Stabicol® CE Emulsion

General information

Stabicol CE Emulsion is a water-based polymer-modified synthetic emulsion, neutral in colour.

Applications

Sand stabilisation with Stabicol CE may be required for various applications. It is often preferable not to have to level a forest path or sandy road every six months or more. This results in high maintenance costs for the road and traffic network without achieving a long-term improvement. Building a road or path without the material being washed away by rain within a short time may also be a reason for sand stabilisation. The road or path must retain some water permeability and must be recycleable. This can be implemented by means of two processing methods.

- Processing the sand present (in situ) by spraying the loosened surface and mixing sand and emulsion.
- Processing sand delivered by pre-mixing with emulsion and applying the slurry.

Sand fixing in storage is another application of Stabicol CE. Sand is used in various architectural work, often delivered beforehand to prevent the stagnation of the work. This often means storing loose sand in large quantities. The unpredictable Dutch weather means this can often lead to an excess of blowing sand ending up near houses, leading to complaints by community councils, or on roads, causing dangerous situations. This can be prevented by fixing the top layer without affecting the rest of the sand. Diluted Stabicol CE can be sprayed so that the emulsion penetrates about 2 cm into the sand and binds the top layer. This bond is enough to resist the wind but the material remains water permeable and can easily be picked up and mixed with the unbound sand, breaking the bond. This also allows prevention of sand erosion on dunes.

- Spraying the sand using Stabicol CE diluted with water for stabilisation and to prevent erosion.

Ground injection is an application for which Stabicol CE has excellent properties. Foundation work requires the ground to be fixed so that a part can be excavated and work can be carried out without the rest of the ground collapsing. This is important for foundations as well as tunnels. Under pressure, the emulsion can easily be injected into the ground using a jet pipe. The properties of the emulsion cause the material to spread and to bond with the ground after being broken. The material is easily recycleable and water cannot leach out of it, making it very suitable for this application.

- Injection into the ground for stabilisation during excavation work.

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Properties

emulsion

emulsion type		: cationic
binding agent content		: approx. 50% [10% polymer]
viscosity at 20°C		: 5 - 10 sec. STV
density		: approx. 1000 kg/m^3

Dry binding agent

R & K breaking point		: > 45°C
elasticity		
[ASTM D412]	20°C	: > 2.000%
	0°C	: > 500%
	-10°C	: > 50%

System

pressure strength (5m%) at 25°C	: > 2 N/mm²
water permeability	: semi

Processing

Sand stabilisation using a milling machine

The existing sand path can easily be loosened to the correct depth using a milling machine. The depth to be processed depends on the load on the road or path and must be determined beforehand. The substrate is then lightly moistened with water and a quantity of emulsion applied corresponding to 5 m% of mixing. This means that at one m^2 and a depth of 8 cm (= 120 kg of sand), approximately 6 kg of emulsion must be applied. The mixture is mixed using the same milling machine and the layer is then hardened with a roller.

Sand stabilisation using a concrete mixer

The sand delivered can be mixed with Stabicol CE using a concrete mixer, pre-mixing the sand in the mixer with approximately 3 m% of water. The stirred emulsion is then added in the right quantity, approximately 5 m% on the sand. This fluid mass can be applied the surface without further pre-processing. Fluidity is such that the edges of the path or road must be protected, either by applying tape beforehand or by containing the fluid mass on both sides with a cross beam during application.

Sand fixing using spraying equipment

Sand storage can be fixed by applying Stabicol CE, diluted 20 times, to the sand pile using spraying equipment. The emulsion is applied in a quantity of approximately 1 – 2 kg/m^2. The penetrating effect of the emulsion will cause a layer of approximately 2 cm to be hardened, preventing the sand from blowing away.

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Stabicol® Color Emulsion

Ground impregnation using a jet pipe

Stabicol CE can be injected using a jet pipe. The material will spread in the ground and stabilise the ground when the emulsion is broken. This allows localised excavation without the ground collapsing.

Notes

- Stabicol CE cannot be handled using the conventional pumps using in roadwork. The fast-breaking highly modified emulsion will clog the pump, causing delays and even damage to the pump. Pressure spraying is recommended.
- Stir Stabicol CE well before use.
- Processing wet sand with percentages of 7 m% water is not a problem.
- Stabicol CE can be used only in drying weather and a temperature of at least 10 °C. The water in the emulsion must evaporate and the bitumen emulsion bubbles must bond with the sand. Do not apply Stabicol CE in mist or if precipitation is imminent.
- Watering cans may be used for moistening with water
- A Stabicol CE finish may be put into service once the system has finally bonded with the substrate, generally within 24 hours in drying weather during the summer months. The waiting time may be considerably longer in the spring and autumn. Torsional traffic must be avoided. Any damage observed can easily be repaired by hand.

Storage

- If stored away from frost, the product can be kept for a maximum of 6 months in closed packaging.
- Storage may result in noticeable settling, although this can be homogenised by intensive stirring.

Packaging

- In tins of 25 kg net fill weight.
- In drums of 200 kg net fill weight.
- In bulk

Standard colours - Natural (pigment pastes may be supplied additionally).

Table of applications

Application	Method	Calculation	Quantity
Sand Stabilisation	mixing	5 m%	8 cm depth = 6 kg / m^2
Sand Fixing	spraying	diluted 20 times	1 – 2 kg / m^2
Ground Impregnation	jet pipe	3 - 6 m% (diluted approx. 8 times)	50 – 100 kg / m^3

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