

## Protective Coatings



*PERFORMANCE IN COATINGS*



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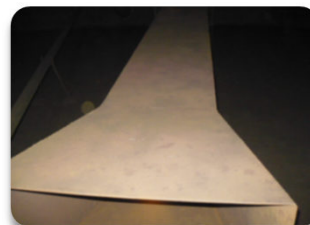
## GlobalDur GN101 Series - The Advanced ECO Technology Epoxy Steel Primer

The **GlobalDur GN101 series** is an ECO technology engineered coating hailed by marine and industry leaders as a major breakthrough. The market has chosen the **GlobalDur GN101 series** as the best primers for hydroblasted surfaces. It is a solvent free (100% solids), two-pack modified epoxy coating with excellent anticorrosive properties that can be applied on wet steel surfaces **without dew point restrictions**, flash rust "**Grade M**", with low temperatures curing properties (-10°C). In fact we believe that the **GlobalDur GN101 series** is not only the best solution as primer coat after hydroblasting, but also an excellent tolerant solution for maintenance on marine and industrial infrastructures, using mechanical preparation tools (St2 / St3) followed by water jet cleaning as surface preparation, achieving the best lowest surface contaminations.

**GlobalDur GN101 series**, does not require anchor profile over carbon steel substrates.

### Globaldur GN101EK

- High temperatures / High humidities.
- 3 hours pot-life.
- Tolerante and No Dew Point Restrictions.



### Globaldur GN101EP

- Cures at low temperatures (-10°C) under continuous condensation.
- Tolerant and No Dew Point Restrictions.
- Higher DFT on one coat (between 250-500 microns per coat).
- Higher performances due to its inhibitor technology.
- 1 hour pot-life.



### Globaldur GN101LC

- 90 minutes pot-life.
- Tolerant and No Dew Point Restrictions.
- Higher performances due to its passivation technology.
- Edge retention



**Surface preparation grade** depends on intended service, type of application and required service life.

For further details, report to "**Application Instructions Issues or Globanavy's Technical Department**"

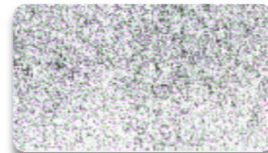
## Repair, Maintenance & Conversion

- Follow the Surface Preparation Methods and Standards described below. All surfaces must be properly cleaned, by High Pressure washing or Wet blast prior to surface preparation, unless UHP hydroblasting is used. HP fresh water cleaning may be required after surface preparation to control non visible contaminations or to remove visible particles.



### Grit Blasting

Sa 2 1/2  
ISO 8501-1



## New Building

- **New steel pre-treatment** - Mill scale in new steel plates must be abrasive blasted to Sa 2 ½ standard (ISO 8501-1:1988). Surface profile requirements: 30 - 75 microns.



### Wet Abrasive Blasting

WAB 6 / WAB  
SSPC Vis 5



- **Shop priming** - GlobalDur 131SP shop primer is the recommended product for temporary protection of blasted new steel plates. Inorganic low-zinc silicate shop primers may also be accepted in a case-to-case basis, subjected to Globanavy's formal approval.



### U.H. Pressure Hydroblasting

WJ 3 / W J2  
SSPC-SP 12  
NACE N5-7



- **Secondary Surface preparation** - Damaged areas, burn marks, welds and corroded areas where the shop primer is not in sound condition shall be blasted to bare metal as described below. All intact GN131SP or other approved shop primers can be retained. Intact shop primer to be High Pressure washed with fresh water prior to be recoated with GlobalDur 101 series first coat. For immersed areas non-approved intact shop primers shall be Sa 2 removed to at least 70% of the total area.



### Mechanical Cleaning

St 2 / St 3  
ISO 8501-1

## Welds, Edges and Other Areas With Surface Imperfections

Must be treated accordingly to ISO 8501-3: 2006.

### Surface Cleanliness

The salt level measurements are performed according to ISO 8502-6: 1995 (Bresle Method) as extraction method.

### Repair, Maintenance & Conversion

- **Water Soluble Salt:** NV-2 grade as per SSPC SP12 standard. A NV-2 surface shall have less than 7 µg/cm<sup>2</sup> of chloride contaminants. Use ISO 8502-5:1998 (ion detection tube method) for chloride measurement.  
**(Limits)**
- **Visual Contaminants:** The surface must be free of dust, grease and other visible contaminants.
- **Flash Rust:** Using UHP hydroblasting, WAB blasting or Grit blasting followed by HP washing the maximum allowable flash rust level is WJ2M (SSPC VIS4) for UHP or WAB 10M (SSPC VIS5) for WAB or GB.

### New building Immersed areas

- **Water Soluble Salt:** < 50 mg/m<sup>2</sup> (conductivity measured in accordance with ISO 8502-9:1998, expressed in NaCl equivalents, total salts).  
**(Limits)**
- **Dust Quantity:** Rating "1" for dust size class "3", "4" or "5" ISO 8502-3:1992. Lower dust size classes to be removed if visible on the surface to be coated without magnification.
- **Grease:** The surface must be free of grease and other visible contaminants.
- **Atmospheric Exposure** Water soluble salt limit, < 50 mg/m<sup>2</sup> chloride ion (conductivity measured in accordance with ISO 8502-5:1998, ion detection tube method).  
**Repair, Maintenance & Conversion**

### Application Methods

- **Airless Pump:** This set up is normally possible with 45:1 pumps in warm environments. In case of moderate to cold paint temperatures a higher pump compression ratio (60:1 or 80:1) may be recommendable.
- **Roller & Brush:** Roller and brush are to be used for SMALL AREAS. A single coat by roller or brush may not reach the specified film thickness.
- **Mixing & thinning:** Stir BASE, for no longer than 2 minutes. After obtaining a uniform base, add slowly the CURING AGENT under continuous stirring for 3 minutes.
- **Stripe coats:** Stripe coats shall be applied by BRUSH at welded areas, irregular surfaces, sharp edges and cavities.

## GlobalDur GN114EP - The Advanced ECO Technology Epoxy "Green" Concrete.

The **Globaldur GN114EP** is an ECO technology engineered epoxy resin designed for "**Green concrete**" been a breakthrough on the market. The **Globalnavy GN114EP** is an excellent primer for wet concrete surfaces accordingly with surface preparation standards NACE N°6/SSPC-SP13. It is a solvent free (100% solids) two-pack modified epoxy primer with excellent wet ability properties, that can be applied without Dew Point restrictions. In fact we believe that **Globaldur GN114EP** is not only the best solution as primer coat for wet concrete, but also an excellent solution for maintenance on industrial concrete infrastructures, using water jet cleaning as surface preparation.

### Globaldur GN114EP

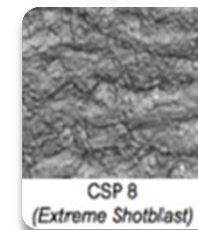
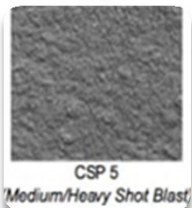
- Solvent free epoxy (100% solids)
- Excellent adhesion on wet concrete
- No harmless solvent.
- No Dew Point restrictions.
- High mechanical properties.



## Industry guidelines for creating surface profiles

The International Concrete Repair Institute (ICRI) has created a technical guideline # 03732, "**Selecting and specifying concrete surface preparation for sealers, coatings and polymer overlays**".

- For coating applications from 4-5 mils in thickness, the surface profile shall be a CSP 3. This is known as a light shotblast.
- For coating applications from 15-50 mils in thickness, the surface profile shall be a CSP 4 or 5. This is known as a medium shotblast.
- For coating applications from 40 mils to 1/8" in thickness, the surface profile shall be a CSP 5 or 6. This is known as a medium-heavy shotblast.
- For topping applications from 1/4" to 1/2" the surface profile shall be a CSP 6 or 7. This is known as a heavy shotblast.
- For concrete overlays greater than 1/2" the surface profile shall be a CSP 8 or 9. This is known as an extreme shotblast.



International Concrete Repair Institute (ICRI) Concrete Surface Profile (CSP)

## Industry guidelines for creating surface profiles (cont.)

CSP Profile	Profile Depth		Coating Recommended	Preparation Method
	5 mils / 125 microns			
CSP 1	27	690	Sealers	LP Water detergent
<b>CSP 2</b>	<b>32</b>	<b>800</b>	<b>Thin film</b>	<b>Light grinding</b>
<b>CSP 3</b>	<b>38</b>	<b>965</b>	<b>Thin film</b>	<b>Grinding, Shot blasting</b>
<b>CSP 4</b>	<b>50</b>	<b>1270</b>	<b>High Build</b>	<b>Aggressive Grind, Shot blasting</b>
<b>CSP 5</b>	<b>66</b>	<b>1680</b>	<b>High Build/Self Levellers</b>	<b>Aggressive Grind, Shot blasting</b>
<b>CSP 6</b>	<b>124</b>	<b>3150</b>	<b>Self Levellers / Polymer Overlays</b>	<b>Shot blasting, Scarifying</b>
CSP 7	175	4445	Polymer Overlays	Shot blasting, Scarifying
CSP 9	214	5435		Scrabbling
<i>Accordingly to Concrete Repair Institute (ICR) - Concrete Surface Profile (CSP) scale.</i>				
<b>Most Commonly Used Today</b>				

### Suggested Acceptance Criteria for Concrete Surface After Surface Preparation

Property	Test Method	Light Services <sup>(A)</sup>	Severe Service <sup>(B)</sup>
Surface tensile strength	See Adhesion Testing	1.4 Mpa (200 psi) min.	2.1 Mpa (300 psi) min.
Surface profile	Visual Comparison	Fine (150) abrasive paper min.	Coarse (60) abrasive paper min.
Surface cleanliness	Visual dust	No significant dust	No significant dust
Residual contaminants	Water drop	0° contact angle	0° contact angle
pH	ASTM D 4262	(pH of rinse water) - 1, + 2 <sup>(c)</sup>	(pH of rinse water) - 1, + 2 <sup>(c)</sup>
Moisture content <sup>(D)</sup>	ASTM D 4263	Not visible moisture	Not visible moisture
Moisture content <sup>(D)</sup>	ASTD F 1869	15 g / 24 hr/m <sup>2</sup> 3 lb / 24 hr/1,000 ft <sup>2</sup> max.	15 g / 24 hr/m <sup>2</sup> 3 lb / 24 hr/1,000 ft <sup>2</sup> max.
Moisture content <sup>(D)</sup>	ASTM F 2170	80% max.	80% max.
<i>Accordingly to NACE N° 6 / SSPC-SP 13</i>			

<sup>(A)</sup> refers to surfaces and coatings that have minimal exposure to traffic, chemicals and changes in temperatures.

<sup>(B)</sup> refers to surfaces and coatings that have significant exposure to traffic, chemical and/or changes in temperatures.

<sup>(C)</sup> readings following the final rinse shall not be more than 1.0 lower or 2.0 higher than pH of the rinse water (tested at the beginning and end of the final rinse cycle) unless otherwise specified.

<sup>(D)</sup> any one of these three moisture content test methods is acceptable.

## Types of Concrete Surface Preparation

**Dry Abrasive Blasting**



**Hydroblasting**



**Mechanical Cleaning**



**Milling Machine**



**Shot Blast Machine**

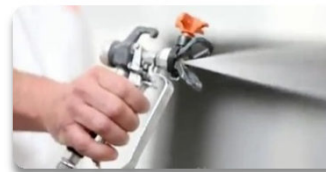


**Grinding Machine**



## The GLOBALNAVY'S Conventional Primers, Intermediates and Top Coats

<b>GlobalTemp GN002HT</b>	Designed to perform up to 340 °C. Good colour and gloss retention.
<b>GlobalTemp GN012HT</b>	Designed to perform up to 640 °C. Good colour and gloss retention.
<b>GlobalDur GN105EP</b>	Epoxy pimer with good wetting ability and impregnation properties
<b>GlobalDur GN106EP</b>	High build epoxy primer and intermediate. Excellent steel protection.
<b>GlobalDur GN107EF</b>	High build epoxy primer and intermediate. Excellent steel protection.
<b>GlobalDur GN109EM</b>	Solvent free epoxy mastic. Spatula applications.
<b>GlobalDur GN113EP</b>	High build MIO epoxy primer, intermediate or finish.
<b>GlobalDur GN114EZ</b>	Zinc rich epoxy primer for iron and steel protection.
<b>GlobalDur GN117EP</b>	HB. epoxy primer, intermediate or finish. Excellent chemical resistance.
<b>GlobalDur GN123EP</b>	Solvent free epoxy primer, intermediate and for mortar applications.
<b>GlobalDur GN124WP</b>	Zinc rich epoxy primer for iron, steel protection. Suitability to cutting and welding operations.
<b>GlobalDur GN131SP</b>	Epoxy shop primer. Excellent covering. Good welding performance.
<b>GlobalDur GN132CR</b>	Solvent free epoxy finish. Excellent chemical resistance.
<b>GlobalDur GN132EF</b>	Solvent free epoxy finish. Good chemical resistance.
<b>GlobalDur GN136SL</b>	Self levelling epoxy designed for concrete. Chemical and impact resistance.
<b>GlobalDur GN143TW</b>	Solvent free HB. ( $\leq 500 \mu\text{m}$ ), intermediate epoxy paint for potable water tanks.
<b>GlobalThane GN203PF</b>	Polyurethane polyester satin top coat. Abrasion and chemical resistance.
<b>GlobalThane GN204PF</b>	Polyurethane polyester high gloss top coat. Abrasion and chemical resistance.
<b>GlobalThane GN205PF</b>	Polyurethane polyester glossy top coat. Abrasion and chemical resistance.
<b>GlobalThane GN206PF</b>	Acrylic polyurethane high solids gloss top coat. Gloss and colour retention.
<b>GlobalThane GN207PV</b>	Polyurethane polyester high gloss varnish. Abrasion and chemical resistance.
<b>GlobalThane GN208PV</b>	Polyurethane polyester satin varnish. Abrasion and chemical resistance.
<b>GlobalThane GN210PV</b>	Polyurethane polyester mate varnish. Abrasion and chemical resistance.
<b>GlobalThane GN216PF</b>	Acrylic polyurethane HB. gloss top coat. Gloss and colour retention
<b>GlobalThane GN220US</b>	Solvent free Urethane. High elasticity with humidity/water, expanding stopping infiltrations.
<b>GlobalKyd GN300AW</b>	Alkyd water based finish with excellent gloss and colour retention.
<b>GlobalCryl GN400AV</b>	Acrylic high gloss varnish. Excellent weather resistance.
<b>GlobalCryl GN410AP</b>	Excellent acrylic finish resins. Fast drying. Excellent weather resistance.
<b>GlobalNyl GN500VP</b>	Single pack direct to metal (steel and galvanized) vinyl mate coating finish.
<b>GlobalNyl GN508VS</b>	Coal tar free technology. Excellent sealer.
<b>GlobalNyl GN525UE</b>	Underwater self polishing tin free antifouling
<b>GlobalNyl GN521AF</b>	Single pack self polishing antifouling
<b>GolbalEster GN600EV</b>	Solvent free epoxy vinyléster. Chemical resistance.
<b>GlobalSyl GNSZ01HB</b>	Zinc Ethyl Silicate anti corrosive high build primer.



## The Advanced Underwater Application Technology



<b>GlobalDur GN133UE</b>	Underwater solvent free epoxy primer for application on steel and concrete.
<b>GlobalDur GN134UE</b>	Underwater solvent free epoxy injection & mortar resin.
<b>GlobalDur GN136UA</b>	Underwater solvent free epoxy filler for steel & fibre.
<b>GlobalNyl GN525UA</b>	Underwater self polishing tin free antifouling



For a better UV protection,  
Globalnavy recommends the  
GlobalThane GN200 Series  
(coloured or colourless) top coat.



PERFORMANCE IN COATINGS



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