BUILDING TRUST

PRODUCT DATA SHEET

Sikagard®-8500 CI

(formerly MProtect 8500CI)

Dual-phase, surface-applied corrosion inhibitor

DESCRIPTION

Sikagard®-8500 CI is a one component, ready to use, low viscosity, clear liquid with 100% active ingredients that deeply penetrates into the concrete and both mitigates active corrosion as well as delays the onset of corrosion in new or aged steel-reinforced concrete. Sikagard®-8500 CI uniquely combines the primary reactive penetrant with a second, latent-phase corrosion inhibitor. This latent-phase inhibitor activates when the concrete cracks later on, migrating to the reinforcing steel to provide an extra level of protection when it is most needed.

USES

Sikagard®-8500 CI is sprayed directly onto the surface of steel reinforced concrete structures and buildings. It is equally suited for cast-in-situ, precast, post-tensioned, pre-stressed or other steel reinforced concrete.
Sikagard®-8500 CI can be used as part of an overall repair strategy using Sika concrete repair systems to mitigate corrosion rates within the balance of the structure and significantly reduce the possibility of incipient anode induced spalling later (also known as ring anode or halo effect).
Equally Sikagard®-8500 CI can be used as a cost-effective preventative measure before the onset of corrosion induced problems occur.
It is particularly suited for the protection of:

- Steel reinforced concrete, including cast-in-place, precast, pre-stressed and post-tensioned.
- Chloride-contaminated (up to 2 % by weight on cement content at rebar level) as well as carbonated concrete.
- Building facades and balconies, parking structures, pedestrian walks, bridge decks and supporting elements (beams, columns, etc.), concrete docks and piers.
- Marine and other high humidity environments not subject to hydrostatic pressure.
- Steel-reinforced concrete exposed to de-icing salts.

FEATURES

- 100 % active ingredients - no diluents or fillers.
- Easy to apply and quick-drying for fast installation.
- Provides water repellent surface to prevent penetration of moisture and chlorides.
- Delivers in-depth corrosion protection that is unaffected by UV radiation or surface wear.
- Increases durability of repair by reducing the incipient anode effect.
- Suitable for use in new construction and repair applications.
- Effective in chloride-contaminated and carbonated concrete to significantly slow down the rate of corrosion.
- Latent-phase corrosion inhibitor activates if concrete cracks or if moisture penetrates the concrete, providing extended protection when it is most needed.
- Vapour-permeable, to prevent moisture entrapment and enabeling the concrete to "dry out".
- Effective in high humidity environments to mitigate corrosion of reinforcing steel.
- Can be covered with most types of subsequent Sika coatings, thereby reducing downstream labour costs compared with many other corrosion inhibitors.

CERTIFICATES AND TEST REPORTS

- Experimental Study of Migrating Corrosion Inhibitors (MCIs) for Concrete, University of Bergamo / Italy
- Tests on chloride- and carbonation-induced corrosion inhibition, Torroja Institute / Spain
- Test Report Corrosion testing according to ASTM G109, University of Texas / USA

- Corrosion Study, Test report No. 15-1001, Nelson Laboratories / USA
- Corrosion in concrete DIN EN 196, Test Report 16049292/1, BAM Berlin / Germany
- Penetration Depth, ALBA Institute Barcelona / Spain
- CE-Certification according to EN 1504-2 (hydrophobic impregnation)

PRODUCT INFORMATION

Packaging	Sikagard®-8500 CI is available in 20 l plastic jerry cans and 850 kg IBCs. Please refer to the current price list for available packaging variations.
Appearance and colour	clear to light amber liquid
Shelf life	18 months after date of production if stored in undamaged, unopened containers at below mentioned storage conditions.
Storage conditions	Sikagard®-8500 CI should be stored dry and cool, no permanent storage over +30 °C. Keep containers closed when not in use and away from naked flames, heat sources and sparks.
Density	~0.88 kg/l
Flash point	+62 °C (EN ISO 2719)
Viscosity	At +23 °C 0.82 cP

TECHNICAL INFORMATION

Freeze thaw de-icing salt resistance	Loss of mass after freeze-thaw salt stress	≥ 30 cycles later than not impregnated specimen	(EN 13581)
Resistance to weathering	no yellowing or discolouration		(NCHRP Report 244, Series IV [Southern Exposure])
Permeability to water vapour	Moisture Vapor Transmission Performance	> 75 %	Alberta B388, Type1b
	Waterproofing Performance After Abrasion	> 85 %	
Penetration depth	>10 mm		(EN 1504-2)
Chloride ion diffusion resistance	Chloride Reduction	> 88 %	NCHRP Report 244, Series II Northern Exposure
	Chloride Reduction	> 90 %	NCHRP Report 244, Series II Southern Exposure
Water absorption	compared to untreated sample	1.8 %	(EN 13580)
	compared to untreated sample (after immersion in alkali solution)	5.0 %	
	Water Absorption Reduction	> 88 %	NCHRP Report 244, Series II [Northern Exposure]
Drying rate coefficient	55 %		(EN 13579)

APPLICATION INFORMATION

Consumption	0.6 liter/m² respectively 0.5 kg/m²
Ambient air temperature	+5 °C to +38 °C
Substrate temperature	+5 °C to +38 °C
Curing time	Sikagard®-8500 CI finishes its chemical reactions in two weeks.
Waiting time to overcoating	Wait at least for 24 hours after the last Sikagard®-8500 CI application before applying eventual subsequent coatings.

BASIS OF PRODUCT DATA

All technical data stated in this Data Sheet are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control.

IMPORTANT CONSIDERATIONS

- For professional use only; not for sale to or use by the general public.
- The effectiveness of Sikagard®-8500 CI depends on existing corrosion rates, condition of the reinforcing steel and service conditions.
- Proper application is the responsibility of the user. Field visits by Sika personnel are for making technical recommendations only and not for supervising or providing quality control on the jobsite.
- Do not apply at temperatures below +5 °C or over +38 °C.
- Do not apply on wet or damp substrates! Allow concrete surfaces to dry for between 24 and 72 hours after heavy rain or cleaning with water before applying Sikagard®-8500 CI.
- Do not apply if rain is expected within four hours following application or if high winds or other conditions prevent proper application.
- Do not alter or dilute the material as supplied.

ECOLOGY, HEALTH AND SAFETY

User must read the most recent corresponding Safety Data Sheets (SDS) before using any products. The SDS provides information and advice on the safe handling, storage and disposal of chemical products and contains physical, ecological, toxicological and other safety-related data.

APPLICATION INSTRUCTIONS

SUBSTRATE PREPARATION

New concrete must be properly cured. The concrete should have obtained 80 % of its design strength, which typically takes 14 to 28 days, depending on the mix design.
Concrete surfaces must be dry and cleaned to remove all traces of mould oil, curing compounds, dirt, dust, efflorescence, mould, algae, grease, oil asphalt, paint, lacquers, or other coatings or any other materials that would prevent penetration.
Acceptable cleaning methods include shot or sand blasting, high-medium pressure water blasting, or grinding. An ICRI 310.2R CSP 3 – 5 is preferred for best penetration.
All delaminated, lose or spalled concrete must be removed and repaired with an approved product from Sika's concrete repair range. Repair mortars must be properly cured and obtain 80% of their design strength.
Sikagard®-8500 CI can, as an additional protective measure, be applied directly to exposed rebar before repair work commences.
Sikagard®-8500 CI may be applied on chloride-contaminated substrates as long as the substrate is free of dmages, sound and the chloride content is ≤ 2.0 weight % calculated on the cement content.
Non-moving shallow shrinkage cracks (<0.3 mm) with no structural significance are simply treated with multiple coats or ponding of Sikagard®-8500 CI.
Other cracks or failed joint sealants should be routed clean and treated with Sikagard®-8500 CI before being filled with suitable joint sealant from the Sikaflex® poduct range.

MIXING

Sikagard®-8500 CI is a ready to use product. Do not mix or add anything into the material. Simply shake the jerry can before opening.

APPLICATION

1. Use Sikagard®-8500 CI as supplied. Do not alter or dilute the product in any way.
2. During application, precautions should be taken to protect the surrounding area from overspray and run-off.
3. Apply Sikagard®-8500 CI to **dry** concrete. Air and concrete temperatures must be between +5 °C and +38 °C. Lower or higher application temperatures require prior written approval from Sika's Technical Service.
4. Apply Sikagard®-8500 CI to all concrete surfaces, including repairs, in a multiple coat application. Sikagard®-8500 CI can be applied with low pressure, non-atomizing spray equipment with a wet fan-type spray nozzle, or by brush or roller. Sprayers should be fitted with solvent-resistant hoses and gaskets. The product can also be poured when pre-treating cracks in horizontal surfaces. Allow a minimum of 15 minutes between coats but do not re-coat before previous application is visibly dry.
5. Most applications require two or three coats applied at a rate of 200 - 300 ml/m² each. Apply minimum 600 ml/m² in total. The exact amount of Sikagard®-8500 CI will vary due to concrete porosity, application environment and with the degree of corrosion, chloride content of the concrete and the severity of expected service conditions. Contact your Sika representative to discuss specific project requirements.
6. Sikagard®-8500 CI only reacts with mineral based substrates. Therefore, it does not react inside the container or application pump. As long as it is kept in its original container or inside a clean sealed pump, it can be used when ever needed during its shelf life.

CURING TREATMENT

It is recommended that any surface treated with Sikagard®-8500 CI to be left undisturbed for a minimum of 4 hours in order to allow proper penetration.

CLEANING OF EQUIPMENT

After use all equipment should immediately be cleaned with any organic solvent.

LOCAL RESTRICTIONS

Note that as a result of specific local regulations the declared data and recommended uses for this product may vary from country to country. Consult the local Product Data Sheet for exact product data and uses.

LEGAL NOTES

The information, and, in particular, the recommendations relating to the application and end-use of Sika products, are given in good faith based on Sika's current knowledge and experience of the products when properly stored, handled and applied under normal conditions in accordance with Sika's recommendations. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any written recommendations, or from any other advice offered. The user of the product must test the product's suitability for the intended application and purpose. Sika reserves the right to change the properties of its products. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users must always refer to the most recent issue of the local Product Data Sheet for the product concerned, copies of which will be supplied on request.

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