

EUROKOTE® 468 Thixo – Technical Data Sheet

DESCRIPTION

EUROKOTE® 468 Thixo is a solvent free, benzyl alcohol free and VOC (volatile organic compound) free two component epoxy binder applied by airless spray. EUROKOTE® 468 Thixo meets the requirements of the European EN 10339.

APPLICATION AREAS

Anticorrosion coating for the interior and exterior protection of pipes and accessories (valves, connections, etc.) in contact with drinking water.

Coating for the internal protection of storage containers in contact with drinking water, foodstuffs, sea water, waste water and industrial water.

Maximum service temperature immersed in water: 50°C.

APPROVALS

EUROKOTE® 468 Thixo is a material that can come into contact with drinking water in accordance with the provisions of the Order of the 29 May 1997 (France), the BS 6920 Standard parts 1 and 2 (GB) and the C.M. 102 of the 02/12/78 (Italy).

The "Ivory" version formulation complies with the latest legislation in force, enabling it to be used in contact with both dry and liquid foodstuffs such as liquid drinks, alcoholic drinks ($\leq 15^\circ$) and non acid fats. In the case of contact with acidic foodstuffs, exposure should not exceed a ratio of 5.3 dm² of coating per kg of foodstuffs. (IANESCO test report n° 3777 of the 4 August 1999).

CHARACTERISTICS

Number of components	: 2
Colour of dry film	: Red brown, Ivory
Appearance of dry film	: Gloss
Density at 23°C	: Around 1.2 g/ml
Calculated dry solids (by volume)	: 100 %

NOMINAL DRY FILM THICKNESS

EUROKOTE® 468 Thixo is designed to be applied in a single coat at a nominal dry film thickness range between 300 and 1000 μ m. The final choice of the thickness will be determined by the end use specification and the application method. Please consult us.

THEORETICAL COVERAGE

Brush/roller at 300 microns DFT (indicative)	: 2.7 m ² /kg i.e. 3.3 m ² /l
Airless spray at 1000 microns DFT (indicative)	: 0.8 m ² /kg i.e. 1.0 m ² /l

DRYING TIME (for 800 μ m dry film)

	At 10°C	At 20°C	At 40°C
Dust free	20 hours	12 hours	6 hours
Hard dry	60 hours	32 hours	16 hours
Fully dry *	20 days	10 days	5 days

* Depending on the application parameters, the environment and the composition of the systems.

OVER-COATING TIME (over itself, at the nominal thicknesses)

At 20°C: Min.: 24 hours – Max.: 15 days

CLEANING SOLVENT

DILUANT 011.02

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STANDARD PACKAGING

20 kg doses (R+D) in two containers.
Depending on the application equipment, other specific packaging is available.
Please consult us for other types of packaging.

STORAGE

Use by date: For standard packaging, 12 months under shelter at a temperature between + 5°C and + 35°C in the original unopened packaging.

HEALTH AND SAFETY

Flash point: Part R: > 100°C - Part D: > 100°C

Always consult the legal labelling on the packaging and the material safety data sheet before use.

SPECIFIC RECOMMENDATIONS

If the coating is to come into contact with drinking water or foodstuffs, it should be rinsed with water before being brought into service according to the client's recommendations
Reinforcing a film of EUROKOTE- 468 Thixo with a suitable glass mat or glass fabric requires a viscosity specially adapted for this purpose (please consult us).

SUBSTRATES

- Steel
- Concrete
- Other substrates: please consult us.

PROPERTIES OF THE CURED COATING

Physical and mechanical properties	Standard	Substrate	Thickness	Result
Electrical non porosity at 20°C (8 V/μm)	EN 10289	Steel Sa 2.5	400 μm	No porosity
Pull off adhesion at 20°C	ISO 4624	Steel Sa 2.5	400 μm	≥15 MPa
Cross hatch adhesion at 20°C	ASTM D 3359	Steel Sa 2.5	400 μm	Class 5A
Cross hatch adhesion at 20°C	EN 10339	Steel Sa 2.5	400 μm	Rating 1
Shore D hardness at 20°C	ISO 868	Steel Sa 2.5	400 μm	≈ 70
Buchholz hardness at 20°C	ISO 2815	Steel Sa 2.5	400 μm	≥ 90
Flexibility	EN 10289	Steel Sa 2.5	400 μm	≥ 1.5 %
Modulus of elasticity	ISO 1184	Free film	1000 μm	≈ 300 N/mm ²
Elongation at break at 20°C	ISO 1184	Free film	1000 μm	≥ 5%
Tensile strength at 20°C	ISO 1184	Free film	800 μm	≈ 20 N/mm ²
Examples of chemical resistance*				
Cathodic disbondment after 28 days at 23°C	EN 10289	Steel Sa 2.5	400 μm	≤ 10 mm
Resistance to deionised water at 50°C for 3000 h	ISO 2812-2	Steel Sa 2.5	400 μm	No alteration
Resistance to salt spray (1000 h)	NF EN ISO 9227	Steel Sa 2.5	400 μm	No alteration
Resistance to salt water (5% NaCl) at 50°C for 100 days	ISO 2812-1	Steel Sa 2.5	400 μm	No alteration
Resistance to caustic soda solution at pH ≤ 13 at 20°C	ISO 2812-1	Steel Sa 2.5	400 μm	No alteration
Resistance to demineralised water	AWWA C210	Steel Sa 2.5	400 μm	No alteration
Specific electrical insulation resistance	EN 10289	Steel Sa 2.5	400 μm	$> 10^7 \Omega.m^2$ $> 10^7 \Omega.m^2$ > 0.7
- after 70 days at 23°C				
- after 100 days at 23°C				
- ratio Rs 100 days / Rs 70 days				
Resistance to 1% sulphuric acid	AWWA C210	Steel Sa 2.5	400 μm	No alteration
Resistance to 1% caustic soda	AWWA C210	Steel Sa 2.5	400 μm	No alteration

*Please consult us for other chemical substances and temperatures.

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INSTRUCTIONS FOR USING EUROKOTE• 468 Thixo

1. Surface preparation

Surface preparation is a very important phase and must be carried out with particular care. The quality of the stripping and dust removal phases has a considerable influence on the adhesion performance of the coating.

• Steel substrates

Before stripping, the steel surface should be dry and free of any soiling (oil, grease, temporary anticorrosion protection, etc.) or superficial defects (slivers, delaminations, etc.).

The temperature of the steel surface should be maintained at least 3°C above the dew point.

Stripping should be carried out by projection of abrasives to a Sa 2.5 surface finish as per the ISO 8501-1 Standard.

Preferably, very hard abrasives should be used (alumina silicate, specially treated blast furnace slag), which ensure high surface roughness profiles are obtained. The prepared surface should have a surface roughness Rz of around 80 µm; the control should be carried out in accordance with the ISO 8503-4 Standard.

The abrasives must be free of chlorides and contain less than 0.05 % of water soluble materials.

• Removal of dust / cleaning

After removal of the abrasive, all traces of dust must be carefully removed using powerful vacuum cleaners.

NB: If necessary, the dust removal operation should be renewed before each application.

• Grinding / dinking

After grit blasting, the surface to be coated should be visually inspected.

Jutting out metal slivers on the coating surface act as corrosion initiation points and therefore need to be eliminated.

All asperities, spurs, slivers, weld spatter and weld beads must be ground down. Sharp or jagged angles on sheet metal and welds must be rounded off.

All filings must be carefully removed.

• Protection of stripped surfaces

Surfaces cleaned to Sa 2.5 surface finish must be protected in order to ensure they are maintained in a perfect state of conservation up to the application of the final coating.

The temperature of the steel surface and the time before applying the coating must not lead to any oxidation of the surface that could adversely affect the quality or the adhesion of the coating.

When the ambient conditions are particularly unfavourable, it may be necessary to condition the air as soon as the surface preparation operations begin.

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Lowering the relative humidity below an equilibrium threshold with the ambient temperature prevents oxidation of the stripped surfaces.

This can be done by installing a dehumidifier or, if necessary, by heating the ambient air.

If necessary, a EUROKOTE® AQ 42-00 or EUROKOTE® 481 FB Primaire type temporary protection may be used (refer to the technical data sheets for these products). These temporary protection primers should not be used in the case of systems intended for contact with drinking water.

Concrete substrates

Cement based substrates should be clean, dry, free of oil and grease and should comply with the requirements of the DTU 59.1 and 59.3 Standards and have a smooth facing type surface finish as defined in the DTU 59.1 Standard. In addition, they must have finished setting for at least 4 weeks.

• Preparation

The substrates should be mechanically stripped by projection of abrasives following by careful removal of dust using powerful vacuum cleaners. After stripping, the substrates must be clean, sound and have a minimum compressive strength of 25 N/mm² (as per the EN 13 892-2 Standard), a minimum cohesive failure of 1.5 MPa (as per the EN 13 892-8 Standard) and a maximum moisture content of 5 %.

• Primer

Apply a coat of EUROKOTE® 418.00 (refer to the technical data sheet for this product). The over-coating time by EUROKOTE® 468 Thixo is 1 to 7 days at 20°C.

2. Application

2.1 Conventional airless spray

EUROKOTE® 468 Thixo is a two component product supplied in separate pre-dosed non divisible packaging.

MIXING RATIO	BY VOLUME	BY WEIGHT
Epoxy resin (part R)	70 %	77 %
Hardener (part D)	30 %	23 %

- The temperature of the Resin and Hardener must be between + 20°C and + 30°C. If necessary, the use of a heated airless spray is recommended.
- Add the Hardener (D) to the Resin (R). Do not dilute.
- Carefully mix parts R and D with a mechanical mixer until a fully homogeneous mixture is obtained.
- Maturation time: None
- The pot life of a 20 kg mixture is 45 minutes at 20°C. The pot life is shorter at higher temperatures (around 15 minutes at 30°C).

EUROKOTE® 468 Thixo should be applied by airless spray (pump ratio: 60/1, 24 to 27/1000 in. nozzle, air pressure 5 to 6 kg/cm²) in several wet on wet layers. The temperature of the substrate should be between + 10°C and + 60°C and maintained at least 3°C above the dew point during the application and drying of EUROKOTE® 468 Thixo in order to avoid any condensation.

The ambient temperature should be between + 10°C and + 40°C and the relative humidity should not exceed 85 %.

The applied coating should be uniform and the thickness of the wet film should be measured using for example method n° 06 of the ISO 2808 Standard.

The film attains a sufficient level of hardness to be handled after around 24 hours. This time depends on the ambient temperature, the weight and the shape of the coated parts.

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2.2 Twin feed airless spray

EUROKOTE® 468 Thixo can be supplied in a version adapted for application by twin feed airless spray (EUROKOTE® 468 Thixo 500) in separate packaging.

MIXING RATIO	BY VOLUME	BY WEIGHT
Epoxy resin (part R)	100 %	70 %
Hardener (part D)	50 %	30 %

- The temperature of the Resin and Hardener must be between + 20°C and + 50°C. If necessary, the use of a heated airless spray is recommended. The temperature of the mixture before application must not however exceed + 50°C.
- Before use, carefully mix parts R and D separately with a mechanical mixer until fully homogeneous. Do not dilute.
- Transfer parts R and D by pumping to the metering unit of the airless spray equipment, which enables automatic and controlled metering and mixing of the two components.

EUROKOTE® 468 Thixo is applied by airless spray (nozzle 24 to 27/1000 in., minimum pressure 160 bars) in several wet on wet coats. The temperature of the substrate should be between + 10°C and + 60°C and maintained at least 3°C above the dew point during the application and drying of EUROKOTE® 468 Thixo in order to avoid any condensation.

The ambient temperature should be between + 10°C and + 40°C and the relative humidity should not exceed 85 %.

The applied coating should be uniform and the thickness of the wet film should be measured using for example method n° 06 of the ISO 2808 Standard.

The film attains a sufficient level of hardness to be handled after around 24 hours. This time depends on the ambient temperature, the weight and the shape of the coated parts.

EUROKOTE® 468 Thixo (and the EUROKOTE® 468 Thixo 500 version) can be applied by brush or roller, particularly for impregnation of glass matt or tissue.

3. Control of the coating

After curing, the following controls should be carried out:

- The appearance and the continuity of the entire coating should be visually inspected. The coating should have a uniform colour and appearance, exempt of any defects that could adversely affect the quality of the coating.
- The thickness of the coating, measured by a non-destructive method (using for example method n° 10 of the ISO 2808 Standard) must comply in all respects with the requirements of the specification.
- The Shore D hardness (ISO 868 Standard) or the Buchholz hardness (ISO 2815 Standard) of the coating should be measured and should be at least 60 for the Shore hardness or 90 for the Buchholz hardness.
- On steel, the non-porosity of the coating should be checked using the EN 10289 Standard, appendix B; the applied voltage should be 8 volts per micron of dry film thickness.
- On concrete, the non-porosity of the coating should be checked using a holiday type detector. Please consult us.

4. Repairs

Any defects revealed when controlling the coating should be repaired according to the following procedure:

- The surface to be repaired should be free of any traces of oil, grease, humidity or other types of soiling.
- The damaged coating should be eliminated by scraping, sanding or any other appropriate method.
- The surface of the surrounding coating to be painted should be ground and roughened.
- The surface of the zone to be repaired and the surrounding areas should be carefully de-dusted.
- Prepare the necessary quantity for the repair of EUROKOTE® 468 Thixo, respecting the mixing ratio.
- Mix the two components "R" + "D" until they are entirely homogeneous with a stirrer, taking care to scrape the edges of the container, or preferably use a mechanical mixer.
- Apply an even coat of EUROKOTE® 468 Thixo to the required thickness with a stiff brush, a coating knife or a spatula while respecting the application conditions (see paragraph 2 Application).

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After curing, the repaired zones should be controlled to check the thickness of the dry film and the absence of any porosities in accordance with paragraph 3 and to ensure they meet the requirements of the initial coating.

5. Time before bringing into service

The times before bringing the coating into service depend on the ambient temperature and the temperature of the substrate, which determine the hardening of EUROKOTE® 468 Thixo.

As an indication and for a maximum relative humidity of 85 %, the minimum curing times before bringing the coating into service are:

- 10 days at 10°C (minimum drying temperature)
- 7 days at 20°C
- 5 days at 30°C
- 4 days at 40°C