

Technical Sheet

i.active CARGO

Description

i.active CARGO is a cementitious mix based on the TX Active® technology to be blended with water, specific for achieving pavements with high mechanical performance. This ready-mix grout is well suited to fill open graded asphalts to obtain semi-flexible pavements. Activated by photocatalysis, the product shows depolluting properties. Thanks to the special formulation of this smooth and high-flow grout, you can obtain pavements with very different physical & mechanical characteristics, from semi-flexible to semi-rigid (in this case with high punching shear resistance), through percolation in open graded asphalts where the interconnected void content varies from 18 to 22%, even up to 25-30%. i.active CARGO can be easily pumped and can penetrate the full layer depth of asphalt with a high void content without the need for mechanical vibration. No construction joints are required to control shrinkage. The combination "open graded asphalt + i.active CARGO" allows obtaining monolithic floors with the same flexibility characteristics as bituminous asphalt concrete and, in addition, compressive strength and elastic modulus typical of a concrete pavement. It also provides high chemical resistance, e.g. to solvents and hydrocarbons.

Fields of application

i.active CARGO is particularly suitable for industrial flooring, freight terminals and storage warehouses, logistic areas, parking areas for heavy vehicles, access routes for freight vehicles, maintenance, supermarket parking areas, street paving, bus and tramway lanes and stops, toll gates, corridors for military vehicles and service roads, parking areas, washing areas and de-icing areas at airports, as well as road pavements in tunnels. It is specifically suggested for road pavements inside tunnels.

Application data (*)

| | |
|---------------------------|--|
| Water/solid ratio (**) | 0,34-0,38 |
| Workability time | approx. 1h at 20°C |
| Application temperature | From +5 to +30 °C |
| Average consumption (***) | approx. 10-12 kg/m ² for 4 cm thickness |
| Final hardening | 28 days |

Product data

| | |
|------------|------------------------------|
| Appearance | Dry ready-mix in powder form |
| Colour | Grey |

(*) These values are derived from laboratory tests in controlled environment and could be considerably modified by application and local environmental conditions (temperature, humidity and wind speed).
 (**) corresponding to a water content of 22-24% in the slurry.
 (***) referred to a pavement with a 20% void content

Packaging and storage

i.active CARGO is available in 25-kg bags, on wood pallets protected by stretch film (total weight about 1,500 kg). Store in a cool dry place in the original packaging. Use within 6 months from packaging date.

Product specifications

| Mechanical properties of the open graded asphalt / i.active CARGO system (*) | Test method | Unit of measurement | Value |
|--|------------------|---------------------|------------|
| Compressive strength at 28 days | EN 13286-41:2006 | MPa | 8-12 |
| Indirect tensile stress | EN 13286-41:2006 | MPa | >1.2 |
| Elastic modulus at 20°C | EN 12697-26 | MPa | 8000-12000 |

(*) The final physical & mechanical characteristics of the whole pavement depend on the actual void content of the open graded asphalt



| Technical characteristics of i.active CARGO (*) | Test method | Unit of measurement | Value | Technical characteristics of i.active CARGO (*) | Test method | Unit of measurement | Value |
|---|-------------|---------------------|-------|---|--------------------------|---------------------|-------------|
| Average compressive strength, 24h | EN 1015-11 | MPa | >15 | Dry bulk density in the hardened state | EN 1015-10 | kg/m ³ | 1950 |
| Average compressive strength, 4 days | EN 1015-11 | MPa | >35 | Flowability - Marsh cone Ø 10 mm (**) | T=0 T=60min | sec sec | 13-15 30 |
| Average compressive strength, 28 days | EN 1015-11 | MPa | >50 | Photocatalytic activity (***) | Draft st. UNI 04-2010 | % | >75% |
| | | | | Photocatalytic activity | UNI 11247-2010 | % | 20 |

(*) These values are derived from laboratory tests in controlled environment and could be considerably modified by application and local environmental conditions (temperature, humidity and wind speed).

(**) Referred to a pavement with a 20% void content

(***) Photocatalytic activity according to draft UNI standard "Determination of the degradation of nitrogen oxides in the air by inorganic photocatalytic materials: Recirculation test method" Only for the photocatalytic version TX Active®

Preparation and use

Mix i.active CARGO with clean water without adding other products. For achieving the best mix, we recommend using a continuous mixer, e.g. a high-speed turbo mixer or a two-stage high-speed mixer (with mixing tool and feed auger) of suitable power and capacity appropriate to the work site size. When using a turbo mixer, mixing and homogenization are instantaneous. For other mechanical mixers, mix for at least 1-2 minutes before using the grout. Make sure that the grout is lump-free. Before you start spreading the product across the asphalt adjust the water/solid ratio (nominal: 0,34-0,38 – that is, about 9 liters of water for one 25 kg-bag) checking flowability with the Marsh cone flow test (10 mm Ø orifice for 13/15 seconds). For open graded asphalts with higher void content, reduce the water/solid ratio in order to achieve higher flowability at the Marsh cone (for example, for a 25% void content we suggest a water/solid ratio = 0,32, corresponding to a flow rate of about 16-18 seconds – about 8 liter per one 25 kg-bag). Pour the product through the outlet pipe of the turbo mixer and spread it using rubber blades or mechanically by means of appropriate automated equipment. Apply on warm (T<30°C) and clean asphalt. Avoid application when temperature is below 3°C. With temperatures above 30°C, duration of optimum flow over time may be reduced. Do not apply the product in case of rain. Application of the product in unsuitable weather conditions may affect drying time detrimentally and compromise the achievement of optimal performance characteristics. After application, it is advisable to protect the work with anti-evaporation mats for about 24 hours. Due to the photocatalytic performance of the material, film-forming products cannot be used. To obtain specific skid values – when required, such as in the case of road paving – the pavement must be shot blasted or hammered after an adequate curing time (at least 48 hours).

Specifications

Supply and casting of grout type i.active CARGO based on hydraulic photocatalytic cementitious binders (TX Active technology) and synthetic admixtures, to be applied on open graded asphalt pavement with a 18-22% void content until complete filling of the same to obtain a semi-flexible pavement possessing depolluting properties. Flow rate with the Marsh cone test (Ø 10 mm) = 13-15 seconds. Mixing and pumping will be carried out with adequate continuous mixer. The product will be spread with rubber blades to facilitate penetration across the open graded asphalt layer. After application, it is preferable to protect the work with anti-evaporation fabric for about 24 hours. For maintaining the photocatalytic properties, the surface cannot be protected with film-forming organic or inorganic products, even if transparent (this is possible only if the surface is then shot blasted or hammered).

For open graded asphalts with higher void contents, change the reference flow rate (see above).

If specific skid values are desired, enter the specification item as follows:

Shot blast or hammer the pavement after adequate curing time (at least 48 hours) to obtain a skid resistance value - measured with portable friction tester on clean surface (according to EN 13036-4: 2011) - of not less than XXX (the project designer / prescriber shall insert here the specified skid value).

Product for professional use. The use of this product should be based on investigations and evaluations made by the user.

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