Sismabond

Vinylester-based chemical anchor for attaching connectors in CRM reinforcement systems.

High performance resin for heavy structural loads and fixation in seismic area. It can be used on supports subjected to constant humidity, given *Sismabond* excellent mechanical and thermal characteristics, and high chemical resistance. Ideal for anchoring fiberglass connectors in CRM structural reinforcement systems.

BENEFITS

- Quick application and ease of injection for sealing connectors.
- Excellent adhesion ability on construction materials such as concrete, tuff, masonry, and natural stone.
- *Styrene free* product.
- Also applicable on damp substrates as it is insensitive to support's moisture, thus improving the stability of the application.
- Excellent mechanical performances, such as adhesion, shear and compression resistance, and resistance to chemical or environmental agents aggression.
- Non-toxic, and safe for both the environment and the operator.
- Certified product for fire resistance (max 120 min).
- Product designed for anchoring heavy loads and structural fixing in seismic areas.
- A+ (VOC) *environmental status*, and LEED.

YIELD

Depending on the volume used (**see Table 4**).

COLOUR

Gray.

PACKAGING

Boxes of 12 pieces, containing:

- Twelve (12) 420mL cartridges. Each cartridge has two components (*resin:catalyst* ratio *10:1*).
- Twelve (12) static mixers.

APPLICATION FIELDS

Sismabond is a specifically formulated adhesive for fixing fiberglass connectors into existing supports, and it is characterized by an excellent ability of transmitting structural loads into the support, even when seismic risk is present. *Sismabond* is a two-component resin packaged in 420 mL cartridges, where the two components **A** (*resin*) and **B** (*catalyst*) are separated into compartments, already at correct volumetric ratio.
Sismabond is designed to be used in combination with the *Elites L* or *Elites F* (*Elites F1* and *Elites F2)* connectors, the fibreglass mesh *Polites AR 330* and the thermo-structural mortar *Diathonite Sismactive* (see data sheets).

STORAGE

Sismabond must be stored in well-ventilated rooms, away from direct sunlight, water and frost, at temperatures between +1 and +35 C. The product is formulated with a stabilizer, and stability is guaranteed for a duration of 18 months in sealed packaging.

PREPARATION OF THE SUPPORT

The support must be completely hardened and resistant enough. Depending on the diameter established by the project, create the holes in the support by means of rotating instruments or roto-percussion tools according to the type of material to be drilled. Remove dust and loose particles from the inside of the hole with compressed air. The inner surfaces of the hole shall be cleaned by means of a suitable long-bristle brush. Use compressed air once more to remove dust and inconsistent particles that may have formed in the previous step.

The indications and prescriptions given, while representing our best experience and knowledge, are to be considered indicative and must be confirmed by comprehensive practical applications. Diasen does not know the specificities of the process, let alone the determining characteristics of the application support. Therefore, before using the product, the applicator must in any case carry out preliminary tests, to verify the perfect suitability for the intended use and, in any case, assumes any responsibility that may arise from its use. In case of uncertainties and doubts, please contact the technical office of the company before the start of the work, it being understood that this support is a simple aid for the applicator, which must in any case guarantee the possession of adequate skills and experience for the laying of the product and for the identification of the most appropriate solutions. Always refer to the latest updated version of the data sheet, available on the website www.diasen.com that cancels and replaces each other.

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The size of the hole to be drilled in the support, the depth of the anchor, the diameter of the anchoring element, and the maximum allowed loads must be calculated and designed by qualified engineers.
Do not apply with temperatures below -10°C (+14°F). For applications on natural stone check for any impregnation of the support.

MIXING

Sismabond two components **A** and **B** start mixing when they get extruded. This is made possible by a static mixer to be screwed on the cartridge head, thus avoiding preliminary external mixing.
Therefore, screw the static mixer supplied with each pack to the end of the cartridge. Afterwards, insert the cartridge into the extrusion gun. Dispose of the first three pumps of resin, as they may not be evenly mixed. When the colour is homogeneous, proceed with the application of *Sismabond*.

APPLICATION IN THE *CRM* STRUCTURAL REINFORCEMENT SYSTEMS

1. *Sismabond* is used in combination with structural thermal mortar *Diathonite Sismactive*. Refer to the application phases reported in the data sheet of *Diathonite Sismactive*, for the use of *Sismabond* in the structural context of the CRM.
2. Starting from the deepest point in the hole, it is recommended to extrude the resin for about two-thirds of the hole's length. At this point insert the chosen connector, as reported in the specific data sheet. The extruded volumes will strictly depend on the project.
3. Remove excess resin come out of the hole. Then proceed as indicated in the product data sheet *Diathonite Sismactive*.

DRYING TIME

At a temperature of +20 ºC (+68 °F) and relative humidity of 50%, the product dries in 45 minutes (in case of dry support) or in 90 minutes (on wet or wet support).
However, the final curing time (t_{cure}) depends on the condition of the support. Please refer to **Table 3**.

- Drying times are influenced by the relative humidity of the environment, temperature and physical state of the substrate (wet or dry), and may also vary significantly.

SUGGESTIONS

- Do not apply at environmental temperature or at support temperature lower than +5°C (34°F) and higher than +35°C (95°F).
- During the summer season, apply the product in the cooler hours of the day, away from sunlight, keeping any advanced product in the shade.
- Do not apply with imminent threat of rain or frost, in conditions of strong fog or with relative humidity higher than 70%.
- In case there is no total consumption of the resin, the residue can be saved and used in the following days. To do so, simply replace the original static mixer, which would become blocked by polymerized resin, with a new and clean one.

CLEANING

Use normal solvent-based paint thinners to clean all work tools and equipment.

SAFETY

While handling, always use personal protective equipment (PPE) and respect the instructions described in the product safety data sheet.

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Table 1: technical data of the chemical anchoring mortar vinyl ester based, *Sismabond*.

Technical data *			
Features			**Unit**
Yield	Depending on the volume used (see table 4)		-
Aspect	semi-dense		-
Colour	gray		-
Density	1770		kg/m^3
Application temperature	-10 / +35		°C
	+14 / +95		°F
Packaging	12 pieces box	12 cartridges (420 mL)	mL
		12 static mixers	-
Storage	18		months

* These data, even if carried out according to standard test methods, are indicative and may be subject to changes to the specific site conditions.

Table 2: mechanical characteristics of mortar for chemical anchorage based on vinyl ester, *Sismabond*.

Final performances		Unit	Regulation
Compressive strength	100	N/mm^2	EN 196-1
Flexural strength	15	N/mm^2	EN 196-1
Dynamic elastic modulus (*E modulus*)	14000	N/mm^2	EN 196-1
Hardness Shore D	90	Shore D	-
Chemical resistance	excellent	-	-
Electrical resistance	3,6 · 10^9	Ω · m	IEC 93
Thermal conductivity	0,65	W / m · K	IEC 60093
pH values	> 12	-	-
Water resistance	excellent	-	EN12390-8
UV Resistance	pass	-	-

** The minimum temperature of the cartridge must be +15°C (+59 °F).

Table 3: reactivity time of Sismabond. The table shows the start time of the resin ($t_{gel\ time}$) and final curing (t_{cure}), which are strictly dependent on the temperature and state (dry or wet/wet) of the support on which *Sismabond* is applied.

Product performances *Sismabond* reactivity time			
Substrate temperature (°C)	**Start setting time ($t_{gel\ time}$)**	**Final hardening time (t_f)**	
		dry substrate	**damp/wet substrate**
-10**	90 min**	24 h**	48h**
-5**	90 min**	14 h	28 h
0	45 min	7 h	14 h
5	25 min	120 min	4 h
10	15 min	80 min	160 min
20	6 min	45 min	90 min
30	4 min	25 min	50 min
35	2 min	20 min	40 min

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Table 4: consumption of chemical anchoring mortar vinylester-based, *Sismabond*. The theoretical consumption is strictly dependent on the connector used.

	Consumption of *Sismabond*				
Connector type				**M8**	**M16**
Elites F1	Diameter of the connector	d	mm	8	-
	Diameter of hole in concrete	d_0	mm	12	-
	Anchoring depth	h_{ef}	mm	80	-
	Theoretical consumption for each hole		mL	6	-
	Number of holes with 420 mL cartridge		n°	70	-
Elites L	Diameter of the connector	d	mm	8	-
	Diameter of hole in concrete	d_0	mm	12	-
	Anchoring depth	h_{ef}	mm	80	-
	Theoretical consumption for each hole		mL	6	-
	Number of holes with 420 mL cartridge		n°	70	-
Double Elites L	Diameter of the connector	d	mm	-	16
	Diameter of hole in concrete	d_0	mm	-	20
	Anchoring depth	h_{ef}	mm	-	125
	Theoretical consumption for each hole		mL	-	17
	Number of holes with 420 mL cartridge		n°	-	25

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