NS
Namco Solutions

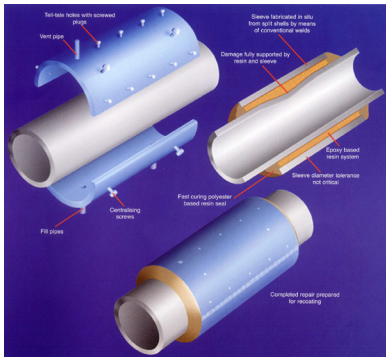
No.1 Adhesive

Technical Data Sheet

Pipeline Repair and Hot Tapping Epoxy Grout

USES OF NAMCO EPOXIES

Grouted hot tap and epoxy filled sleeve repair fittings use low shrinkage, high strength epoxy-based resin to strengthen damaged pipelines such as corrosion, dents, gouges, cracking or combinations of these. Each fitting comprises two oversized half shells which are mechanically bolted or welded together, to loosely encircle the damaged section of pipeline. The gap between pipe and outer shell is then sealed at both ends and then filled with epoxy grout. This results in a repair that is stronger than that of the adjacent undamaged pipe material.



SPECIAL CHARACTERISTICS OF NAMCO EPOXIES:

- 2-part components with added contrast colour pigments to ensure correct and efficient mixing.
- Highly pourable and pumpable after mixing.
- Environment friendly with high volume of packaging materials are recyclable.
- Compliance with UK gas networks and suitable for subsea and deep-water (Selected materials were qualified for National Grid and DNV-GL)
- Supplied in ½ L, 5L & 10L packs and also suitable for cartridges applications.

Physical Properties	Material Grades				
	Winter	Summer	HT	Subsea	Deepwater
Material code (NSL-PR-XXX-XXX)	WIG-001	SUG-001	HDT-001	SUB-001	SDW-001
Colour Coded ID	Blue	Red	Violet	Grey	Deep Grey
Service temperature range (°C)	-40 to 70	-40 to 100	-40 to 125	-40 to 70	-40 to 50
Installation temperature range (°C)	5 to 20	20 to 35	35 to 50	5 to 20°C	0°C to 10
Working Time (250 mL samples)	>40 mins @ 5°C	>40 mins @ 20°C	>40 mins @ 40°C	>40 mins @ 5°C	>60 mins @ 0°C
Maximum viscosity during working time (cP)	< 99,000	< 99,000	< 99,000	< 99,000	< 99,000
Pourable & Pumpable during working time	Yes	Yes	Yes	Yes	Yes
Final volumetric shrinkage	< 0.58%	< 0.58%	< 0.58%	< 0.58%	< 0.58%
Adhesion Strength (Pull off steel @SA2.5) (MN/m^2)	> 12 @ 5°C	> 12 @ 20°C	> 12 @ 35°C	> 12 @ 5°C	> 12 @ 0°C
Tensile Strength (Dumbbell) (MN/m^2) after 24 hrs	> 12 @ 5°C	> 12 @ 20°C	> 12 @ 35°C	> 12 @ 5°C	> 12 @ 0°C
Ultimate tensile strength (Dumbbell) (MN/m^2)	> 20 @ 5°C	> 20 @ 20°C	> 20 @ 35°C	> 20 @ 5°C	> 20 @ 0°C
Compressive Strength (MN/m^2) after 24 hrs	> 62 @ 5°C	> 62 @ 20°C	> 62 @ 35°C	> 62 @ 5°C	> 62 @ 0°C
Concentric Strength (P-I-P) (MN/m^2) after 24 hrs	> 18 @ 5°C	> 18 @ 20°C	> 18 @ 35°C	> 18 @ 5°C	> 18 @ 0°C

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1. PACKAGING CONTENTS:

Materials are normally supplied in 5L (~-8.5kg) and 10L (~17kg) colour coded packs with each pack containing:

- 1 bucket of special formulated epoxy resin compound
- 1 bottle of special formulated reactive catalyst compound
- 1 bottle of colour pigment

2. PIPELINE SURFACE PREPARATION

Ensure the pipeline surface is prepared by grit or shot blasting to a surface cleanliness equivalent to SA2.5 (ISO 8501-1:1988) or SSPC- SP6. Steel surface should be clean, free of grease, dry and prepared in accordance of user's pre-approved site instructions. Surface roughness of the steel surface is to be at least 30µm to maximise adhesion strength.

3. MIXING INSTRUCTIONS

Step 1. Firstly, empty the bottle of colour pigment into the bottle of hardener. After the pigment is added, replace hardener cap then shake vigorously for at least 30 seconds.

Step 2. Remove the lid of the large bucket of resin and, if necessary, positioning Namco's anti-splashing device (Product No.: NSL-E001-ASHOOD) on top of the resin bucket. This device prevents splashing and spillage.

Step 3. Empty all liquid of coloured hardener into the resin bucket.

Step 4. Mixing resin and hardener for at least 3 minutes until a uniform and consistent colour is achieved. Make sure the mixing paddle is working all around the bucket and from top to bottom. If necessary, use a spatula to scrape any unmixed materials from all sides and bottom of the bucket ensuring there are no traces of unmixed materials. To ensure air entrapment is minimized during mixing action, it is recommended to use a positive action paddle where material is pulled from the bottom of the bucket to the surface during mixing. It is therefore advisable to use MR4 screw paddles at mixing speed up to 450RPM supplied by Refina (www.rifena.co.uk) or equivalent.

4. PUMPING OF MIXED MATERIALS

Always refer to user's approved installation procedure and equipment. It is important that mixing and pumping equipment are carefully selected to prevent any air entrapment or pulsing action during pumping. The most appropriate positive delivery pump to use is either a peristatic pump or with a pump integrated with an internal spiral or screw shaft.

5. CLEANING

Equipment used to mix and pump epoxy grout can be cleaned using suitable epoxy cleaning solvents in accordance with user's approved installation instruction. Namco supplies epoxy solvent (Product No.: NSL-PR-SOLV-001) suitable for cleaning equipment which are used to mix the epoxy materials. Strict solvent manufacturing instructions must be adhered to whichever solvent is used for cleaning to prevent damage to health and environments.

6. WORKING TIME AND INSTALLATION TEMPERATURE:

Refer to Physical Properties Table.

7. OPERATING (IN-SERVICE) TEMPERATURE RANGE:

Refer to Physical Properties Table.

8. STORAGE CONDITIONS:

- Store at ambient room temperature.
- Always store in original undamaged containers securely closed.
- Keep away from sources of heat and ignition.
- Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials.
- Keep away from oxidising materials.
- Keep containers upright, tightly closed and sealed until ready for use.

9. MATERIALS SHELF LIFE:

Materials have a shelf life of 12 months from specified date of manufacture clearly stated on the outside all packaging containers.

10. SAFETY REQUIREMENTS:

Please refer to the valid Material Safety Data Sheet (SDS) as well as to the legal and recommended industrial hygiene regulations.

11. TRANSPORTATION REQUIREMENTS

All packaging is labelled suitable for road, sea and freights and in full compliance with ADR, RID, AND, IMDG and IATA regulations.

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