



### Product Information Sheet

March 2014

## NOVOLAC EPOXY

#### Description

Novolac epoxy is high performance epoxy-based acid resistant material designed to provide the maximum resistance to aggressive chemical environments. It is typically provided in two-component format comprising, an epoxy solution and an epoxy-based hardener, with the option of an inert filler powder with varying granulometry to suit required thickness and application.

#### Typical Uses

Novolac epoxy is one of the most corrosion resistant materials on the market. It is an extremely flexible material that can be installed as a coating, membrane, mortar, screed or concrete, depending on the coarseness of the powder component. This versatility allows for its installation in a number of applications such as; general tiling / masonry work, trenches, pits, floors, walls, plinths, tanks and storage areas.

ACCS typically provides Novolac epoxy materials in the following classifications:

	Typical Use	Installed Thickness	Filler (Particle Size)
<b>NE50</b>	Paint/Coating	0.5-1mm	-
<b>NE55</b>	Coating/Membrane	1-2mm	≤0.2mm
<b>NE60</b>	Mortar/Screed	1-10mm	≤0.7mm
<b>NE70</b>	Heavy Screed	6-30mm	≤3.0mm
<b>NE80</b>	Concrete	20-100mm	≤5.0mm
<b>NEGF30</b>	Vertical Coating	1-5mm	≤0.2mm

#### Advantages

Novolac epoxy provides resistance to the majority of concentrated oxidising acids, such as sulphuric acid to 98%, hydrochloric acid to 36% and phosphoric acid to 85%. It is also resistant to hydrofluoric acid (with carbon-based filler, contact ACCS Ltd for further details) and a large number of concentrated alkalis and salts. By simply adding various filler materials to alter the characteristics of the two-component epoxy solution, means that the Novolac epoxies are exceptionally versatile and can be adjusted, depending on the circumstances and project needs.

#### Chemical Resistance

Full details are available on ACCS website: [www.protectivelinings.co.uk](http://www.protectivelinings.co.uk).

Provides the maximum resistance to even the most aggressive chemical environments, including Hydrofluoric acid.

#### Surface Preparation

For all pre-existing surfaces of metal or concrete, abrasive blast or scarify to remove all laitance and surface contaminant. A primer base should be applied before application to ensure sufficient key. The surface should be dust-free and dry and the ambient temperature should be above the dew point of air. Prepare the substrate with either PE120 membrane (metal) or AC90 primer (concrete) to ensure an adequate bond with the Novolac epoxy material. For new-build concrete constructions, a damp tolerant primer AC95 is recommended and can be applied within 48 hours of concrete set, potentially expediting any construction schedule. It is recommended, to ensure a sufficient key between the primer and the Novolac epoxy, that a light scatter of inert material (typically sand) is applied to the primer to provide a non-sheen finish. Novolac epoxy can then be applied once priming has been completed.

For coatings and membranes on vertical surfaces, it is recommended to apply the coating of Novolac Epoxy whilst the primer layer is still slightly tacky (ie usually within 2 hours of primer application). This will allow a bond to form between the primer and the top coat layer improving adhesion and reducing run or pooling of the top coat.

When casting thicker slabs of Novolac epoxy, formers should be constructed of firmly braced wood or metal, which has been given a light coating of release agent. The release agent will prevent Novolac epoxy from adhering to the screeds or formers, but should not leave a residue on the freshly cast material. The formers are to be completely sealed and rendered watertight with heavy consistency pliable caulking. Seal formers placed over horizontal rough surfaces. Do not apply over any standing water. In severely aggressive environments, corrosion resistant reinforcement must be used in place of formers. Do not impose loads until final set has been achieved. Lower temperatures will require longer cure periods.

#### Application

Novolac epoxy typically comprises an epoxy solution and an epoxy-based hardener. Prior to application, the epoxy components must be mixed thoroughly before



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addition of any filler powder. Ensure that both the epoxy solution and hardener components are at approximately 20°C before mixing to ensure a workable viscosity. Values are an intended guide.

Mixing Ratio	2.5 parts Solution to 1 part Hardener
By weight	~25kg Solution to 10kg Hardener
By volume	~2.25L Solution to 1L Hardener

For coatings and mortars, (NE50, NE55, NE60 and NEGF30), the epoxy solution and hardener can be mixed by using a paddle mixer. Place epoxy solution in the mixing vessel first and then add the hardener. Mix thoroughly for at least 3 minutes. Where a filler powder is required, add slowly whilst mixing to the quantities stated in the table below and mix for an additional 3 minutes.

For coatings, apply by paint brush, roller or float/trowel depending on thickness/application desired. Apply until a smooth coating has been established without allowing the materials to form into pools or flood the area. Leave to cure, and if necessary apply second coat 12-16 hours but not later than 48 hours after the first, to even off the finish and give an attractive gloss. Where a secondary coat is required, the application of a fine quartz scatter before full cure is recommended to provide a key for subsequent layers. Where necessary, enhanced strength and durability of NE50 and NE55 coatings can be achieved through the addition of a fine weave glass matting material. Please contact ACCS Ltd for more information.

For mortars, application should be made with either float or trowel to all jointing surfaces to ensure a complete chemical barrier. For all trowel/float applications, regular brushing of tools with solvents ensures a smooth (non-drag) finish. However, do not apply too much solvent or this will lead to blistering of the epoxy finish.

For screed/concrete products such as NE60, NE70 and NE80, place the epoxy solution and hardener components into an inclined forced action mixer and mix for 3 minutes. Then slowly add the appropriate filler powder to the quantities stated in the table below and mix for an additional 5 minutes. Once fully mixed, the screed/concrete can be poured out into place, where tamping methods or pencil vibration are suitable for distributing the material. Use a trowel, float or screed board to level the product flush with the top of the former. Apply until a smooth surface has been established without allowing the materials to form into pools or flood the area. Acid resistant expansion joints of PE120N, with a nominal width of 10-15mm are

recommended at intervals of 4m in screed/concrete slabs.

All tools and equipment should be cleaned off with solvents and damp cloths to ensure their continued use.

To provide anti-slip facilities to the coating / screed / concrete, it is recommended that the mixed product is allowed to cure for 1 hour before application of an anti-slip scatter material. Please contact ACCS Ltd for further information.

If pigmentation is required, please contact ACCS Ltd for more information. Colours are available in white, grey, black, green, blue, red and yellow.

	Mixing ratio of Mixed Novolac to Filler Powder
<b>NE50</b>	None required
<b>NE55</b>	~25kg Mixed Novolac to 25kg NE55 Powder ~1L Mixed Novolac to 1L NE55 Powder
<b>NE60</b>	~8.5kg Mixed Novolac to 25kg NE60 Powder ~1L Mixed Novolac to 3L NE60 Powder
<b>NE70</b>	~6.25kg Mixed Novolac to 25kg NE70 Powder ~1L Mixed Novolac to 4-5L NE70 Powder
<b>NE80</b>	~6.25kg Mixed Novolac to 25kg NE80 Powder ~1L Mixed Novolac to 4-5L NE80 Powder
<b>NEGF30</b>	~25kg Mixed Novolac to 12.5kg NEGF30 Powder ~1L Mixed Novolac to 0.5L NEGF30 Powder

### Pot-Life of mixed Novolac epoxy

- at 20°C – 60mins
- at 30°C – 30mins
- at 40°C – 15mins

An initial set occurs approximately 4hours after mixing, light foot traffic permissible after 12hours and with a full chemical cure occurring after 5-7days. Novolac epoxy materials should never be exposed to water, steam or chemical environments before a full chemical cure is completed.

**Note: Do not mix more material than required by pot-life. It cannot be reconstituted. Never add unapproved materials to the mix, in particular water. After mixing spread out on to the surface to avoid self – generated heat. Large mixed volumes that are not thinned will flash set, becoming extremely hot and producing smoke.**



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### Coverage

Typical coverage rates on a relatively smooth concrete surface for a Novolac epoxy materials:

	Typical Use	Thickness	Coverage
<b>NE50</b>	Paint/Coating	0.5-1mm	1 kg/m <sup>2</sup>
<b>NE55</b>	Coating/ Membrane	1mm	1 kg/m <sup>2</sup>
		2mm	2 kg/m <sup>2</sup>
<b>NE60</b>	Mortar/Screed	2mm	2 kg/m <sup>2</sup>
		5mm	5 kg/m <sup>2</sup>
<b>NE70</b>	Heavy Screed	6mm	10 kg/m <sup>2</sup>
		12mm	20 kg/m <sup>2</sup>
		25mm	40 kg/m <sup>2</sup>
<b>NE80</b>	Concrete	12mm	20 kg/m <sup>2</sup>
		25mm	40 kg/m <sup>2</sup>
		50mm	60 kg/m <sup>2</sup>
<b>NEGF30</b>	Vertical Coating	2mm	1.5 kg/m <sup>2</sup>

For fully bedded and jointed (4mm) NE60 mortared bricks of dimensions:

Brick/Tile	Powder	Solution	Unit
230x114x75mm (Wall – 114mm)	17	5	Kg/m <sup>2</sup>
230x114x65mm (Wall – 114mm)	19	5.5	Kg/m <sup>2</sup>
230x114x50mm (Floor – 50mm)	9	2.5	Kg/m <sup>2</sup>
230x114x38mm (Floor – 38mm)	7	2	Kg/m <sup>2</sup>
230x114x20mm (Floor – 20mm)	5.5	1.5	Kg/m <sup>2</sup>

Values are approximate requirements.

### Standard Packing

Solution – 25kg in 25L UN drums (24 per pallet)  
 Hardener – 25kg in 25L UN drums (24 per pallet)  
 Powder – 25kg lined polyweave bags (40 per pallet)

### Storage

Store in a cool, dry, frost-free place. Normal storage conditions in up to 25°C should provide shelf life of:  
 Solution – 12 months  
 Hardener – 12 months

Do not store a combined stack of Solution and Hardener components. Accidental leakage could lead to flash setting of material, producing smoke. Storage at, or exposure to, high temperatures may initiate a setting reaction. Prior to mixing, ensure epoxy solution and hardener components are heated to approximately 20°C to ensure sufficient viscosity for mixing.

### Safety

Safety data information available on request. Adequate ventilation must be provided whilst work is in progress and is compulsory for closed or indoor applications. The instructions on storage, fire and explosion are to be observed. No releases to the sewers or drains are to be permitted under any circumstances. Always refer to MSDS data sheets for hazard and transport information.

Ventilation is required with special consideration for enclosed or confined areas. Air movement must be designed to ensure turnover at all locations in work area and adjacent areas to avoid build-up of heavy vapours.

### Warranty

We warrant that our products will conform to the description contained in the order and that we have good title in all goods sold. WE PROVIDE NO WARRANTY, WHETHER OF MERCHANTABILITY, FITNESS FOR PURPOSE, OR OTHERWISE, EXPRESS OR IMPLIED, OTHER THAN AS EXPRESSED SET FORTH HEREIN. We are glad to offer suggestions or to refer you to customers using ACCS Ltd cements and compounds for similar applications. Users shall determine the suitability of the product for intended application before using, and users assume all risk and liability whatsoever in connection therewith regardless of any suggestions as to application or construction. In no event shall we be liable hereunder or otherwise for incidental or consequential damages. Our liability and your exclusive remedy hereunder or otherwise, in law or in equity, shall be expressly limited to our replacement of non-conforming goods at our factory or, at our sole option, to repayment of the purchase price of non-conforming goods.



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### Technical Data

Parameter	Test Method	Unit	Value
Density		kg/m <sup>3</sup>	1180
Specific Volume		m <sup>3</sup> /tonne	0.84
Tensile Strength		N/mm <sup>2</sup>	11.5
Compressive Strength		N/mm <sup>2</sup>	80
Flexural Strength		N/mm <sup>2</sup>	80
Bond strength (wire cut bricks)		N/mm <sup>2</sup>	4.2
Coefficient of expansion		10 <sup>-6</sup> °C	16.0
Water absorption		%	0.25
Maximum Operating Temperature		°C	105
Coverage – mixed primer		m <sup>2</sup> /kg	2

### Disclaimer

The technical data contained in this document represents the current state of our product knowledge and is for information purposes only. It does not constitute a guarantee or specification.