

## Epicon Grout S

### Epoxide Grout

#### Description

Epicon Grout S is based on solvent free epoxy resins. It is one of five epoxy grouts in our range which are specified below. These cover the majority of grouting and fixing applications encountered within civil engineering and the construction industry in general, where the mechanical properties must be of the highest order. Tropical versions of the epoxy grout range are available for large pours and warmer climates. Epicon Grout S is designed to comply with the requirements of EN1504 Part 5, due to its crack injecting/gap filling applications.

#### Epoxide Grout Range


- Epicon Grout RT:** A pourable grout for free flow gap grouting recommended for gaps over 25mm where low Exotherm is of consideration.
- Epicon Grout L:** A pourable grout for free flow gap grouting recommended for gaps 20mm to 100mm.
- Epicon Grout M:** A lightly filled pourable grout for free flow gap grouting recommended for gaps between 5-40mm.
- Epicon Grout S:** An unfilled grout for gap and crack widths between 0.25-6mm, also suitable for injection applications.
- Epicon Grout H:** A thixotropic grout for horizontal or inverted fixings.

#### Advantages

- Solvent free non-shrink system.
- Suitable for use on damp structures.
- Injection kit available to allow repairs to be completed quickly and simply.
- Will penetrate gaps of width 0.25mm to 6mm.
- Excellent performance in harsh environments.
- Good chemical and water resistance.

#### Technical Information

Viscosity	1450 cps
Specific Gravity	1.09
Workable Life	20-30 Minutes
Cure Time	24 Hours
Yield	0.910 Litre/kg

 0086	
Nufins, Kingston House, 3 Walton Road, Pattinson North, District 15, Washington, Tyne & Wear. NE38 8QA 13	
0086-CPD-594215 EN 1504-5 Concrete injection product U (F1) W (3) (1/2) (5/35) (0) Intended use Allowed minimum thickness of crack Moisture state of the crack Minimum and maximum use temperature Crack movement during cure	
Adhesive bond strength	>2 MPa
Slant shear strength	Monolithic failure
Glass transition temperature	>40°C
Workability; Crack width from Moisture state of the crack	0.3mm Dry and damp
Durability	Pass
Corrosive behaviour	Deemed to have no corrosive effect
Dangerous substances	Complies with 5.4



## Technical properties of Epicon Grout S.

Properties	Standard	Performance Requirement	Declared Value
Appearance			Amber Liquid
Working time	EN ISO 9514		30 Minutes @ 20°C 55 Minutes @ 10°C 60 Minutes @ 5°C
Cure Time			24 Hours
Temperature for application			5°C to 35°C
Viscosity	EN ISO 3219		1450 cps @ 20°C
Injectability into dry medium; Percentage of the crack filled Splitting strength	EN1771	<4 minutes >90% >7 MPa	<4 minutes >90% >7 MPa
Injectability into non dry medium; Percentage of the crack filled Splitting strength	EN1771	<4 minutes >90% >7 MPa	<4 minutes >90% >7 MPa
Glass Transition Temperature	EN12614	≥ 40°C	≥ 40°C
Compressive Strength	EN12190	≥ 30 MPa	90 MPa
Tensile strength development	EN1543	>3MPa @ 72Hr	>3MPa @ 72Hr
Compressive Elastic Modulus			>2000MPa
Tensile Strength	BS6319-7		19 MPa
Flexural Strength	BS6319-3		35 MPa
Tensile Bond Strength to Concrete	EN12618-2	Substrate Failure	>2MPa Substrate Failure
Adhesion to Concrete	EN 1542	≥ 2.0 MPa	>3.0 MPa
Slant Shear Adhesion - Concrete	EN12615	Substrate Monolithic Failure	Substrate Monolithic Failure
Adhesion after thermal and wet/dry cycling	EN12618-2	< 30% reduction in strength	< 30% reduction in strength

Technical data shown are statistical results and do not correspond to guaranteed minima.

Tolerances are those described in appropriate performance standards.

1 N/mm<sup>2</sup> = 1MPa

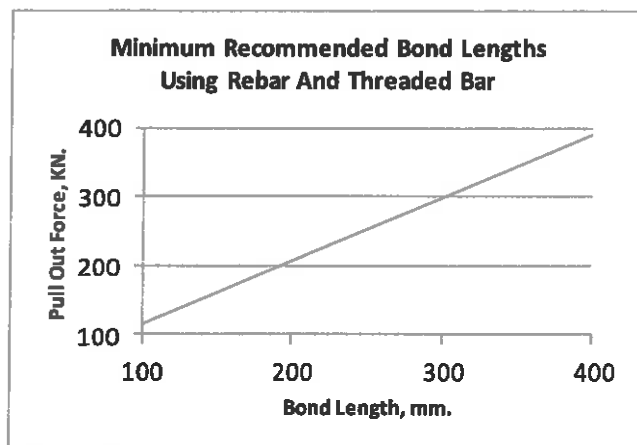
1 kN/mm<sup>2</sup> = 1 GPa



## Bond Strength Development

The bond strength of Epicon Grout S is dependent upon several factors, the main of which are:

- Strength of surrounding material.
- Method of drilling hole.
- Type of fixing.
- Resin bond length, see below.



## Surface Preparation

All surfaces should be free from chemical contamination, oil, grease and debris. Oil and grease can be removed by using *Desolve*. Concrete should be scarified or acid etched using *Chemclean* to remove any laitance. Steel surfaces should be grit blasted to remove rust and scale. All surfaces should be free from standing water.

## Mixing

The entire contents of the hardener tin should be poured into the base tin and slowly stirred using a pallet knife until the material is thoroughly mixed.

## Application Instructions

Epicon Grout S is typically poured into horizontal cracks/gaps, however it can also be used to grout in machinery, bolts etc. When grouting under machinery the grout should be poured from one side only via a feed hopper. Care must always be taken to avoid air locking. The fixings should then be left undisturbed until the material has cured. All equipment should be cleaned using Nuwash immediately after use.

## Storage

Epicon Grout S should be stored at room temperature. If stored in cold conditions the components should be warmed prior to use as this will greatly aid mixing and injection. Epicon Grout S should be stored away from foodstuffs and out of reach of children.

## Packaging

Epicon Grout S is available in 1.0kg and 5kg units, yielding 0.91 litres and 4.6 litres respectively.

## Health and Safety

Product Safety Data Sheets (SDS) are available from Nufins. SDS sheets are provided to help customers satisfy their safe handling, use and disposal needs as well as assist with any conformance requirements made locally by health and safety regulations.

SDS are continually updated to provide the latest information to our customers. We therefore recommend contacting our head office to obtain the most recent and accurate SDS before handling and using any product.

## Limitations

If injecting below 5°C contact Nufins technical department. As with all Epoxy products an exotherm will be generated, which is volume dependent.

## Technical Support

Through our technical department and laboratories we can offer a comprehensive service to specifiers and contractors. Technical contacts are available to provide additional information and arrange demonstrations.





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according to 1907/2006/EC**

Ref: HDS/E32

Issue No: 10

Date of Issue: 2<sup>nd</sup> October, 2012

**1. Product and Company Identification**

**Product Name:** EPICON GROUT 'S'

**Intended Uses:** Low viscosity two component epoxide resin grout.

**Manufacturer:** UNIVERSAL SEALANTS (UK) LIMITED  
Kingston House, 3 Walton Road, Pattinson North,  
Washington, Tyne & Wear. NE38 8QA, United Kingdom

**Tel:** +44 (0) 191 416 1530

**Fax:** +44 (0) 191 415 4377

**Email:** info@usluk.com

**24 Hour Emergency Tel:** CHEMTREC +1 703 527 3887

**2. Hazard Identification**

**Possible Hazards:**

**Base:**

R36/38: Irritating to eyes and skin.

R43: May cause sensitisation by skin contact.

R51/53: Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**Hardener:**

R20/22: Harmful by inhalation and if swallowed.

R34: Causes burns.

R36/38: Irritating to eyes and skin.

R43: May cause sensitisation by skin contact.

R52/53: Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**3. Composition / Information on Ingredients**

Name	CAS No	EINECS	Conc. (w/w)	Classification	R. Phrases
BASE COMPONENT					
Bisphenol A/F epoxy Resin	40216-08-8	609-794-9	80-95%	Xi,N	36/38,43,51/53
Alkylglycidylether	68081-84-5	268-358-2	<15%	Xi,N	36/38,43,51/53
HARDENER COMPONENT					
Mixed Polyamines	N/A	N/A	>50%	C	20/22,34,43,52/53
Benzyl Alcohol	100-51-6	202-859-9	<50%	Xn	20/22
Tetraethylene pentamine	112-57-2	203-986-2	10-20%	Xi,N	36/38,43,51/53

**4. First Aid Measures**

**Inhalation:** In case of drowsiness or sickness remove to fresh air, keep patient warm and at rest. If unconscious, turn to the recovery position. Seek medical assistance.

**Skin Contact:** Promptly remove contaminated clothing and wash the affected area with plenty of soap and water to ensure all traces of product are removed, then rinse thoroughly. Any contaminated clothing must be thoroughly cleaned before re-using. Seek medical advice if irritation persists.

**Eye Contact:** Flush with copious amounts of clean water for at least 15 minutes, with the eye lids held open. Seek medical attention.

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**Ingestion:** Wash out mouth with water. Keep patient at rest and obtain medical attention.  
DO NOT INDUCE VOMITING.

**5. Fire Fighting Measures**

- Suitable Extinguisher Media:** Water spray, alcohol-resistant foam, dry powder, carbon dioxide or sand.
- Unsuitable Extinguishing Media:** Water jet.
- Exposure Hazards:** May give off toxic fumes if heated or involved in a fire, including CO.
- Special Protective Equipment:** In the event of fire wear self-contained breathing apparatus.

**6. Accidental Release Measures**

- Personal Precautions:** Wear protective equipment as specified in Section 8. Do not eat, drink or smoke. Avoid contact with skin and eyes. Eliminate all ignition sources.
- Environmental Precautions:** Keep people and animals away. Prevent entry into drains, sewers and watercourses. If spillage enters drains leading to sewerage works inform the local water company. If spillage enters rivers or watercourses inform the Environment Agency.
- Spillages:** Cordon off area. Absorb/contain spillage using inert absorbent granules, sand or earth. Transfer collected material to heavy-duty plastic/steel drums and keep in a well ventilated place for subsequent safe disposal. See Section 13.

**7. Handling and Storage**

- Handling:** No specific precautions required when handling unopened containers; follow any relevant manual handling guidance. Refer to Sections 6 and 8 if exposure to product is possible. Wash thoroughly with soap and water before eating, drinking or smoking, and after work
- Storage:** Store in original containers in a well ventilated area away from heat, ignition sources or open flame. Do not store near acids.

**8. Exposure Controls / Personal Protection**

- Occupational Exposure Standards:** Benzyl Alcohol: TLV 5ppm (recommended). It is extremely unlikely that the Exposure Limit above would be reached under foreseeable conditions of use.
- Engineering Control Measures:** Refer to any applicable COSHH assessments. Engineering controls should be used where practicable in preference to personal protection and may include physical containment and good ventilation.

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<b>Respiratory Protection:</b>	In the unlikely event that the quoted exposure limits are exceeded, an approved respirator fitted with an appropriate gas cartridge (organic substance) should be used. All items must conform to EN149 and should be suitable for the levels of contamination present in the workplace.
<b>Hand Protection:</b>	Wear Neoprene, Nitrile, PVC or Natural Rubber gloves or gauntlets. These must be manufactured to EN374. The material breakthrough time should be stated by the glove manufacturer, and must be observed at all times.
<b>Eye Protection:</b>	If splashing is likely chemical resistant goggles should be worn.
<b>Body Protection:</b>	Wear suitable impervious, chemical resistant overalls.
<b>Foot Protection:</b>	Wear chemical resistant safety footwear.
<b>Hygiene Measures:</b>	Handle in accordance with good industrial hygiene and safety practice.

<b>9. Physical and Chemical Properties</b>
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<b>Appearance:</b>	Base: Clear liquid. Hardener: Thixotropic paste.	<b>Boiling Point:</b>	>200 °C
<b>Odour:</b>	Base: Mild Hardener: Ammoniacal	<b>Vapour Pressure @ 20°C:</b>	N/D
<b>pH:</b>	Hardener: 11	<b>Evaporation Rate (Butyl Acetate = 1):</b>	N/A
<b>Flash Point:</b>	>100°C	<b>Flammable Limits in Air:</b>	<b>Upper:</b> N/D <b>Lower:</b> N/D
<b>Solubility:</b>	Immiscible in water	<b>Autoignition Temperature:</b>	N/D
<b>Flammability:</b>	Not Flammable		
<b>Specific Gravity:</b>	1.1 (Mixed)		

<b>10. Stability and Reactivity</b>
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<b>Stability:</b>	Stable under normal conditions (see Section 7).
<b>Materials to Avoid:</b>	Base: Amines and catalysts Hardener: Mineral and organic acids, oxidising agents, reactive metals and sodium or calcium hypochlorite. Slowly corrodes copper, aluminium, zinc and galvanised surfaces. Reacts violently with peroxides possibly creating an explosion. Reaction with acids is accompanied by large heat release and may be sufficient to cause vigorous boiling, creating a hazard due to splashing or splattering of hot material.

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**Hazardous Decomposition Products:** Ammonia and aldehydes. Oxides of carbon and nitrogen. Nitrogen oxide can react with water vapours to form corrosive nitric acid. Other oxides of nitrogen emitted on decomposition are highly toxic.

**11. Toxicological Information**

There is no data available on the product itself.  
The following data applies to the Epoxy component of the Base material.

**Acute Toxicity:**

**Eye Contact:** Irritant.

**Skin Contact:** Irritant for skin and mucous membranes. May cause sensitisation.

**Ingestion:** May result in irritation to the gastro intestinal tract.

The following data applies to the Amine component of the Hardener material.

**Acute Toxicity:**

**Eye Contact:** Strong caustic effect.

**Skin Contact:** Caustic effect on skin and mucous membranes. May cause sensitisation.

**Ingestion:** Swallowing will lead to a strong caustic effect on the mouth and throat, and to the danger of perforation of the esophagus and stomach.

**12. Ecological Information**

There is no data available on the product itself.  
The following data applies to un-mixed material only, as once the base and hardener are combined the harmful constituents will react to form an inert product.  
Hazardous for water. Do not allow the product to reach ground water, water bodies or sewage systems. Must not reach sewage water or drainage ditch undiluted or unneutralised. Danger to drinking water if even small quantities leak into soil.

**13. Disposal Considerations**

**Un-reacted materials:** Dispose of used containers and un-reacted product as hazardous waste, in accordance with all applicable local and national regulations, and in compliance with the Environmental Protection (Duty of Care) Regulations 1991.

**14. Transport Information**

<b>Base:</b>			
<b>UN Number:</b>	3082	<b>Packaging Group:</b>	III
<b>ROAD</b>		<b>AIR</b>	
<b>ADR Class:</b>	Limited quantity	<b>Air Transport Number:</b>	9
<b>ADR Hazard No:</b>	in compliance with chapter 3.4 LQ7 less than 5 litres per inner package	<b>Packaging Instruction:</b>	964



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**SEA**

IMDG Class: 9

EMS: F-A, S-F

Marine Pollutant: P

Proper Shipping Name: Environmentally hazardous substance, liquid, NO.S. (contains epoxy resin)

**Hardener:**

UN Number: 2735

Packaging Group: III

**ROAD**

**AIR**

ADR Class: Limited quantity

Air Transport Number: 8

ADR Hazard No: in compliance with chapter 3.4 LQ19 less than 3 litre per inner package

Packaging Instruction: 856 (Cargo only)  
852

**SEA**

IMDG Class: 8

EMS: F-A, S-B

Marine Pollutant: P

Proper Shipping Name: Amines, liquid, corrosive, N.O.S. (Contains mixed polyamines).

<b>15. Regulatory Information</b>
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**EU Classification and Labelling Particulars:**

**Base:**

**Designated Name:** EPICON GROUT 'S' - BASE

**Classification:** Irritant & Dangerous for the Environment - Contains epoxy constituents (see information supplied by the manufacturer).

**Indication(s) of Danger:** Xi & N

**Contains:** Epoxy constituents- see information supplied by the manufacturer.

**Risk and Safety Phrases:**

R36/38:	Irritating to eyes and skin.
R43:	May cause sensitisation by skin contact.
R51/53:	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
S25:	Avoid contact with eyes.
S28:	After contact with skin, wash immediately with plenty of soap and water.
S37/39:	Wear suitable gloves and eye/face protection.
S61:	Avoid release to the environment. Refer to special instructions/ safety data sheet.

**Hardener:**

**Designated Name:** EPICON GROUT 'S' - HARDENER

**Classification:** Corrosive

**Indication(s) of Danger:** C

**Contains:** Mixed polyamines & benzyl alcohol

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**Risk and Safety Phrases:**

R20/22:	Harmful by inhalation and if swallowed.
R34:	Causes burns.
R36/38:	Irritating to eyes and skin.
R43:	May cause sensitisation by skin contact.
R52/53:	Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
S26:	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S28:	After contact with skin, wash immediately with plenty of water and soap.
S36/37/39:	Wear suitable protective clothing, gloves and eye/face protection.
S45:	In case of accident or if you feel unwell seek medical advice immediately (show the label where possible).
S61:	Avoid release to the environment. Refer to special instructions/Safety Data Sheet.

**UK Guidance Publications:** EH40; Occupational Exposure Limits, HSE. Revised annually.  
EH26; Occupational Skin Diseases - Health and Safety Precautions, HSE.  
COSHH Essentials, HSE

**UK Legislation:** Health and Safety at Work, etc Act, 1974, and relevant Statutory Provisions.  
Control of Substances Hazardous to Health Regulations, 1999.  
The Manual Handling Operations Regulations, 1992.  
The Personal Protective Equipment at Work Regulations, 1992.  
Chemicals (Hazard Information and Packaging for Supply) Regulations, 2002 - CHIP 3.

<b>16. Other Information</b>
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**Full Text of R-Phrases Referred to above:**

R20/22:	Harmful by inhalation and if swallowed.
R34:	Causes burns.
R36/38:	Irritating to eyes and skin.
R43:	May cause sensitisation by skin contact.
R51/53:	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R52/53:	Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**Training Advice:** Do not use unless trained to do so. Refer to the Technical Data Sheet for the product.

**Recommended Uses:** For professional use only. This product is designed for use as a general-purpose resin grouting material.

**Further Information:** This Safety Data Sheet was compiled in accordance with EU Directives 67/548/EEC and 1999/45/EC.  
The Ariel Regulatory Database provided by the 3E Corporation in Copenhagen, Denmark.  
ESES (The European Chemical Substances Information System), provided by the European Commission Joint Research Centre in Ispra, Italy.

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Reference was also made to the above legislation and guidance publications.

**MSDS First Issued:** 7<sup>th</sup> September, 1989.

**MSDS Revised:** 2<sup>nd</sup> October, 2012.

**Changes in this Version:** Sections 3, 15 & 16 revised to reflect change in raw material classification.

**Prepared By:** F. Stratton

**Disclaimer:** The information in this document is offered for general health and safety guidance only and is not intended to be a definitive source of advice, nor does it constitute a risk assessment, for which the user is responsible. All information provided in this document is believed to be accurate to the best of our knowledge. Users of the products referred to should observe the recommendations, conditions and instructions relating to any relevant product label, usage information, consent or approval in force at the time. Further and more specific information may be obtained from the supplier on request.

