DIATHONITE THERMACTIVE.037

Thermal spray cork-based coat

2004234

Cork-based natural lightweight thermal coat (grain size 0 - 3 mm – 0 - 0.12 in), lightweight silica filler and natural volcanic materials with suitable grain-size distribution. Composed by natural hydraulic lime NHL 5, the product is antibacterial and prevents the development of moulds and condensation. *Diathonite Thermactive.037* is ready to use, has good performances according to fire reaction, high porosity, breathability and it is recyclable as inert. Thermocoat performs heat and cold insulation, contributes to indoor thermo-hygrometric comfort and maintains its properties over time.

BENEFITS

- Heat and cold insulation.
- Low density.
- Durable and stable system over time.
- Thanks to its high breathability it avoids mould and condensation.
- High porosity.
- It absorbs and releases excessive moisture.
- Ideal for historic refurbishment.
- It preserves and protects masonry.
- Eco-friendly.
- Quick and easy construction system (thermal brick + thermal coat).
- Very fast application system (by plastering pump).
- It can be applied to old plasters.
- Reaction to fire: class A1.
- Seamless insulation.

CE

Diasen srl
Zona Industriale Berbentina, 5 Sassoferrato ANCONA
17
EN 998-1
Specification for mortar for masonry - Part 1: Mortar for internal and external plaster

Thermal conductivity: λ=0.037 W/mK (category T1)
Compression strength: 2.8 N/mm^2 (406.1 lbf/in^2) (category CS II)
Fire reaction: class A1
Vapor permeability value: μ=3
Water absorption by capillarity: 1,00 kg/m^2 min$^{0.5}$ (category W0)
Density: 250±15% kg/m^3 (15.67 ±1.25 lb/ft^3)
Durability freeze-thaw cycle): analysis based on current regulations of the place where the mortar is used.

COLOUR

Light grey.

YIELD

2.60 kg/m² (±20%) per cm of thickness.

APPLICATION FIELDS

Natural lightweight thermal coat for inside and outside, suitable for thermal insulation and dehumidification. It solves thermal bridges and mould caused by humidity, ensuring a healthy living space and a good living comfort. Moreover *Diathonite Thermactive.037* is a completely natural compound, ideal wherever the use of eco-friendly materials is required.

PACKAGING

15 kg (33.07 lb) paper bag.
Pallet: n° 60 paper bags (900 kg – 1984.16 lb).

STORAGE

Store the product in its original containers tightly closed, away from sun, water, ice and kept at temperature higher than + 5°C / + 41°F.
Storage time: 12 months.

DIASEN GREEN BUILDING FUTURE

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Technical data

Featured		Unit
Yield	2.6 (±20%) kg/m^2 per cm of thickness	kg/m^2
Aspect	powder	-
Colour	light grey	-
Specific weight	250 ± 15% 15.67 ± 15%	kg/m^3 lb/ft^3
Grain size	0 – 3 0 - 0.12	mm in
w/c ratio	0,8 – 1,0 l/kg 12 - 15 l per paper bag (15 kg) 3.17 – 3.96 gal (US) per paper bag (33.07 lb)	l/kg gal (US) / lb
Application temperature	+5 /+30 + 41°F / +86°F	°C
Working time (EN 1015-9 – method B)	40	min
Drying time (T = +23°C - +73.4°F; R.H. 40%)	15	days
Storage	12	months
Packaging	15kg (33.07 lb) paper bag	kg

LEED® Credits

LEED for New Construction & Major Renovation, LEED for Schools, LEED for Core & Shell, v. 2009

Thematic area	Credit	Point
Energy & Atmosphere	EAp2 - Minimum energy performance	mandatory
	EAc1 – Optimize Energy Performance	from 1 to 19
Materials & Resources	MRc2- Construction Waste Management	from 1 to 2
	MRc4 – Recycled Content	from 1 to 2
	MRc5 – Regional Materials	from 1 to 2
	MRc6 - Rapidly Renewable Materials	1
Indoor Environmental Quality	IEQp3 - Minimal Acoustical Performance*	mandatory
	IEQc3.2 - Construction Indoor Air Quality Management Plan—Before Occupancy	1
	IEQc4.2 - Low Emitting Materials - Paints and Coatings	1
	IEQc9 – Enhanced Acoustical Performance*	1
	IEQc11 - Mould Prevention*	1

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Final performances		Unit	Regulation	Result
Thermal conductivity (λ)	0.037	W/mK	EN 12667 ASTM C518	category T1
Thermal resistance (R) *for 1 cm of thickness*	0.270	m^2 K/W	10355	-
Specific heat (c)	1000	J/kg K	EN 1745 EN 10456	-
	0.239	kcal/kg °C	-	
Thermal diffusivity (a)	0,1	m^2/Ms	TS 11300-1	-
Vapor permeability coefficient (μ)	μ = 3	-	EN ISO 12572	high breathable
Water absorption by capillarity	1,00	kg/m^2 $min^{0,5}$	EN 1015 - 18	category W0
Compression resistance	2.8 406.1	N/mm² lbf/in^2 (psi)	EN 1015-11	category CS II
Flexion resistance	1.0 145.0	N/mm² lbf/in^2 (psi)	EN 1015-11	-
Dried mortar porosity	71%	-	ISO 15901-1	-
Total pores volume	1372	mm^3/g	-	-
Fire reaction	class A1	-	EN 13501-1	-

* The above data, even if carried out according to regulated tests are indicative and they may change when specific site conditions vary.

PREPARATION OF SUPPORT

Substrate must be completely hardened and resistant enough. The surface must be thoroughly clean, well consolidated, without debris or detaching parts.
Before the application it is recommended to cover window sills, doorsteps, window and door fixtures and any element that will not be covered by the thermal coat.

Brick

Primer is not needed; *Diathonite Thermactive.037* can be applied directly to the substrate.

Cellular concrete

Diathonite Thermactive.037 can be applied over cellular concrete panels without primer.

Concrete

In case of damaged or crumbly concrete, it must be restored with appropriate cement mortar.
Smooth: apply *Aquabond* primer (see technical data sheet).
Rough: primer is not needed; apply *Diathonite Thermactive.037* directly to the substrate.

Panels

Apply *Diathonite Thermactive.037* directly over non treated cork panels. Given the wide range of panels present on the market, it is recommended to verify the adhesion or whether *Aquabond* primer is needed (see technical data sheet).
Take care to put the panels close to each other.

Masonry
If necessary, clean the surface with water jet cleaner or brush it.
Check the masonry; restore damaged or not fixed bricks and stones.
If there are salts, apply *Diathonite Regularization* (see technical data sheet).
To uniform the substrate, use a lime based mortar to keep breathability.

Old plaster
Make sure that the plaster is compact and well bonded to the substrate. If not, it is recommended to partially or completely remove it.
In case of salts, remove the damaged plaster and apply *Diathonite Regularization* (see technical data sheet).
With painted plasters, given the wide range of paints present on the market, it is recommended to perform an adhesion test or if *Aquabond* primer is needed (see technical data sheet).
Onto smooth plasters, apply *Aquabond* primer (see technical data sheet) or, if needed, rough the surface.
Onto rough plasters, primer is not needed and *Diathonite Thermactive.037* can directly be applied to the substrate.

Wood
Apply *Diathonite Thermactive.037* directly over non treated wood.
In case of smooth or treated wood, treat the surface with the primer *Aquabond* (see technical data sheet).

For supports not mentioned in technical data sheet, contact the Diasen technical department.

MIXING
Based on the absorption degree of the substrate and on the condition of the environment, it is recommended to measure out the right amount of water that is needed to obtain the correct adhesion. The amount of water indicated is merely indicative.
- If the product is mixed with a concrete mixer or with a mixing drill, add 12 - 15 l [3.17 – 3.96 gal (US)] of clean water per bag of *Diathonite Thermactive.037* (15 kg – 33.07 lb). **Do not mix the material for more than 3-4 minutes.**
- The mixture must be foamy.
- Do not add anything else to the mixture.

APPLICATION
Application by hand
1. It is **fundamental** to wet the surface, in particular during summer season and in case of walls exposed to sun. If the surface was treated with a primer, it is not necessary to wet the substrate.
2. Perform points or reference bands to obtain the required thickness. Points or reference bands can be created with *Diathonite Thermactive.037* or it is possible to use steel or wood edging. In this case, these have to be removed as soon after the application of the last layer.
3. Corner sections can be placed together with reference bands, anyway before the application of the last coat.
4. To secure corner and angles, in multi floor application, use steel corner beads. These must be fixed with *Diathonite Thermactive.037* to avoid thermal bridges.
5. Apply a first coat of *Diathonite Thermactive.037* by trowel.
6. Apply successive layers when the one below is superficially dry (after about 12/24 hours), up to the required thickness.
7. Wet the material before the application of each layer.
8. Beyond 6.00 cm / 2.36 in of thickness it is recommended the use *Polites 140* plaster mesh (see technical data sheet). The net must be drowned into the material at about half of the total thickness and, if necessary, it must be used irrespective of the thickness even in case of application on panels, wood, plasterboards or to unstable substrates.
9. On pillar or beams, the mesh must stick out on both sides of the concrete supports of at least 15 cm / 5.91 in.
10. When smoothing the product, do not push *Diathonite Thermactive.037* that much against the wall. This is required to preserve the porosity. To smooth, use a strike off bar, in horizontal and vertical way, to obtain a regular surface.

Application by pump
Diathonite Thermactive.037 can be applied using plastering machine for light weight pre-mixed products.
The set up of the machine varies accordingly to the specific type of pump used.

It is possible to use plastering pump such as three phase PFT G4, equipped with stator D6-3, hollowed mixing blades (semi-closed) and conical material holder hose with a diameter of 35 / 25 mm – 1.38 / 0.98 in, 14 to 16 mm – 0.55 / 0.63 in nozzle.

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2. Perform points or reference bands to obtain the required thickness. Points or reference bands can be created with *Diathonite Thermactive.037* or it is possible to use steel or wood edging. In this case, these have to be removed as soon after the application of the last layer.
3. Corner sections can be placed together with reference bands, anyway before the application of the last coat.
4. To secure corner and angles, in multi floor application, use steel corner beads. These must be fixed with *Diathonite Thermactive.037* to avoid thermal bridges.
5. Load the content of the bags inside the hopper and adjust the flow-meter of the pump machine at 200 – 250 l/h / 52.83 - 66.04 gal/hour.
6. Spray *Diathonite Thermactive.037* bottom up.
7. Apply a first coat of *Diathonite Thermactive.037* as regularization. Apply successive layers up to the required thickness.
8. Any successive layers must be applied when the previous one is superficially dry and visually lighter in colour (after about 12/24 hours). Wet the material before the application of any layer.
9. Spray *Diathonite Thermactive.037* with few interruptions. Otherwise place the nozzle into water to avoid any clumps.
10. Beyond 6.00 cm / 2.36 in of thickness it is recommended the use *Polites 140* plaster mesh (see technical data sheet). The net must be drowned into the material at about half of the total thickness and, if necessary, it must be used irrespective of the thickness even in case of application on panels, wood, plasterboards or to unstable substrates.
11. On pillar or beams, the mesh must stick out on both sides of the concrete supports of at least 15 cm 7 5.91 in.
12. When smoothing the product, do not push *Diathonite Thermactive.037* that much against the wall. This is required to preserve the porosity. To smooth, use a strike off bar, in horizontal and vertical way, to obtain a regular surface.

DRYING TIME

At +23°C / +73.4°F and 50% relative humidity level, the product dries in 10-15 days.

- Drying time is influenced by humidity level and by temperature and may significantly change.
- If *Diathonite Thermactive.037* is applied with higher thickness, drying time will significantly increase.
- Protect *Diathonite Thermactive.037* plaster from ice, direct sunlight and wind.
- In case of high temperature, direct sunlight or strong wind, it is necessary to wet the material 2/3 times per day for the first 2/3 after the application.
- At temperature higher than +28°C / +82°F, wet the material every 2 hours to avoid cracks.
- If applied internally, ventilate as much as possible the room during application and drying.

To finish the product it is possible to apply, both inside and outside, the following skim coats: *Argacem HP* (with 0-0.6 mm / 0-0.24 in grain size), *Argatherm* (to improve thermal insulation with 0-0.6 mm / 0-0.24 in grain size) and *Argacem Ultrafine* for a perfectly smooth texture. For the application of these skim coats please see technical data sheets.
For the finishes of these skim coats, use breathable Diasen finishes specific to indoors and outdoors.

SUGGESTIONS

- Do not apply at temperatures (both substrate and environment) below + 5°C / + 41°F and above +30°C / + 86°F.
- During summer season, apply the product in the cooler hours of the day, avoiding direct sunlight.
- Do not apply with imminent threat of rain or ice, in conditions of strong fog or with relative humidity higher than 70%.

- If applied on the ceiling, *Diathonite Thermactive.037* must be applied with plastering machine. We do not recommend hand application.
- If applied internally, it is necessary that the external surface does not absorb water. Otherwise, treat the surface with *BKK Eco*.
- In presence of exposed walls, apply a siloxane, transparent, breathable and water-repellent product such as *BKK Eco*.

CLEANING

Wash tools with water before product hardens.

SAFETY

While handling the product, respect the instructions described in the safety data sheet and always use protective gloves and anti-dust mask.

DIASEN Srl - Z.I. Berbentina, 5 - 60041 Sassoferrato (AN)
Tel. +39 0732 9718 - Fax +39 0732 971899
diasen@diasen.com - www.diasen.com