 2 mil profile in the metal	
	<b>Preheating temperature</b>	428 – 464 °F (220 – 240 °C) object temperature	
	<b>Post cure conditions</b>	428 °F (220 °C), 10 min. 464 °F (240 °C), 7 min.	
<b>Coating Process</b>	<b>1. Pre-cleaning</b>	The surface must be free of oil, grease, salt, paint and other impurities.	
	<b>2. Blasting</b>	Surface preparation varies by substrate. Generally iron surfaces are to be grit blasted. The graphite from the cast iron must be removed from the blasting material. Mounding sand, rust and sharp edges are to be removed.	
	<b>3. Pre-heating</b>	This form of heating produces a uniform, defined temperature in the component. Any oxidation should be avoided.	
	<b>4. Coating application</b>	The coating is applied manually or automatically, in the shortest possible time – ideally within the gel time of the powder.	
	<b>5. Curing time</b>	Achieved by the heat contained in the object, if the heating capacity of the work piece is sufficient.	

	Typical value	Method	
<b>Material Properties</b>	<b>Color</b>	green	
	<b>Recommended film thickness</b>	12 – 16 mils (300 – 400 µm)	
	<b>Abrasion resistance</b>	0.04 g loss	ASTM D 4060 CS17 1000 g weight / 5000 cycles
	<b>Cathodic disbondment resistance</b>	3 mm average 9 mm average	4 d, 3 V, 3 % NaCl, 160 °F (71 °C) 30 d, 5 V, 5 % NaCl, sand crock, 230 °F (110 °C)
	<b>Cathodic disbondment resistance</b>	5 mm average 6 mm average	CSA Z245.20-06 28 d, 1.5 V, 3 % NaCl 73 °F (23 °C) 149 °F (65 °C)
	<b>Gloss at 60° angle</b>	40 – 70 units 464 °F (240 °C) application temp.	DIN 67530
	<b>Hot water resistance</b>	rating 2 good adhesion, no blistering	CSA Z245.20-06 28 d, 167 °F (75 °C) 120 d, 160 °F (71 °C)
	<b>Impact resistance</b>	18 Joule	Gardener, 5/8 in. diameter tup, 0.125 in. panel
	<b>Flexibility</b>	Bend 2.5°, 73 °F (23 °C) Bend 5.0°, 73 °F (23 °C) Bend 6.0°, 73 °F (23 °C) Bend 2.2°, -22 °F (-30 °C) Bend 3.0°, -22 °F (-30 °C)	12 – 16 mils (300 – 400 µm) film thickness 10 mm steel thickness, unprimed 10 mm steel thickness, unprimed 10 mm steel thickness, unprimed 6 mm steel thickness, unprimed 6 mm steel thickness, unprimed
	<b>Breakdown voltage</b>	> 40 kV/mm	DIN 30677-2
	<b>Adhesion</b>	> 3046 psi (21 MPa) glue failure	
	<b>Flow</b>	smooth	
	<b>Hardness</b>	46 58	ASTM D 2583 Barcol Rockwell H
	<b>Tensile strength</b>	572 kg/cm <sup>2</sup> (8800 psi)	ASTM D 2370
	<b>Adhesive strength</b>	366 kg/cm <sup>2</sup> (5000 psi)	ASTM D 1002
	<b>Compression strength</b>	1600 kg/cm (22200 psi)	ASTM D 695
<b>Penetration resistance</b>	< 0.01 mm	ASTM G 17 7 d, 74 °F (23 °C)	

**Handling,  
Storing and  
Storing  
precautions**

Store the powder in a cool and dry place at ambient temperature (80 °F / 27 °C). Storage in a cool warehouse prolongs the storage stability of the powder. Store away from heat. Prevent contact with moisture. Moisture will impact product performance. Keep container closed, when not in use.  
Read all health and safety information given in the Material Safety Data Sheet and on product label.

---

**Drinking Water Approvals**

US: ANSI/NSF 61 Drinking Water System Components – Health Effects, NSF  
UK: BS 6920, Approval No. 1112500, WRAS

---

**Date of issue:**

[October 24, 2016](#)

**Authorized by:**

**GK**

**Revision no.:**

**9**

---

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.

## Resistance against chemical substances of Resicoat® R4 at room temperature

Acetic acid	10 %	2 years	no change
Ammonia	10 %	2 years	no change
Ammonia	36 %	1.5 years	no change
Antifrogen L	50 %	1 year	no change
Antifrogen N	50 %	1 year	no change
Benzol		1 month	no change
Bore oil		1 year	no change
Butanol		6 months	no change
Carbon tetra chloride		1 year	no change
Caustic soda solution	10 %	2 years	no change
Caustic soda solution	50 %	2 years	no change
Chlorine cleanser and disinfectant		1.5 years	no change
Citric acid		2 years	no change
Deicer Safeway KF HOT		1 year	no change
Deicer Safeway SF (solid)		1 year	no change
Deicer Safewing MP II 1951		1 year	no change
Dichromatic potassium	10 %	1 year	no change
Diesel		2 years	no change
Engine oil SAE 20		1 year	no change
Ethanol		1 year	no change
Ethyleneglycole		1 year	no change
Formaldehyde	37 %	6 months	no change
Formic acid	5 %	2 years	no change
Formic acid	10 %	1.5 years	no change
Glycerol		1 year	no change
Glysantin		1 year	no change
Hydrochloric acid	concentrated	1 week	no change
Hydrochloric acid	10 %	2 years	no change
Hydrochloric acid	25 %	1.5 years	no change
Hydrofluoric acid	1 %	1 day	no change
Hydrogen peroxide	3 %	1 year	no change
Hydrogen peroxide	10 %	1 year	faded

Lactic acid	10 %	1 week	no change
Methanol		1 week	no change
Methyl tert-butyl ether (MTBE)	100%	6 months	softening
Nitric acid	10 %	1.5 years	no change
Nitric acid	25 %	1 year	no change
Oxalic acid	5 %	6 months	no change
Palm oil	at 90° C	7 days	no change
Petrol		2 years	no change
Petroleum		1 year	no change
Phosphoric acid	10 %	2 years	no change
Phosphoric acid	50 %	2 years	no change
Potassium hydroxide	10 %	1 year	no change
Potassium hydroxide	25 %	1 year	no change
Potassium hydroxide	50 %	1 year	no change
Propanol		1 year	no change
Sea water		2 years	no change
Sodium acetate	10 %	1 year	no change
Sodium carbonate	20 %	1 year	no change
Sodium hypochlorite (15 % Cl <sub>2</sub> )		10 weeks	no change
Sodium chloride	2 %	1 year	no change
Sodium chloride	20 %	1 year	no change
Sodium formiate	10 %	1 year	no change
Suds	1 %	1 year	no change
Sulphuric acid	2 %	2 years	no change
Sulphuric acid	20 %	2 years	no change
Sulphuric acid	50 %	2 years	no change
Tartaric acid	5 %	1 year	no change
Toluol		1 year	no change
Turpentine oil		1 year	no change
Urea	10 %	1 year	no change
Urine		1 year	no change
Xylol		1 year	no change

Our printed literature and technical information Sheets as well as our advisory services are offered to facilitate and support decision-making processes. All specifications provided reflect the state of our knowledge at the time of print. Any technical data and measured values supplied have been tested for compliance with current applicable standards, if available. The information provided is not legally binding upon the party supplying such information.