

CORROGLASS

HN1

Product reference: 1/20

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Product title: HN1

Valid from: 15th April 1998

Last reviewed: October 2017

Type

A medium viscosity, high reactivity, hybrid polyester system enhanced with flake structure and formulated especially for applications where maximum heat resistance is required. Cured by organic peroxide addition.

Suggested use

High temperature immersion conditions with pH lower than 12, HN1 can be used on its own or as a primer for the heavier build HN2.

HN series materials are suitable for process vessels, pipework, pumps and valves handling a wide range of chemicals at immersion temperatures up to 140°C. Used as a lining to give high temperature resistance to GRP pipework and fabrications.

Limitations

Not suitable for highly alkaline solutions or polar solvents. Flexural properties and cure may be impaired at low temperatures and may therefore not be suitable for certain environments.

Health & safety

Before handling or using this product the material safety data sheet should be read and all precautions observed.

Surface preparation

The surface to be coated should be free from grease and other contaminants. Particular care should be taken to ensure good radii are formed on all protrusions and edges to prevent coating stress cracking at high temperature. Metal should be grit blasted to a minimum Swedish Standard SIS 05 5900 Sa 3 with a grit profile of at least 75 microns. All glass residues should be removed by vacuuming. Coating of the substrate should then take place as soon as possible. For

full Surface Preparation details see the relevant Specification Sheets for Surface Preparation.

Application equipment

Brush, Trowel or Special Spray.

Application

Corroglass HN1 must only be applied to a correctly prepared substrate. Particular care should be taken to ensure that all blast residues are removed and that no deterioration from the SA3 standard has occurred before application. Apply in films of between 250-500 microns building in multiple layers to the specified DFT for the environment. HN1 should not be used in films with total DFT of less than 1000 microns on metal substrates. This grade should be used in a single coat of not less than 150 microns DFT as the primer for HN2. Where it is necessary to use dye for coverage distinction, this should only be used in intermediate layers - **NOT** in contact with the medium or the substrate. Dye should be used sparingly to avoid degradation of the coating performance.

Mixing ratio

100:2 parts base to catalyst by weight.

Mixing

Weigh out only the proportion of material which can be used within the pot life and place into a suitable mixing container. Measure the correct proportion of catalyst for the amount of base and carefully add this to the base using a suitable clean implement. Mix thoroughly then add dye where necessary

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and mix to an even colour. It is of paramount importance that the product is thoroughly mixed before application preferably by transferring to a second container and remixing.

Pot life

Approximately 40 minutes at 200C. Pot life will be shorter at higher temperatures and longer at lower temperatures. Where high temperatures are encountered, refrigerate material before use or seek the advice of Corrocoat UK for availability of inhibitor or material with longer pot life.

Thinners

DO NOT THIN. The addition of Styrene may substantially affect the performance of this product. **No other diluent or thinner should be used. The use of acetone or similar thinners in Corroglass will severely affect product performance.**

Packaging

20 Litre composites.

Storage life

Product: 12 months stored at temperatures below 20°C and away from radiating heat sources or direct sunlight (see Shelf Life Information sheet).

Catalyst: 3 months under conditions as above.

Colour availability

Unpigmented (translucent brown) or pigmented white. Dyes can be used to effect colour change where temperature and chemical resistance are not of paramount importance.

Recommended DFT

1.0 to 3.0mm in multiple coats.

Theoretical spreading rate

1.25 kg per square metre at 1mm thickness.

Volume solids

99.85% solvent free.

Practical spreading rate

Regular surfaces, e.g. new steel - 1.8kg/m² at 1mm thickness minimum.

Irregular surfaces, e.g. badly pitted steel - 2.8 kg/m² at 1mm.

Note: This information is given in good faith but may increase dependent upon environment conditions, the geometry and nature of work undertaken and the skill and care of application. Corrocoat accept no responsibility for any deviation from these values.

Specific gravity

1.33 gms/cc.

Flash point

35°C.

Catalyst type

Special peroxide blend Corrocoat Type P5. Note, the shelf life of this catalyst is strictly limited to 3 months.

Mixing ratio

100:2 base to hardener.

Hardness

45 Barcol (approximate).

Tensile strength

22.3 N/mm² (3237 psi).

Cohesive strength

8.7 N/mm² minimum (1261 psi).

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Abrasion resistance

Reduces gradually at temperatures in excess of 140°C but still remains good up to 160°C.

Elongation

0.06% at 20°C.

Thermal coefficient of linear expansion

$11.2 \times 10^{-6}/^{\circ}\text{C}$.

Moisture vapour transmission rate

0.939×10^{-2} gms/hr/m² (0.0016 perm inches).

Thermal conductivity

0.268 W/m²K.

Dielectric strength

Approximately 18 kV at 1mm film. Arc resistance 60 seconds minimum.

Volume resistivity

7×10^{16} ohms/cm.

Temperature limits

140°C Immersed.
180°C Non-immersed.

Heat distortion temperature

ASTM D 648-56 177°C.

Overcoating

May take place as soon as previous coat has gelled sufficiently to resist movement of next application and whilst still tacky. Maximum overcoating without treatment 3 days. Shorter at ambient temperatures above 30°C.

Cleaning fluid

Acetone or Methyl Ethyl Ketone before gel.
Trichloroethane after gel.

Cure time

At 20°C gel will occur within 6 hours and 95% cure will be attained within 96 hours. Full cure can only be achieved by post cure heat treatment, for many service environments this is essential.

It is important that post cure is not undertaken less than 96 hours after application of the final coat. Post cure with dry heat at temperatures between 60°C and 70°C for a period of between 4 & 8 hours. Final cure is only achieved by extended time at a temperature in excess of 105°C.

Provided the vessels are entered into service within one month of application and the service temperature is above this value, it is generally acceptable to use an elevated service temperature to complete the cure cycle. Failing this, it may be necessary to use a dry heat post cure at or above 105°C for a period in excess of 20 hours.

During any post cure schedule temperatures should be raised and lowered gradually and the coatings should not be thermally shocked. Refer to Corrocoat Technical Services for further information.

After full post cure has been achieved, the coating will withstand full temperature conditions and rapid temperature changes. It should be noted that HN is not suitable for low temperature service due to the coating becoming embrittled at low temperatures. We therefore do not generally recommend this product for service temperatures below 10°C.

Reviewed 10/2001 (No changes)
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