CSE® reactive surface deactivator

Version „nova“

PRODUCTS FOR GOOD-LOOKING CONCRETE

Introduction:

The brand ***CSE®*** characterises a group of liquid deactivators for the production of exposed aggregate concrete surfaces, for example, to make architectural prefabricated/precast concrete panels, small precast elements and products, cast stone, cast-in-place walls and pavings and „rough“ constructions joints.
To reach exposed aggregate concrete the first layer of cementitious material is removed so that the aggregates become visible. To control and ease this process the ***CSE® Deactivator*** reacts chemically upon surface contact with the fresh concrete during the hydration and stops the cement from hardening there. The fresh concrete below this surface layer hydrates and hardens like normal. Later, usually after 24 hours, the surface can be washed off, which means that the „deactivated“ cementitious material is removed by waterjet and the aggregates are revealed. The depth of this wash-out texture is called and specified by the exposure depth in millimeters.
CSE® Deactivator is available in 4 different versions and each comes in 11 different exposure depths. All versions have been developed with special features to reach perfect results when used in the two main ways of application - the „negative“ application (when the ***CSE® Deactivator*** is applied onto a mould surface) and the „positive“ application (when the ***CSE® Deactivator*** is sprayed onto a freshly poured concrete surface). See Available Versions for more information.
This data sheet covers all aspects when using ***CSE® „nova“*** .

Product Description:

The version ***CSE® “nova“*** has been modified to perform excellently especially when precast/prefab concrete is produced. ***CSE® “nova“*** is available in 11 different exposure depth types - see page 2. ***CSE® “nova“*** is mainly used in the „negative“ application, also called „face down“ cast, which is widely used in the precast concrete industry to produce exposed aggregate concrete surfaces. ***CSE® “nova“*** can also be used to create exposed aggregate surfaces even when making cast-in-place walls and floors, or for construction joints with a rough surface for good adhesion.

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Characteristics:

- water-based
- film-forming after drying
- good mould surface bond and adhesion
- contains best and approved active ingredients
- based on CSE®-Deactivator technology
- chemically engineered formulation
- **NEW:** with „Release“- effect
- available in 11 different exposure depth types
- colour-coded / pigment added
- **NEW:** with special „weekend“-ingredient
- **NEW:** viscosity control
- made to be compatible to all mould materials
- **NEW:** now with water-hold back buffer
- made for „negative“ and „positive“ way of use

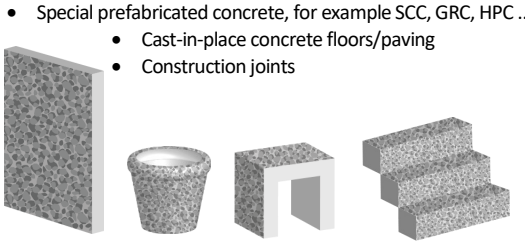
Benefits:

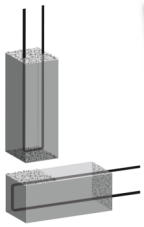
- eco-friendly and non-hazardous
- suitable for horizontal and vertical moulds
- good abrasion resistance during pouring/casting and vibration
- works with all kinds of concrete, also SCC, HPC, GRC ...
- for reliable performance, regardless of consumption rate
- for easy application and low consumption
- for fast and easy mould cleaning
- all architectural or functional options possible
- for good visibility of coat after application
- for „later“ demoulding/wash-out (pilot test necessary)
- for spray-application option
- no limitations in mould material selection
- for fast and easy wash-out
- more than one exposed aggregate side possible on same element

Click here for pictures showing examples of exposed aggregate conrete in our Gallery.

Fields of Application:

- Precast concrete, for example facade elements
- Small precast, for example steps, planters, benches, curbstones ...
- Special prefabricated concrete, for example SCC, GRC, HPC ...
- Cast-in-place concrete floors/paving
- Construction joints





Available Versions:	Version “pro“	Version “nova”	Version “solotop“	Version “multitop”
	for negative and positive application, solvent-based, ideal for architectural precast concrete (heavy and small precast) Click here for tech data sheet	for negative and positive application, water-based, ideal for architectural precast concrete (heavy and small precast) and for construction joints	only for positive application, water-based, ideal for small precast and decorative cast-in-place paving Click here for tech data sheet	only for positive application, with built-in curing membrane and rain-protection, water-based, ideal for decorative cast-in-place concrete paving Click here for tech data sheet

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Exposure depth selection:

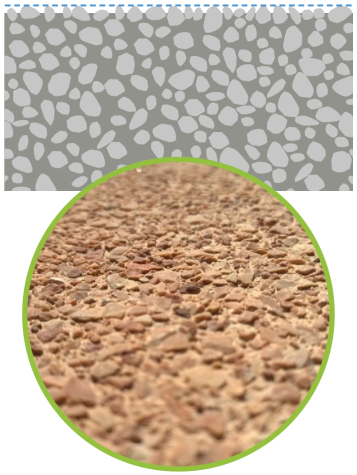
- Usually exposed aggregate concrete mixes have „gapped“ aggregate sizes for best surface uniformity.
- The selection of the exposure depth, the choice of the ***CSE® Deactivator*** product and the choice and size of the aggregates are connected to each other. The wash out depth should consider to still allow a good bond of the aggregates on the surface. So the reveal of surface should not go deeper that 40% of the aggregates - see table below:
- Advice: HEBAU provides free of charge concrete mix designs as guidelines for a good concrete mix.

***CSE® Deactivator is available in* 11 different exposure depth types:**

Type:	CSE® mino	CSE® 01	CSE® 02	CSE® 10	CSE® 25	CSE® 50	CSE® 70	CSE® 130	CSE® 200	CSE® 300	CSE® 400
Size of aggregates (in mm)	0 - 4/8	0 - 4/8	2 - 8	2 - 8	4 - 8	6 - 8/12	8 - 16	8 - 16/22	12 - 16/32	16 - 32	16-32/54
Exposure depth (in mm)	approx. 0,3	approx. 0,5	approx. 1,0	approx. 1,5	approx. 2,0	approx. 2,5	approx. 3,0	approx. 4,0	approx. 5,0	approx. 6,0	approx. 7,0
Colour code	light blue	blue	brown	green	yellow	pink	grey	white	orange	violet	violet

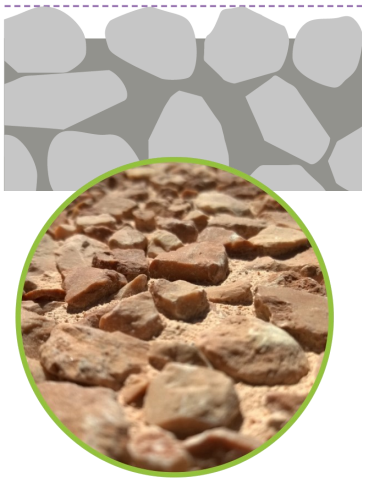
Please note, that all the information about the exposure depths and recommended ***CSE®*** types is only a guideline, because the final exposure-depth is not only controlled by the chosen type of ***CSE® Deactivator***, but also effected by many other factors, for example by the amount of cement and sand, by the type of cement (grey/white, fast setting/ slow setting), from the water-cement-ratio, by the demoulding period (e.g. by weekend production), etc.

Exposure depth approx. 1,5 mm



Exposure depth approx. 3 mm

Exposure depth approx. 6 mm



Click here for pictures showing more examples of exposed aggregate concrete in our Gallery

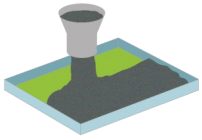
Instructions for Use:

CSE® Deactivators are liquid products and must be stirred up thoroughly before use. Close the bucket/container tightly right away after taking out material.

For negative (face-down) application ***CSE® “nova”*** should be applied to the mould uniformly (criss-crossing) with a short-nap painting-roller or a suitable spray-pistol. Do not use an additional mould release agent! The drying time depends on the outdoor temperature resp. consumption of the ***CSE® Deactivator*** and is approx. 30 minutes. After drying, during which the ***CSE® Deactivator*** forms a solid, abrasion-resistant coating, the casting of the concrete can begin and should be carried out with care in order to rule out segregations of the face-concrete (face-mix). Same attention must be payed to the vibration because architectural concrete must be handled thoughtfully as standard structural concrete handling routines may not be appropriate. If you are using self-compacting / self-levelling concrete the hydration should be moderate and shall be monitored, see “General Instructions” on page 3.

Negative / Face-down application method of *CSE® “nova”* (simplified example of the production of exposed aggregate concrete - click here for more detailed guidelines of application procedures)

1. Paint mould/form with ***CSE® „nova“***



2. Pour/cast concrete.

3. Vibrate and finish.

4. Take element out of mould

5. Wash surface

Cleaning of the moulds: If the ***CSE® Deactivator*** is used economically, sweeping the moulds with a scraper will clean them easily in most cases. In order to speed-up the cleaning of the moulds, it is recommended to wait for 15 – 30 minutes after the demoulding/stripping to allow the moist residue on the mould to dry.

More instructions for „Positive Application“, „Wash-out“ - see page 3

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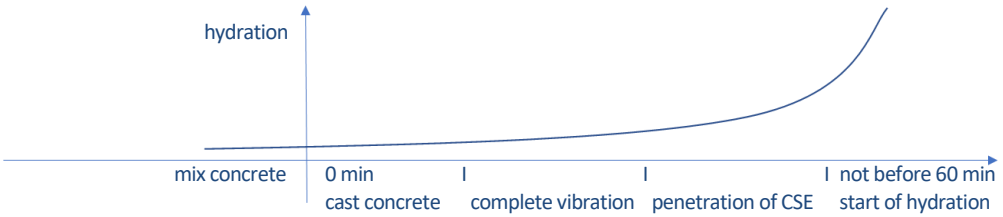
Instructions for use (continued):

For positive (top-surface) application the ***CSE® "nova"*** should be sprayed onto the fresh concrete surface, taking care to cover the surface thoroughly and evenly. The concrete surface must be smooth, free of excess surface water (bleeding water) and should be especially free of any segregations. The drying time of the ***CSE® "pro"*** depends on the outside temperatures and the consumption of the material and may vary between 10 and 60 minutes. To cover the surface with a plastic sheet or to apply a liquid curing membrane may be beneficial in certain cases.

Wash out:
The wash-out of the exposed aggregate surface normally takes place within 24 hours, resp. when the concrete has reached demoulding stability. However for weekend production it can also be carried out after 48 or 72 hours, but this must be tested in pilot trials. It is very important to keep the same washing-rhythm when producing a coherent series of elements. The washing-rhythm may have to be adjusted if the outside temperatures change considerably. The panels should remain in the moulds until washing and should then be washed immediately after stripping/demoulding. If this is not possible, it is recommended to keep the surface moist. The most efficient way of washing the panels is with a high-pressure water-jet. If the ***CSE® Deactivator*** is applied appropriately and skilfully (thin coating), no traces of the active ingredients of the ***CSE® Deactivator*** should be found in the wash-off water, as the active ingredients are used up during the reaction with the concrete.

In general:
The choice of the right type of the ***CSE® Deactivator*** for each individual case should be made through trials, i.e. the test samples should be produced according to the exact production reality regarding the concrete mix design, production course and time, thickness of the concrete panel and the resulting setting temperature. The concrete mix design and consistency and the casting/pouring technique must rule out the possibility of segregations and of the concrete setting too quickly. The vibration should begin no later than 45 minutes after the concrete has been placed into the mould. The initial setting of the concrete should not start earlier than 60 minutes after the concrete has been placed into the mould. If heating of the moulds is necessary, it should take place at the earliest one hour after vibration.



All positive data determined in the trials, including the optimal technique, time and frequency of vibration, should be transferred to the production process as exactly as possible. Deliberate or accidental changes to the optimal defined production process can be compensated for by using a different type of ***CSE® Deactivator***, or by changing the mix design or course of production. Running tests in just small sample sizes can be misleading, so a full size mock-up is recommended.

Feel free to contact the HEBAU technical support team before you start a project.

Colour coding: We have added a colour pigment to the ***CSE® Deactivator*** to enable a clearer distinction between the different exposure depths types and to simplify re-ordering. The pigment has ***no*** functional characteristic or effect. The colour is also used to visualise the amount applied and thus to avoid over- and under-application.

How to clean tools: Please use water or water-based cleaning agents to clean rollers, sprayers and other tools from ***CSE® „nova"***. Do not use solvent based cleaners.

Accessories and support products:
- HEBAU Multi-Sprayer for ***CSE® "nova"***

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Usual precautions and actions when handling chemicals should be observed (e.g. no eating, drinking, or smoking at the place of work). Additional instructions, which can be found on the corresponding product labelling or in the Safety Data Sheet, must be observed. If you do not have a copy of the current Safety Data Sheet, we will be pleased to send you one.

See an overview and the Legal Notice on page 4.

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Consumption:
for negative application:
Depending on the absorbency of the mould surface and the application method resp. quantity, 1 kg for approx. 7-15 sqm.

for positive application:
Depending on the configuration of the spraying device and manual application rate, 1 kg for approx. 7-15 sqm.

Packaging:
20 kg buckets, 30 buckets / pallet

Storage:
Store inside, in a suitable warehouse (not outdoors) at +5°C and +25°C.

Store dry, protect against frost and avoid exposure to direct sunlight.

Attention: Storing and using the products at construction sites might not represent the specified storage conditions.

If stored under the specified conditions, the product can be stored for approx. 12 months in original, tightly closed container.

If not kept under the specified conditions, or beyond this period of time, the products might nevertheless be good for use, if no deviance from the standard appearance (colour, viscosity, odor, miscibility etc.) is noticed and the performance of the product

Hazard + precautionary statements according to CLP regulation / (EC) No 1272/2008:

Warning

Hazard statements
H319 Causes serious eye irritation.

Precautionary statements
P262 Do not get in eyes, on skin, or on clothing.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313 If eye irritation persists: Get medical advice/attention.
P501 Dispose of contents/container in accordance with local regulations.

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Products for the production of exposed aggregate concrete surfaces

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PRODUCTS FOR GOOD-LOOKING CONCRETE

Overview

	CSE® Deactivator version "pro"	CSE® Deactivator version "nova"	CSE® Deactivator version "solotop"	CSE® Deactivator version "multitop"	Retarder paper RSE 01, SE	Retarder paper WB (different types)
Suitable for the following concrete surfaces:						
micro exposure depth (sand finish)	✓	✓	✓	✓	✓	-
light, medium and deep exposure depths	✓	✓	✓	✓	-	✓
aesthetical / architectural surface	✓	✓	✓	✓	✓	✓
anti-slip surface	✓	✓	✓	✓	✓	✓
high adhesion surface	✓	✓	✓	✓	-	O
Suitable for the following applications:						
horizontal face down poured precast	✓	✓	-	-	✓	✓
vertical mould poured precast	✓	✓	-	-	-	-
vertical mould cast-in-place	✓	O	-	-	-	-
horizontal face-up	✓	✓	✓✓	✓✓	-	-
zero-slump pressed concrete	✓	✓	✓✓	✓✓	O	O
face down pressed tiles	-	-	-	-	✓✓	✓✓
also with HPC, UHPC, SCC, GFRC ...	✓	✓	✓	✓	O	O
in structural concrete engineering to obtain construction joints with "rough" surface texture	✓	✓	O	O	-	-
and for protecting the front surface of bricks when making brick-embedded precast facades	✓	✓	-	-	O	✓

Also recommended:

PCE-based super plasticiser, designed for architectural / decorative concrete	ARCON-Fluid *+Plus*	Avoids segregations and helps to reduce vibration towards semi-self-compacting or self-levelling concrete.
Integral colour pigments	ICPs	Available as powder, slurry or granulated pigments
Protective coating - option I	COLORFRESH® *intensiv*	Applicable immediately after wash-out procedure - enhances surface colour and creates a silky sheen.
Protective coating - option II	COLORFRESH® *effect*	Applicable immediately after wash-out procedure - creates a wet-look finish.
Protective coating - option III	COLORTEC® *MAX*	Applicable immediately after wash-out procedure - remains invisible/matt finish.

Please note, it is always necessary to carry out pilot tests which realistically correspond to the planned production process and application procedure.

Symbol explanation: ✓✓ very suitable/applicable ✓ suitable/applicable O partially suitable/applicable - not suitable/applicable

Legal notice:

The technical information herein contained, in particular relating to the function, use and handling of our products, is given to the best of our knowledge and is based on our present knowledge and experience of the products when appropriately stored and handled, and applied under normal conditions in accordance with the standard fields of application, as described on page 1-3. Due to the large variety of possible use and application scenarios, this data sheet raises no claim to completeness, but is solely intended to provide a non-binding decision support, which needs to be reconfirmed by the end-user through pilot tests. Pilot tests are always necessary and should be carried out following the advice given in the current Product Data Sheet and under realistic practical conditions, i.e. conditions must realistically correspond to the planned production process and application procedure. Case-related acquired knowledge is not directly transferable to similar applications. Product specifications are subject to alterations without notice.

Only the most recent issue of the Product Data Sheet is valid, which will be supplied on request or can be found on our website under www.hebau.de. Illustrations in our data sheets, brochures etc. are mere examples and not binding. Photos may have been edited.

We guarantee for the perfect quality of our material according to our specifications. We do not take any liability resp. warranty for the desired end result, as we solely act as supplier of the products and the application of the products and other influencing factors are beyond our control and our field of responsibility.

Our General Terms and Conditions apply. This information is valid for professional users. Our products are not recommended for private end-users.

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