EPOSEAL W

High Chemical Resistance anti-Mould Colored Epoxy Grout for Tiles and Mosaics Joints from 2 mm to 15 mm also Useable as an Adhesive

Description
EPOSEAL W is a colored two-component grout, characterized by high chemical and mechanical resistance and based on epoxy resin, siliceous aggregates and special fillers, specifically designed for grouting and affixing ceramic tiles and mosaics with joints having a width of between 2 and 15 mm.
EPOSEAL W meets the requirements of both EN 13888 (reactive mortar for joints of class RG) and EN 12004 (improved reactive resin adhesive with no vertical slip class R2T).
The main characteristics of EPOSEAL W are the following:

- practical, compact and neat packaging;
- two components easily mixable in the bucket;
- easily applied even on very narrow tile joints;
- very easy cleanability during the application phase;
- once fully cured, the product shows high mechanical strength and chemical properties;
- color stability and low tendency to yellowing;
- mechanical stability and absence of shrinkage or cracks;
- considerable resistance to acids, alkalis and food stains according to UNI EN 12720;
- resistance to both mould attack and growth, according to UNI 11021;
- smoothability in the laying phase when used as an adhesive;
- reduced vertical slip when used as an adhesive;

Uses
EPOSEAL W is used as an adhesive/sealant for mosaic and ceramic tile coatings requiring high resistance to both chemical agents and acid/alkaline wash as well as high hygienic standards, e.g.:

- swimming pools and fountains with fresh, hot spring and brackish water;
- floors and coatings of bathrooms and showers;
- floors and walls coatings of kitchens and canteens of workplaces, hospitals and hotels, etc..;
- floors and walls coatings of breweries, canneries, wineries, slaughterhouses, etc..;
- basins and floors of water treatment plants;
- tables, walls and floors of laboratories.

Strengths of the product
EPOSEAL W offers several advantages both in terms of application and performance, since:

- after the two components have been mixed, it becomes a light and very soft mortar, easy to spread capable of effortlessly filling joints between 2 mm and 15 mm wide.;
- it will not sag when installed into vertical joints up to 15 mm wide;
- it is easily removable from tiles while in the plastic phase and it will not leave any halos or residue behind In order to help the final cleaning of the surface, as indicated below, EPOSEAL W-TERGE shall be used;
- no shrinking occurs during the cross linking phase (no risk of either cracks or fissures);
- allows the realization of chemical resistant (see Table 1) and aesthetically valuable joints characterized by vivid, UV-resistant and weatherproof colours;
- adheres to all most common building substrates;
- exhibits a very low yellowing, unlike other products of the same type, even when subjected to long exposure to the sun.

Application
How to prepare the laying substrate before grouting:

- all joints that have to be filled must be checked to ensure they are well cleaned. If not, proceed with the removal of all those substances that may prevent the adhesion such as oils, grease, dust, cement, cement glue residue, etc. ...;
- to achieve a proper grouting with EPOSEAL W, more than half of joints thickness should be empty. If not, the excess adhesive must be removed;
- sealing should be done only after the adhesive used in tiles installation has cured.

EPOSEAL W

High Chemical Resistance anti-Mould Colored Epoxy Grout for Tiles and Mosaics Joints from 2 mm to 15 mm also Useable as an Adhesive

- joints must not be wetted before applying EPOSEAL W. Do not apply on wet joints.

Preparing the Mixture:
EPOSEAL W is supplied in buckets that contain both component A (in the bucket) and component B (in a tri-layer envelope).
Cut one side of the envelope of component B and pour the entire contents into component A. Mix using a low speed mechanical mixer until obtaining a homogeneous mixture. Scrape the edge of the bucket with a metal or plastic spatula and then re-homogenize the product with a mechanical mixer. It is not advisable to mix the product by hand.
EPOSEAL W is a reactive patch / adhesive whose mixture pot life depends strongly on the temperature of the working environment.
Table 1 shows the mixture pot life as a function of temperature.

Table 1:

Operating Temperature	Mix. Pot Life *
8.0 °C	2 hours
15.0 °C	1 hour and 20 min
20.0 °C	50 min
26.0 °C	20 min
35.0 °C	12 min

* The mixture pot life was determined considering the whole 2.00 kg (A+B) pack by evaluating the applicability of the mix under real-life environmental conditions

For indicative purposes only, the equation used to calculate the pot-life at a given temperature is shown below:

Mix Pot life = 166 - 5.6 x Temperature

Time is expressed in minutes and the temperature in °C.

Execution of Grouting Works:
- on the floor, works are executed by pouring the product onto the tiles and working it into the joints until they are completely filled, with a rubber floats type "verde", model VER136B all excess material shall be removed by moving the spatula, held inclined toward the surface and then proceed with the cleaning, as described in the next paragraph;
- on the wall, works are executed by pouring EPOSEAL W on a rubber float type "verde", model VER136B, with the help of a trowel and then carefully clogging the wall's joints. All excess material shall be removed by moving the spatula, held inclined toward the surface and then proceed with the cleaning, as described in the next paragraph.

Cleaning and Finishing the Surface:
Preliminary Cleaning
- grout residue shall be removed with a white abrasive pad "TAMPONE ABRASIVO BIANCO" (i.e., model NR1225B), soaked with water and kept clean by frequently rinsing. For best results, make use of the appropriate handle with Velcro® pad-holder (model NR1525I) exerting a light pressure in a circular motion (see EPOSEAL W-TERGE Technical Data Sheet) so as not to excessively empty the joints;
- the preliminary cleaning with the abrasive pad should be done when the consistency of the grouting mortar will be enough to prevent the joint from emptying For this purpose, we recommend the following waiting times at 23 °C and 50% RH (Table 2).

Table 2:

Type of tile and joint	Recommended waiting time for preliminary cleaning	Maximum waiting time for preliminary cleaning
Mosaic or tiles with a joint <3 mm	20 min	3 hours

EPOSEAL W

High Chemical Resistance anti-Mould Colored Epoxy Grout for Tiles and Mosaics Joints from 2 mm to 15 mm also Useable as an Adhesive

Joint between 3 and 10 mm	1 hour and 30 min	3 hours
Joint between 10 and 15 mm	2 hours	3 hours

Removing the foam

- the friction of the surface produces a significant amount of foam that must be removed using an oval cellulose sponge "SPUGNA CELLULOSA OVALE" (model NR291O) soaked in water and frequently rinsed; during this phase it is important not to "excave" the joints that have just been done;

Finishing

- after removing the foam, proceed with finishing the grout by spraying EPOSEAL W-TERGE directly on the surface using the appropriate dispenser and wipe the same surface with the cellulose sponge once you have rinsed it. It is important to carefully finish the grout since it is at this stage that the joint will be given its final form. When the sponge gets the typical greasy and oily appearance, due to the excessive accumulation of epoxy resin, replace it; The time that must elapse between the first wash with abrasive pad and the finishing with cellulose sponge is variable as a function of the working temperature, the width of the joint and the type of tile (Table 3).

Table 3:

Type of tile and joint	Recommended waiting time for finishing (after grouting application)	Maximum waiting time for finishing (after application of grouting)
Mosaic or tiles with joint <3 mm	1 hours	8 hours
Joint between 3 and 10 mm	6 hours	8 hours
Joint between 10 and 15 mm	6 hours	8 hours

- to keep your tools clean, simply frequently rinse with clean water; Using EPOSEAL W-TERGE makes halos removal easier;
- if some halos remain on the grouted surface or if the reshaping of some of the joints is required, EPOSEAL W-TERGE and the cellulose sponge can be used again within 6 hours at 23 ° C from the execution of the first wash.

Curing Time

EPOSEAL W curing time depends on the environmental conditions. Table 4 shows both pedestrian traffic and full curing time as a function of the environmental temperature and humidity.

Table 4:

Curing Conditions	Pedestrian trafficability *	Complete cure **
8 °C, 70% RH	48 hours	7 days
15 °C, 70% RH	24 hours	5 days
20 °C, 50% RH	20 hours	4 days
26 °C, 50% RH	18 hours	4 days
35 °C, 50% RH	15 hours	3 days

* "Pedestrian trafficability" refers to the possibility of walking on the floor without placing on its surface any load and implies that the final mechanical resistance has not yet been achieved.
** "Complete cure" refers to the possibility to place loads on the surface and implies that the final mechanical resistance has been achieved.
If temperature and humidity levels in workplaces are not optimal (in cold and wet conditions) and when the temperature can not be controlled, it is advisable to prolong both the time needed to allow pedestrian traffic over the coating as well as the downtime needed to allow EPOSEAL W to fully cure.

EPOSEAL W

High Chemical Resistance anti-Mould Colored Epoxy Grout for Tiles and Mosaics Joints from 2 mm to 15 mm also Useable as an Adhesive

Important usage rules

- The ease of EPOSEAL W laying diminishes as the temperature decreases. The optimum temperature range for application is between 8 and 35°C. Below 13°C an increase of viscosity occurs, however, this does not affect the development of mechanical and chemical properties.
- For special uses (laboratory benches, workshops, etc ...), the chemical nature of aggressive agents which come into contact with the product must be assessed. For the chemical resistance of EPOSEAL W refer to the section "Chemical resistance" of this Technical Data Sheet.
- On light-coloured tiles, where a dark tiles sealant/grouting is required (or vice versa), the cleanability of the surface shall be previously assessed using real application test.
- On unglazed tiles or not ceramic plated tiles (e.g., clinker unglazed tiles) the cleanability of the surface shall be previously assessed using real application test. It is however advisable to grout with EPOSEAL W of the same colour version of the tile;

Do not apply:

- on Florentine terracotta tiles;
- on either particularly porous natural / synthetic stone tiles or coatings. In case of doubt proceed with sealing a testing area of meaningfull size to verify the cleanability of EPOSEAL W with the material to be sealed;
- on oil mills floors and walls.

Removal of cured residues Crusts of hardened grouting can only be removed by physical means (heat and abrasion). A practical and functional system is to use a hot air gun to remove paint directly onto the part to be cleaned. The best removal effect is obtained at about 400°C. Once it has hardened, EPOSEAL W can be removed from tools leaving them to soak for a long time in a solvent such as ACETONE. The removal is accelerated by the use of industrial paint stripper gel.

Consumption

Table 5:

Tile size [mm] L (length) x W (width) x T (thickness)	J, Joint width [mm]									Consumption [kg / m²]
	1.5	3	4	5	6	8	10	12	15	
10x10x0, 6	0.25	0.50								
20x20x2	0.42	0.84								
20x20x4	0.84	1.68								
75x75x4	0.22	0.45	0.60	0.75	0.90					
75x75x6	0.34	0.67	0.90	1.12	1.34					
100x100x10	0.42	0.84	1.12	1.40	1.68	2.24	2.80			
150x150x6	0.17	0.34	0.45	0.56	0.67	0.90	1.12	1.34	1.68	
100x200x6	0.19	0.38	0.50	0.63	0.76	1.01	1.26	1.51	1.89	
100x200x10	0.32	0.63	0.84	1.05	1.26	1.68	2.10	2.52	3.15	
150x300x15	0.32	0.63	0.84	1.05	1.26	1.68	2.10	2.52	3.15	
200x200x9	0.19	0.38	0.50	0.63	0.76	1.01	1.26	1.51	1.89	
200x200x14	0.29	0.59	0.78	0.98	1.18	1.57	1.96	2.35	2.94	
300x300x10	0.14	0.28	0.37	0.47	0.56	0.75	0.93	1.12	1.40	
400x400x10	0.11	0.21	0.28	0.35	0.42	0.56	0.70	0.84	1.05	
500x500x12	0.10	0.20	0.27	0.34	0.40	0.54	0.67	0.81	1.01	
600x600x12	0.08	0.17	0.22	0.28	0.34	0.45	0.56	0.67	0.84	
600x1200x12	0.06	0.13	0.17	0.21	0.25	0.34	0.42	0.50	0.63	

For all measures of tiles is not shown in Table 5, below is the formula for the calculation of consumption given the size of the tile and the flight:

Consumption in kg / m² = J x T x (L+W) : (LxW) x 1.40

EPOSEAL W

High Chemical Resistance anti-Mould Colored Epoxy Grout for Tiles and Mosaics Joints from 2 mm to 15 mm also Useable as an Adhesive

Colors

EPOSEAL W is available in 27 colours as stated in the product colour samples "I COLORI DEI FUGANTI". Other colours are available upon request to be submitted to the Technical Support Service for the feasibility study.

Warnings and Special Instructions

- The packs of A and B are pre-weighed. In case of partial use, components A and B are to be mixed respecting the correct mixing ratio indicated on the packaging.
- EPOSEAL W does not guarantee a perfect adhesion when applied on substrates covered with cement dust, oils or grease.
- The product may cause skin and eyes irritation. When using this product and during all processing phases, protective eyewear complying with EN 166 class 1F or higher and rubber gloves category II or higher must be worn. The use of gloves made of nitrile provides an adequate protection and a long service life.
- Please, carefully read the Material Safety Data Sheet (MSDS) before use.

Specifications

bulk density, UNI EN ISO 1675	A	kg/dm^3	1.43 ± 0.05
	B		1.40 ± 0.05
	A+B		1.41 ± 0,05
application temperature (interval)		°C	da +8 a +35
abrasion resistance, UNI EN 12808-2		mm^3	77 ± 5
shrinkage, UNI EN 12808-4		mm/m	1.3 ± 0.1
flexural strength, UNI EN 12808-3		MPa	> 30
compressive strength, UNI EN 12808-3		MPa	> 45
water absorption, UNI EN 12808-5	after 30 min	g	0.02 ± 0.01
	after 240 min		0.04 ± 0.01
shear adhesion after immersion in water, UNI EN 12003		MPa	3.6 ± 0.5
shear adhesion after thermal shock, UNI EN 12003		MPa	> 2.0
open time (tensile adhesion to 3.2 MPa), UNI EN 1346		min	20
slip, UNI EN 1308		mm	0,20 ± 0,05
crosslinking ratio by weight (A:B)		-	11.50 : 1.00

Note: testing methods are in accordance with the standards referred to in the table.

Chemical resistance (resistance to stain according to UNI EN 12720)

Table 6:

Contact time →	7 days				72 hours				24 hours				1 hour				10 minutes				10 seconds			
*wash cycle*** →	*0*	*A*	*B*	*C*	*0*	*A*	*B*	*C*	*0*	*A*	*B*	*C*	*0*	*A*	*B*	*C*	*0*	*A*	*B*	*C*	*0*	*A*	*B*	*C*
Chemical Agent ↓↓↓↓																								
Acids																								
ACETIC ACID 2.5%	5																							
ACETIC ACID 5.0%	4	4	4	4	5																			
ACETIC ACID 10.0%	4	4	4	4	5																			
HYDROCHLORIC ACID 37.0%	5																							
CITRIC ACID 10.0%	5																							
PHOSPHORIC ACID 50.0%	4	4	4	4	5																			
PHOSPHORIC ACID 75.0%	4	4	4	4	5																			
LACTIC ACID 2.5%	4	4	4	4	5																			
LACTIC ACID 5.0%	2	2	2	2	4	4	4	4	5															
LACTIC ACID 10.0%	2	2	2	2	3	3	3	3	4	4	4	4	4	4	4	4	5							
NITRIC ACID 25.0%	2	2	2	2	3	3	3	3	3	3	3	3	4	4	4	4	5							
NITRIC ACID 50.0%									°1				3	3	3	3	5							
OLEIC ACID					°1				3	3	3	3	5											

EPOSEAL W

High Chemical Resistance anti-Mould Colored Epoxy Grout for Tiles and Mosaics Joints from 2 mm to 15 mm also Useable as an Adhesive

SULPHURIC ACID 2.0%	5																						
SULPHURIC ACID 10.0%									°1				2	2	2	2	5						
SULPHURIC ACID 96.0%													°1				2	2	2	2	5		
TARTARIC ACID 10.0%	5																						
Bases and alkalis																							
AMMONIA 25.0%	5																						
SODIUM HYPOCHLORITE 6.4 g / L	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	5						
SODIUM HYPOCHLORITE 49 g / L (COMMERCIAL BLEACH)	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	5		
CAUSTIC SODA 50.0%	5																						
Salts																							
SODIUM CHLORIDE water-saturated	5																						
FERRIC NITRATE water-saturated	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	5						

° Joint disintegration as a result of chemical corrosion.

** wash cycles are described in the following and subsequent notes.

Wash cycle ***	Cycle Description ****
0	wash with pure tap water at 15 °C.
A	wash with tap water and detergent for hard surfaces (testing with simulants according to UNI EN 12720).
B	wash with alkaline cleaner based on caustic soda (10%) and nonionic surfactant (3%) type detergent for industrial kitchens.
C	wash with 50% commercial bleach solution (49 g / L of active chlorine).

*** The washes must be performed according to the 0-A-B-C sequence until either the complete removal of the stain or the best possible removal is achieved. At the end of each wash the surface residual stains shall be evaluated and, if absent, do not proceed to the next wash.
**** The wash procedure is as follows: allow the detergent to react for 15 seconds, then rub the surface with a white Scotch Brite pad for 1 minute, then rinse with cold water.

The interpretation of results must be carried out according to the numerical classification described in the following table.

Points given	Description of the attack
5	No alteration - the area subjected to chemical attack is indistinguishable from the surrounding area.
4	Alteration barely perceptible - the area subjected to chemical attack is distinguishable from the surrounding area only when viewed against the light. The alteration consists only of changes in the gloss and color of the surface and does not affect the structure of the surface (swelling, cracking, blistering, raveling, etc..).
3	Moderate alteration - the area subjected to chemical attack is distinguishable from the surrounding area in several directions and not only against the light. The alteration consists only of changes in the gloss and color of the surface and does not affect the structure of the surface (swelling, cracking, blistering, raveling, etc..).
2	Significant alteration - the area subjected to chemical attack is clearly distinguishable from the surrounding area. The alteration may relate to both changes in the gloss and color of the surface or the surface structure (swelling, cracking, blistering, raveling, etc...).
1	Strong alteration - the structure of the surface subjected to chemical attack undergoes a marked change from the aesthetic (color and gloss) and structural (formation of cracks, blisters, swelling and raveling) point of view.

EPOSEAL W

High Chemical Resistance anti-Mould Colored Epoxy Grout for Tiles and Mosaics Joints from 2 mm to 15 mm also Useable as an Adhesive

Contact time →	7 days				72 hours				24 hours				1 hour				10 minutes				10 seconds			
*wash cycle*** →	*0*	*A*	*B*	*C*	*0*	*A*	*B*	*C*	*0*	*A*	*B*	*C*	*0*	*A*	*B*	*C*	*0*	*A*	*B*	*C*	*0*	*A*	*B*	*C*
Chemical Agent ↓↓↓↓																								
Food Stuff																								
BALSAMIC VINEGAR	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5							
BRANDY (40% VOL. ETHANOL)	4	4	4	4	4	4	4	4	4	5			5											
BLACK COFFEE	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5							
COLA	5																							
GINGERINO	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5							
KETCHUP	4	4	4	4	4	4	4	5	4	4	5													
OLIVE OIL	5																							
SOYA SAUCE	4	4	4	4	4	4	4	4	4	4	4	5												
MINT SYRUP 50% IN WATER	4	4	4	4	4	4	4	5	4	5			5											
RED ORANGE JUICE	4	4	4	4	4	4	4	5	4	5			5											
SALTY BEET JUICE	4	4	4	4	4	4	4	5	4	5			5											
SALTY SPINACH JUICE	4	4	4	4	4	4	4	5	4	5			5											
LEMON JUICE	4	4	4	4	4	4	4	4	4	4	4	4	5											
TOMATO SAUCE	4	4	4	4	4	4	4	5	4	4	4	5	5											
RED WINE	4	4	4	4	4	4	4	5	4	4	5		5											
SAFFRON 1.0 G / L	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5							
Solvents and oxidizing agents																								
HYDROGEN PEROXIDE 3.0%	5																							
ISOPROPYL ALCOHOL	5																							
ACETONE	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5							
1-METHOXYPROPANOL	5																							
METHOXYPROPYLACETATE	5																							
TETRACHLOROETHYLENE (PERCLENE)	5																							
TOLUENE	5																							
TRICHLORETHYLENE (TRICHLOROETHYLENE)	5																							
XYLENE	5																							
Detergents																								
"AZUR"	3	3	3	3	4	4	4	4	4	4	4	5	5											
"CIF LIQUID POWDER"	5																							
DISH DETERGENT	5																							
"NORDECAL STRONG" 100.0%	5																							
"NORDECAL STRONG" 50.0% in water	5																							
"NORDECAL FORTE GEL"	5																							
"STRIPPER" 100.0%	5																							
"STRIPPER" 50.0% in water	5																							
"VIM CLOREX" 10.0% in water	5																							

** The wash cycles are described in the following table and subsequent notes.

Wash ***	Cycle Description ****
0	wash with pure tap water at 15 °C.
A	wash with tap water and detergent for hard surfaces (simulant according to UNI EN 12720).
B	wash with alkaline detergent based on caustic soda (10%) and nonionic surfactant (3%) like for instance detergents for industrial kitchens.
C	wash with 50% commercial bleach solution (49 g / L of active chlorine).

*** The washes must be performed according to the 0-A-B-C sequence until either the complete removal of the stain or the best possible removal is achieved. At the end of each wash the surface residual stain shall be evaluated and, if absent, do not proceed to the next wash.
**** The wash procedure is as follows: allow the detergent to react for 15 seconds, then rub the surface with a white Scotch Brite pad for 1 minute, then rinse with cold water.

The interpretation of results must be carried out according to the numerical classification described in the following table.

EPOSEAL W

High Chemical Resistance anti-Mould Colored Epoxy Grout for Tiles and Mosaics Joints from 2 mm to 15 mm also Useable as an Adhesive

Points given	Description of the attack
5	No change - the area subjected to chemical attack is indistinguishable from the surrounding area
4	Alteration barely perceptible - the area subjected to chemical attack is distinguishable from the surrounding area only when viewed against the light. The alteration consists only of changes in the gloss and color of the surface and does not affect the structure of the surface (swelling, cracking, blistering, raveling, etc..).
3	Moderate alteration - the area subjected to chemical attack is distinguishable from the surrounding area in several directions and not only against the light. The alteration consists only of changes in the gloss and color of the surface and does not affect the structure of the surface (swelling, cracking, blistering, raveling, etc..).
2	Strong alteration - the structure of the surface subjected to chemical attack undergoes a marked change from the aesthetic (color and gloss) and structural (formation of cracks, blisters, swelling and raveling) point of view.
1	Strong alteration - the structure of the surface subjected to chemical attack undergoes a marked change from the aesthetic (color and gloss) and structural (formation of cracks, blisters, swelling and raveling) point of view.

Labeling, packaging and storage

Hazard Symbols	Comp: X_i (EC 67/548); SGH07 (EC 1272/2008) Component B: C (EC 67/548); SGH05 (EC 1272/2008)	
Packaging	2.00 kg KIT	PE bucket containing component A and a 0.16 kg tri-layered envelope containing component B. Limited quantity (LQ) exemption (ADR)
	5.00 kg KIT	PE bucket containing component A and a 0.40 kg tri-layered envelope containing component B. Limited quantity (LQ) exemption (ADR)
Storage	24 months in original packaging, in a covered, dry place at temperatures between +10°C to +35°C	

Legal notice

Tips on how to use our products match the current state of our knowledge and do not imply any assumption of responsibility or/and liability for the final result of works**.** Therefore, customers are not exempt from the responsibility to verify the suitability of products for use and final aims through preliminary tests. The website www.nordresine.com contains the latest revision of this datasheet.

Edition

16.01.2014