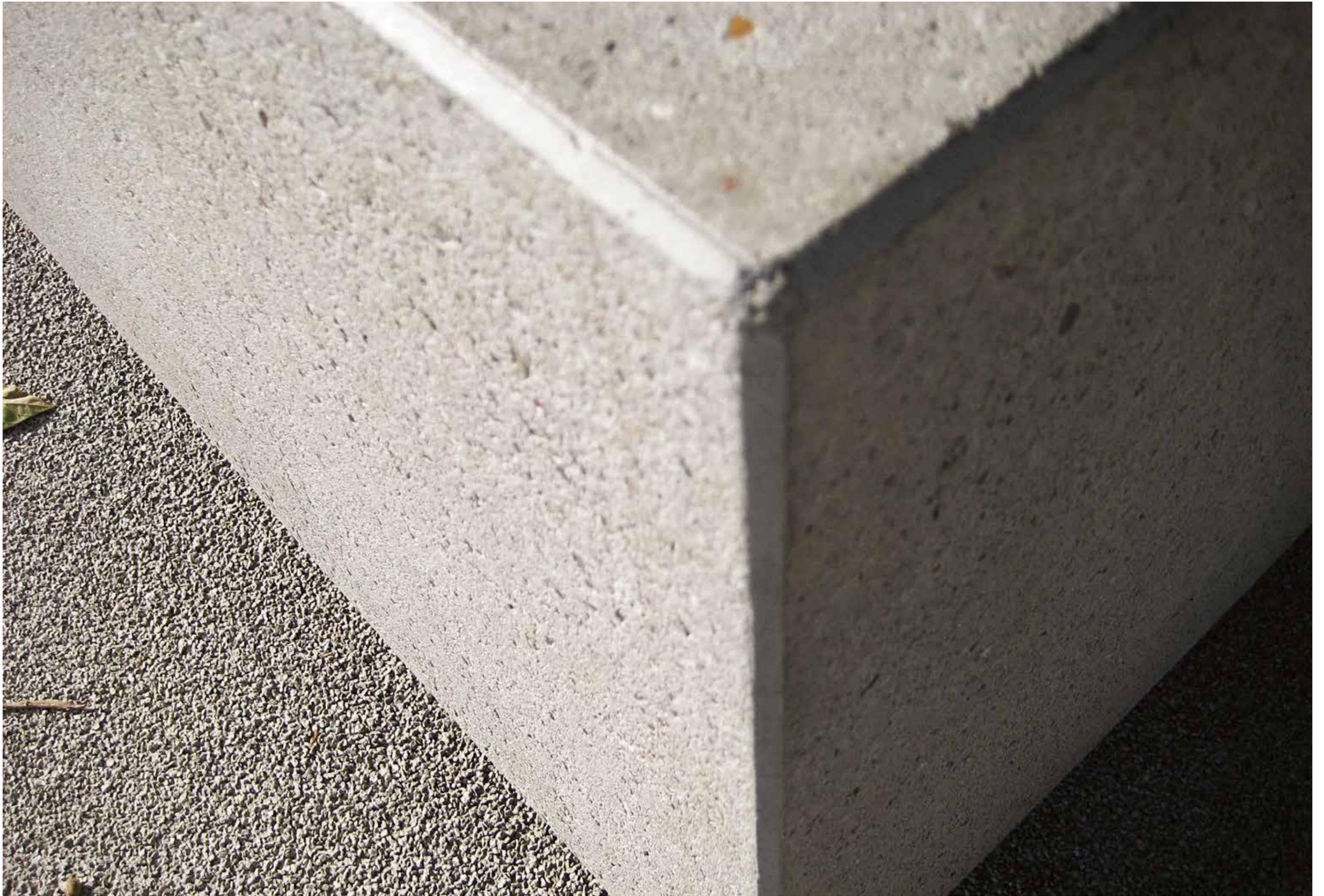




**CONCRETE  
SURFACE  
RETARDER**



# PRODUCT DESCRIPTION

Exposed aggregate concrete provides both optical effects and practical advantages such as skid resistance. Surface treatment is to be applied in accordance with German standard DIN V 18500. Washing concrete allows for the top surface to be removed up to a depth of 1/3 cementitious material. This is where the concrete aggregate comes in. You can add a one-of-a-kind surface structure to your surface area by using color taggregates such as granite, marble, basalt or even traditional gravel.

When creating exposed aggregate finish there are two techniques: the negative and the positive process.

## Negative process (N)

The first step in the negative process is to apply RECKLI CR Type N to the casing. Once dry or aired-out the concrete can be poured. In 15 to 24 hours thereafter, the concrete element can be removed and washed.

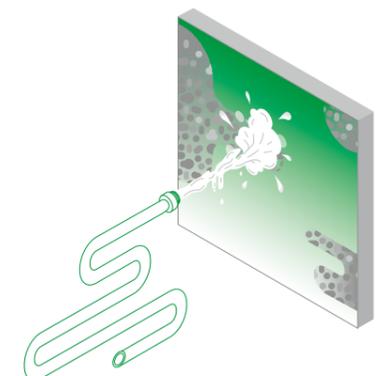
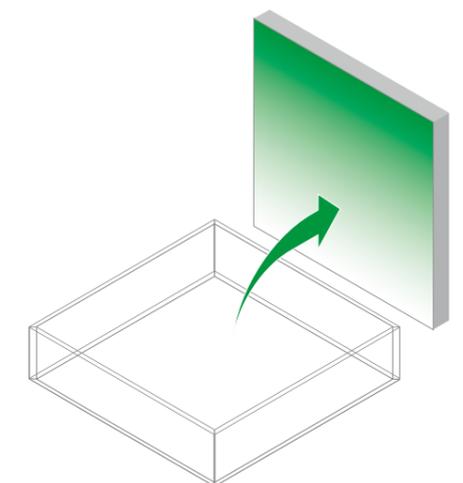
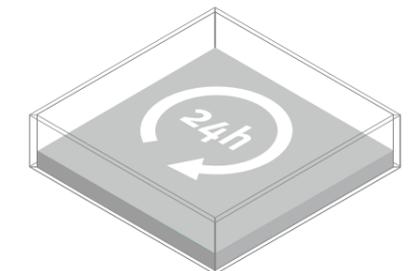
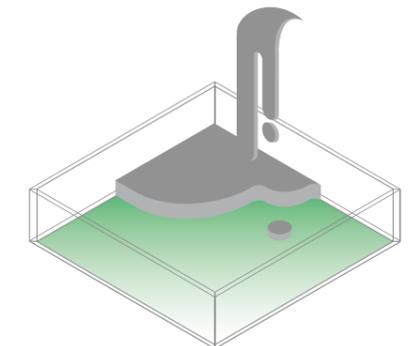
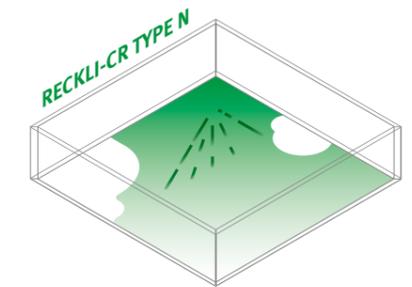
### CR TYPE N

**Area of application**  
On-site and in the plant

**Application**  
In the casing with a painter's roller or an appropriate sprayer.

**Use**  
Architectural concrete, precast concrete elements, façade cladding, noise barriers, garden accessories, concrete products and concrete joints.

**Properties | washing depths**  
13 different washing depths from 0.1mm to 7mm.



## Positive process (PV)

The first step in the positive process is to fill the casing with concrete. Once the concrete has been poured and smoothed out, apply RECKLI Type PV to the fresh surface area. You can wash the surface from 5 hours to 3 days later.

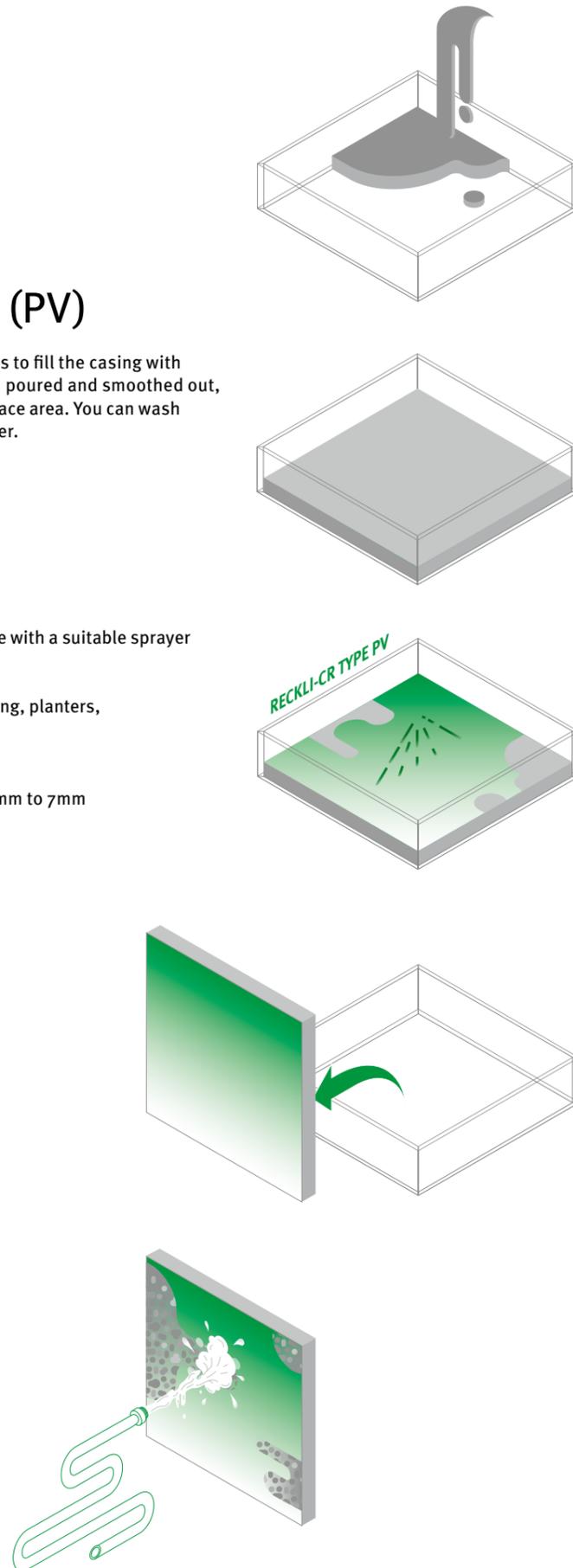
### CR TYPE PV

**Area of application**  
On-site and in the plant

**Application**  
Apply the product to the fresh concrete with a suitable sprayer

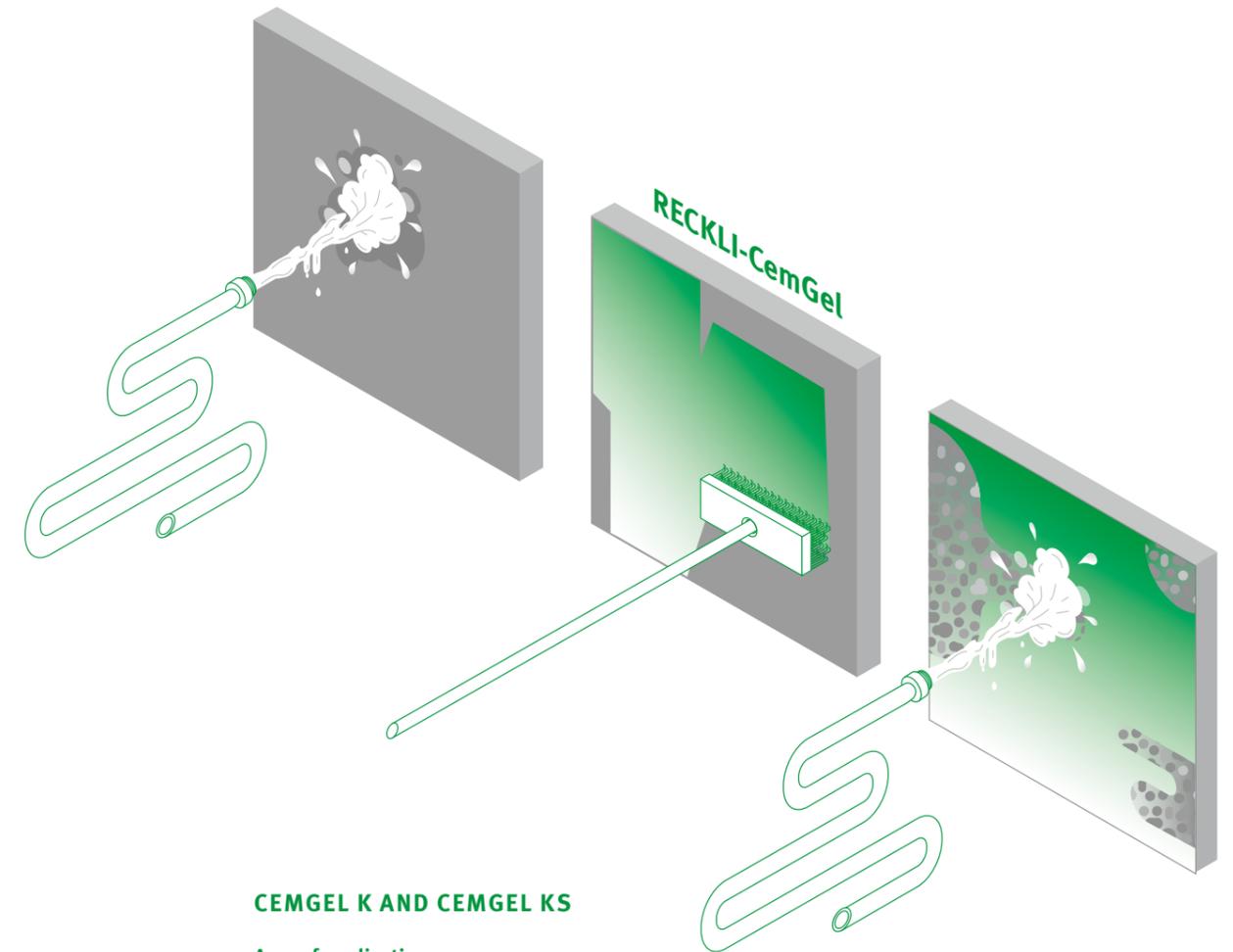
**Use**  
In-situ concrete areas, palisades, paving, planters, concrete joints.

**Properties | washing depths**  
12 different washing depths from 0.1mm to 7mm



## Acidification (CemGel)

Acidification (in accordance with DIN V 18500) involves applying an acidic product to cured and pre-wet concrete. The acid corrodes the concrete's top surface and allows for a micro washing. The roughened surface then exposes the concrete matrix.



### CEMGEL K AND CEMGEL KS

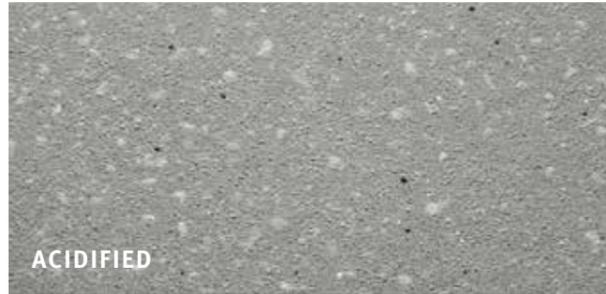
**Area of application**  
on-site and in the plant

**Apply**  
to all concrete surfaces with a soft broom, brush or a suitable sprayer

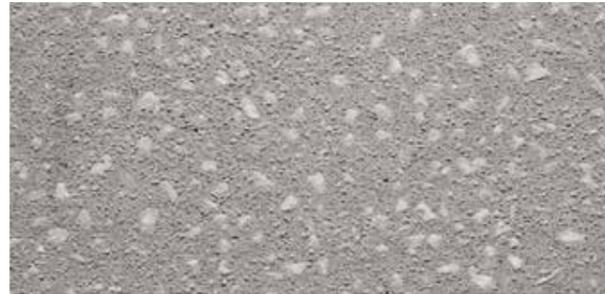
**Use**  
Façade elements, windowsills, ledges, columns

**Properties | washing depths**  
0.05 mm

### CEMGEL K



### CEMGEL KS



# WASHING DEPTHS

## ACIDIFIED

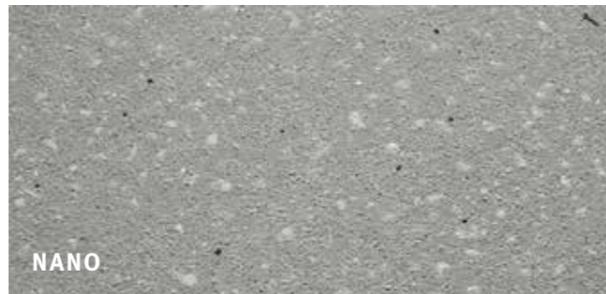
**CemGel K**  
The surfactant acids in CemGel K allow for precise nano and micro washings in fresh concrete. The process can be repeated several times in order to achieve deeper washing results.

**CemGel KS**  
The gel has a higher concentration of surfactant acids (20%), and thus allows for a faster and deeper acidification of up to 0.05mm. It is also suitable for older concrete elements.

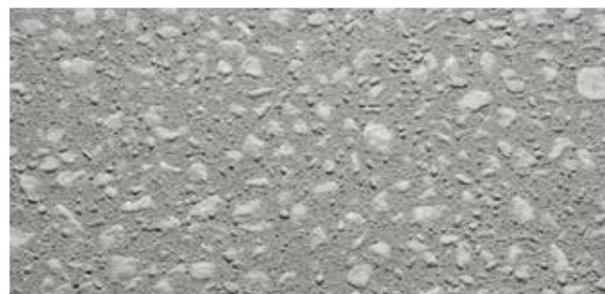
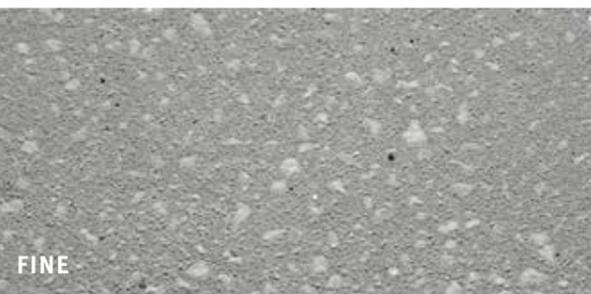
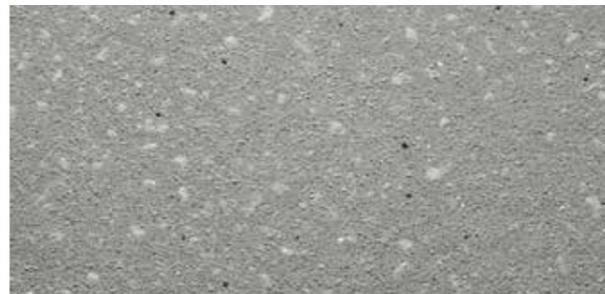
## NANO

The nano and micro aggregate concrete activators perform a milder washing at 0.1 to 0.25mm. The optical effect closely resembles that of an acidified or finely sandblasted surface.

### POSITIVE PROCESS (PV)



### NEGATIVE PROCESS (N)



TYPE	PROCESS	COLOR	AGGREGATE FACTOR	WASHING DEPTH
N/Nano	negative	beige	0-3 mm	ca. 0.1 mm
PV/Nano	positive	beige	0-3 mm	ca. 0.1 mm
N/Mikro	negative	turquoise	0-3 mm	ca. 0.2 mm
PV/Mikro	positive	turquoise	0-3 mm	ca. 0.2 mm

## FINE

Finely washed concrete has a washing depth of less than 2mm.

TYPE	PROCESS	COLOR	AGGREGATE FACTOR	WASHING DEPTH
N/01	negative	blue	0-4/8 mm	ca. 0.5 mm
PV/01	positive	blue	0-4/8 mm	ca. 0.5 mm
N/02	negative	brown	2-4/8 mm	ca. 1.0 mm
PV/02	positive	brown	2-4/8 mm	ca. 1.0 mm
N/10	negative	green	4-8/10 mm	ca. 1.5 mm
PV/10	positive	green	4-8/10 mm	ca. 2.0 mm

**WASHED**

The term “washed surface” applies to a washing depth of 2mm or more.

TYPE	PROCESS	COLOR	AGGREGATE FACTOR	WASHING DEPTH
N/25	negative	yellow	4-8/10 mm	ca. 2.0 mm
PV/25	positive	yellow	6-8/10 mm	ca. 2.5 mm
N/50	negative	red	6-9/12 mm	ca. 2.5 mm
PV/50	positive	red	8-16 mm	ca. 3.0 mm
N/80	negative	gray	8-12 mm	ca. 3.0 mm
PV/80	positive	gray	8-16 mm	ca. 4.0 mm
N/100	negative	mustard yellow	8-16 mm	ca. 3.5 mm
PV/100	positive	mustard yellow	12-16 mm	ca. 5.0 mm
N/130	negative	white	12-16 mm	ca. 4.0 mm
PV/130	positive	white	12-16 mm	ca. 5.5 mm
N/200	negative	orange	16-22 mm	ca. 5.0 mm
PV/200	positive	orange	18-25 mm	ca. 6.5 mm
N/300	negative	magenta	16-22 mm	ca. 6.0 mm
PV/300	positive	purple	18-25 mm	ca. 7.0 mm
N/400	negative	blue-violet	18-25 mm	ca. 7.0 mm

**COMPARATIVE TABLE**

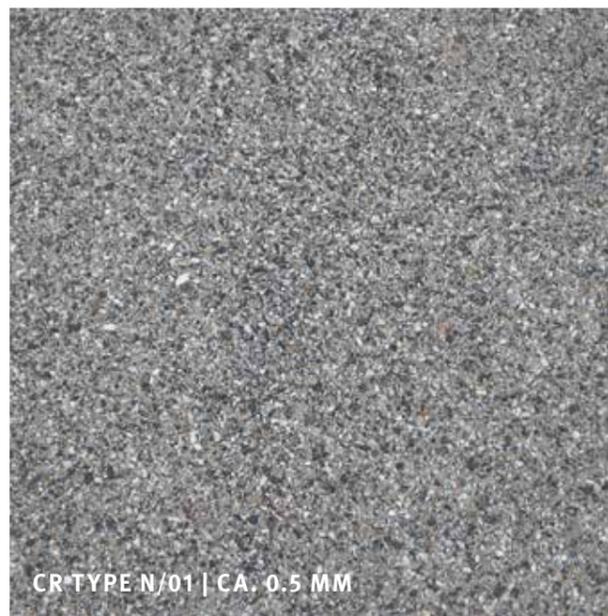
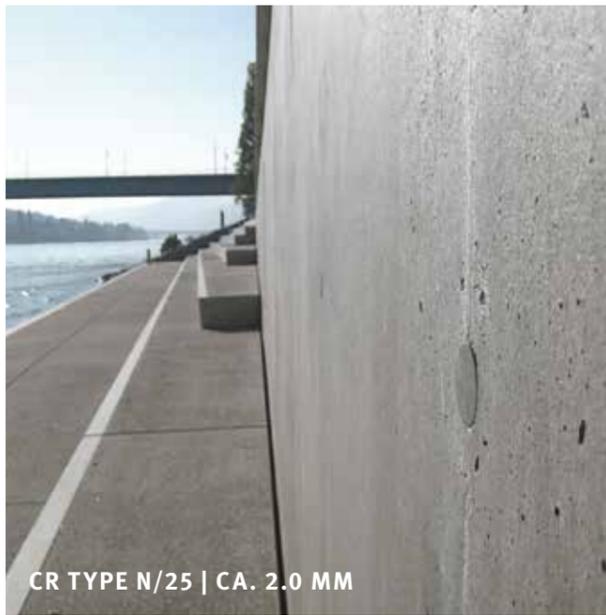
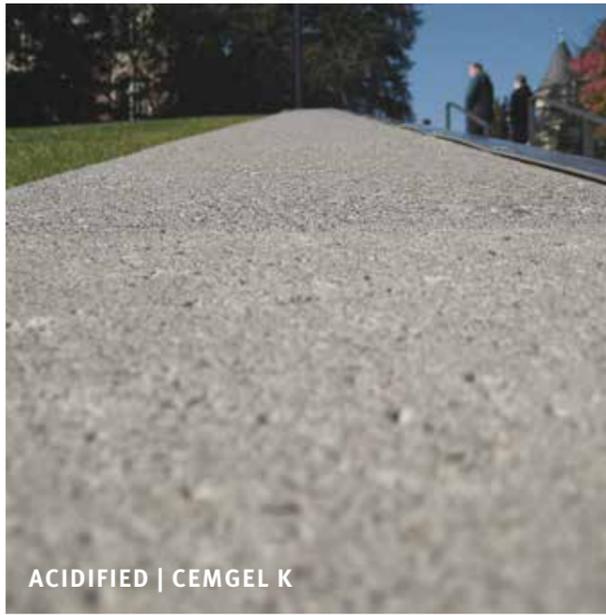
	TYPE	PROCESS	COLOR	AGGREGATE FACTOR	WASHING DEPTH
<b>NANO</b>	N/Nano	negative	beige	0-3 mm	ca. 0.1 mm
	PV/Nano	positive	beige	0-3 mm	ca. 0.1 mm
	N/Mikro	negative	turquoise	0-3 mm	ca. 0.2 mm
	PV/Mikro	positive	turquoise	0-3 mm	ca. 0.2 mm
<b>FINE</b>	N/01	negative	blue	0-4/8 mm	ca. 0.5 mm
	PV/01	positive	blue	0-4/8 mm	ca. 0.5 mm
	N/02	negative	brown	2-4/8 mm	ca. 1.0 mm
	PV/02	positive	brown	2-4/8 mm	ca. 1.0 mm
	N/10	negative	green	4-8/10 mm	ca. 1.5 mm
	PV/10	positive	green	4-8/10 mm	ca. 2.0 mm
<b>WASHED</b>	N/25	negative	yellow	4-8/10 mm	ca. 2.0 mm
	PV/25	positive	yellow	6-8/10 mm	ca. 2.5 mm
	N/50	negative	red	6-9/12 mm	ca. 2.5 mm
	PV/50	positive	red	8-16 mm	ca. 3.0 mm
	N/80	negative	gray	8-12 mm	ca. 3.0 mm
	PV/80	positive	gray	8-16 mm	ca. 4.0 mm
	N/100	negative	mustard yellow	8-16 mm	ca. 3.5 mm
	PV/100	positive	mustard yellow	12-16 mm	ca. 5.0 mm
	N/130	negative	white	12-16 mm	ca. 4.0 mm
	PV/130	positive	white	12-16 mm	ca. 5.5 mm
	N/200	negative	orange	16-22 mm	ca. 5.0 mm
	PV/200	positive	orange	18-25 mm	ca. 6.5 mm
	N/300	negative	magenta	16-22 mm	ca. 6.0 mm
	PV/300	positive	purple	18-25 mm	ca. 7.0 mm
	N/400	negative	blue-violet	18-25 mm	ca. 7.0 mm



ACIDIFIED | CEMGEL KS



CR TYPE N/130 | CA. 4.0 MM





# SURFACE PROTECTION

Surface protection systems shield surfaces of exposed concrete from water, dirt and graffiti. Water has a tendency to run hazardous substances, microorganisms and salts over the concrete surface. Over time, these substances attack the structure and can lead to spalling.

RECKLI protection systems seal new and older surfaces of exposed concrete either with no color or with an optical effect. They are suitable for the follow-up treatment of concrete component façades, in-situ concrete constructions, artificial stone and Terrazzo flooring.

## COLORLESS IMPREGNATION

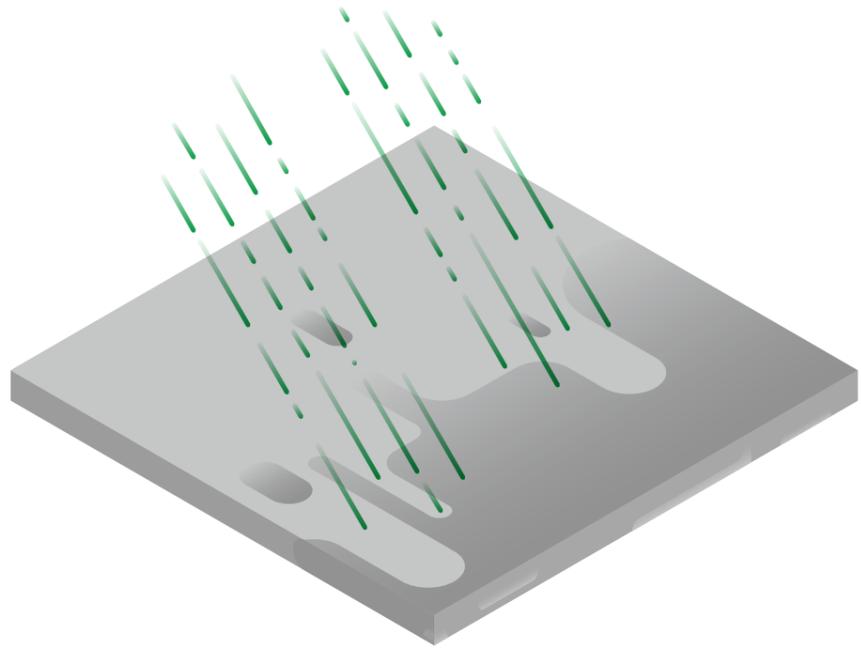
RECKLI OS-D, OS-HO and OS-Premium protection systems can be applied to new concrete. They penetrate the surface and form a chemical bond. Since this type of impregnation does not create a film, the coloring of the concrete surface remains unchanged.

## EFFECT IMPREGNATION

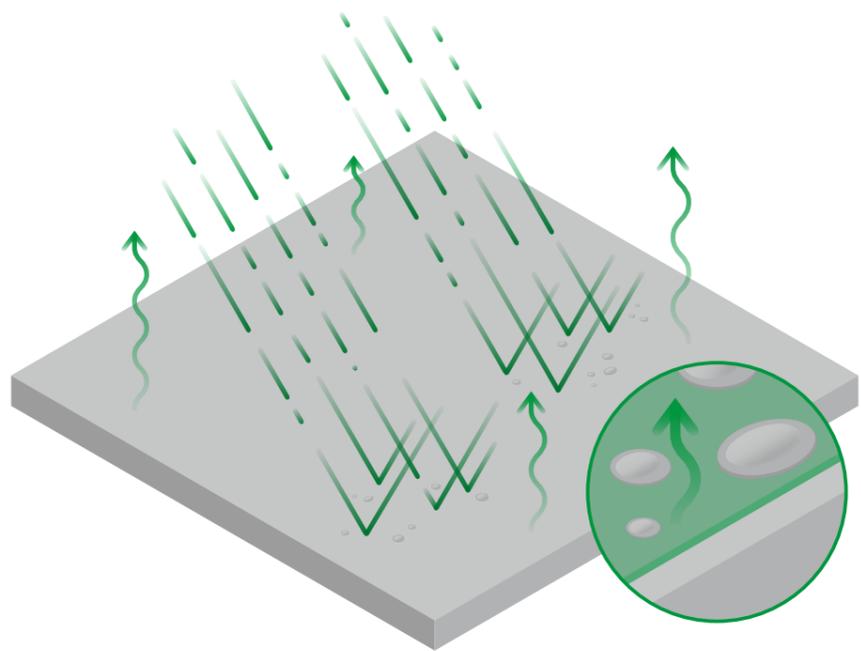
RECKLI OS-Intensiv and OS-W are especially suitable for processed and absorbent surfaces such as exposed aggregate concrete, structural concrete or acidified concrete. These protection systems can be applied to new concrete. The materials penetrate the surface and form a film with a matt or silky finish that intensifies the concrete's coloration.

## GRAFFIX

This product combines the protective properties of a colorless impregnation with permanent protection against graffiti. Graffix does not alter the concrete surface's coloring. It can be applied to new concrete at the prefabrication plant. Other materials usually require 28 days for hardening. Our in-house cleaning solution RECKLI Graffix Cleaner removes graffiti without compromising the protective film. This allows for a very easy and economical cleaning of façades. The cleaning process can take place up to 5 times. Thereafter, the surface has to be re-impregnated.



WITHOUT RECKLI®  
SURFACE PROTECTION



WITH RECKLI®  
SURFACE PROTECTION



# SUMMARY

## Product advantages

### RECKLI-CR TYPE N

homogeneous washing  
13 different washing depths  
minimal use (80-150 g/m<sup>2</sup>)  
extremely fast drying time  
big time frame for rinsing  
low casing cleaning

### RECKLI-CR TYPE PV

homogeneous washing  
12 different washing depths  
minimal use (approx. 200 g/m<sup>2</sup>)  
very light washing  
sprayable  
odorless and environmentally friendly  
integrated follow-up treatment and  
curing compound

### RECKLI-CEMGEL K | KS

consistent quality  
high-grade acids guarantee precise  
washings  
odorless thanks to its gel-like viscosity  
can be applied in a vertical or horizontal  
manner  
no drip build up

### RECKLI-OS

alkali-resistant for optimum  
effect on new concrete  
can be applied the same day as  
the concrete has been poured  
UV-resistant  
a wide range of products for every ap-  
plication and optical effect  
adapted to RECKLI concrete parting  
agents

Specifications  
available at:

[www.reckli.com](http://www.reckli.com)





# APPLICATION

# CONCRETE SURFACE RETARDER



# **RECKLI-CR TYPE N**

RECKLI-CR Type N is a solvent containing concrete surface retarder used in the negative washing process. It is available for 13 different washing depths. The washing depths are guideline values and depend on class of cement, W/C ratio, aggregate and paste ratio.

We will gladly advise you as to the appropriate type.

### PROCESSING

Thoroughly stir RECKLI-CR Type N with a whisk before each use.

Apply a thin and even coat of the material with a short-pile paint roller or a suitable sprayer onto the surface.

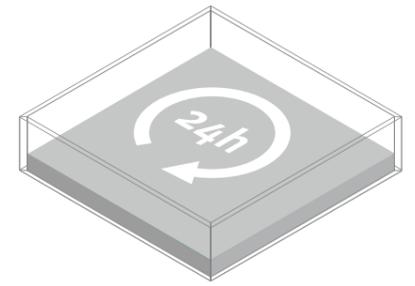
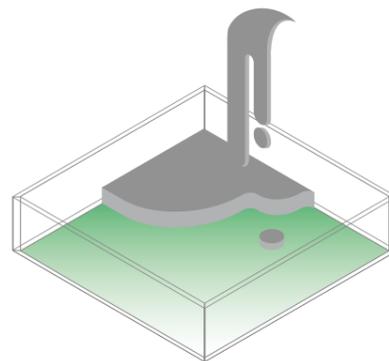
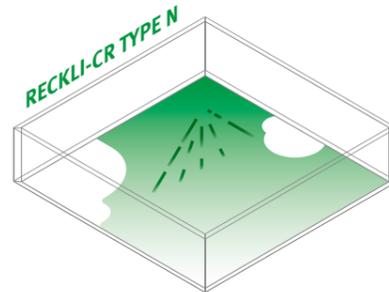
Allow the material to quickly dry (depending on weather conditions this could take between 15 and 60 minutes) you can then introduce the concrete.

The concrete mix, production process and time, thickness of the elements and the relative setting temperature must be determined by trial and error. For best results please avoid segregation and setting of the concrete that occurs too early.

The ideal running time must also be determined by means of experimentation. The concrete should not set until approximately 1 hour after placement. The casing should be heated two hours after placement, at the earliest.

Any data compiled during the trial and error phase should be applied. Unavoidable changes to the parameters set during the trial and error phase can generally be compensated for by using a different RECKLI-CR-N type or by altering the production process or the concrete mix.

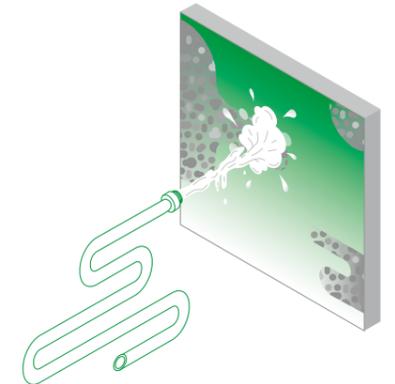
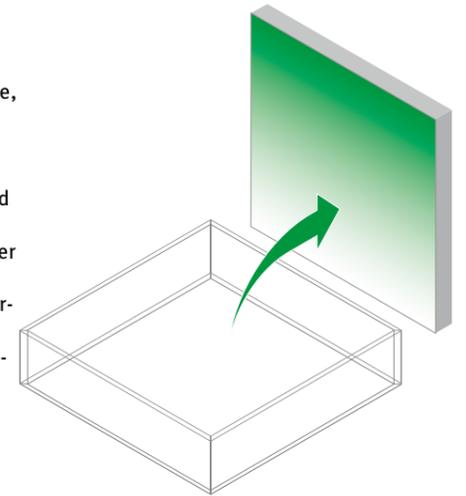
If the surface area is alkaline, we recommend neutralizing the casing before the first application of RECKLI-CR Type N.



### RINSING ELEMENTS

Elements can generally be rinsed after 18 to 24 hours. They should remain in the mold for at least 8 hours. If need be, RECKLI-CR Type N can be washed off later on, even after 48 or 72 hours.

Just to be sure, try a preliminary test. The washing cycle should remain the same within one series. In order to even out potential fluctuations in the production parameters and in order to reduce the washing depth, elements can be exposed to fresh air for 2 to 12 hours prior to the wash (time to be determined in the preliminary test). Washing yields best results when done with a high pressure washer. Dry brushing with subsequent washing is also a possibility.



### CLEANING YOUR TOOLS

Tools can be cleaned with the RECKLI-EK-PU thinner.

### RECOMMENDATION

Electrical equipment used in connection with RECKLI-CR Type N (dosing pump motors, etc.) in particular should be explosion protected. We recommend the use of Teflon gaskets.

### APPLICATION RATE

approx. 80-150 g/m<sup>2</sup>

### PACKAGING

20kg canister

### STORAGE

Store in a cool place with decent ventilation, frost resistant.

### SHELF LIFE

12 months from the manufacturing date, as long as the original seal has not been broken. Open containers should be resealed airtight immediately.

### SAFETY PRECAUTIONS

RECKLI-CR Type N contains solvents. The work area should be well ventilated. Smoking and open fires should be avoided at all cost. Skin and eyes should be protected from spray. Please refer to the safety precautions regarding dangerous substances and hazardous regulations found on the label, as well as the material safety data sheet issued by the German Standards Institute (DIN).

# RECKLI-CR TYPE PV

RECKLI-CR Type PV is an aqueous, even surface retarder used in the positive washing process. It is available for 12 different washing depths. The washing depths are guideline values and depend on class of cement, W/C ratio, aggregate and paste ratio.

RECKLI-CR Type PV does not contain any solvents. The rinsing water generated by retarding concrete with the RECKLI-CR Type PV is comparable to water generated by washing out concrete mixers.

We will gladly advise you as to the appropriate type.

RECKLI-CR TYPE PV	COLOR	AGGREGATE FACTOR	WASHING DEPTH
PV/Nano	beige	0-3 mm	ca. 0.1 mm
PV/Mikro	turquoise	0-3 mm	ca. 0.2 mm
PV/01	blue	0-4/8 mm	ca. 0.5 mm
PV/02	brown	2-4/8 mm	ca. 1.0 mm
PV/10	green	4-8/10 mm	ca. 2.0 mm
PV/25	yellow	6-8/10 mm	ca. 2.5 mm
PV/50	red	8-16 mm	ca. 3.0 mm
PV/80	gray	8-16 mm	ca. 4.0 mm
PV/100	mustard yellow	12-16 mm	ca. 5.0 mm
PV/130	white	12-16 mm	ca. 5.5 mm
PV/200	orange	18-25 mm	ca. 6.5 mm
PV/300	purple	18-25 mm	ca. 7.0 mm

## AREAS OF APPLICATION

RECKLI-CR Type PV is suitable for any concretes with a positive washing process such as in-situ concrete areas, paving or planters.

## MODE OF ACTION

The reactive components in RECKLI-CR Type PV diffuse into the concrete depending on the chosen type and up to a certain depth, and prevent the concrete from setting in this area. Generally, the treated surface area can be rinsed off within one to three days.

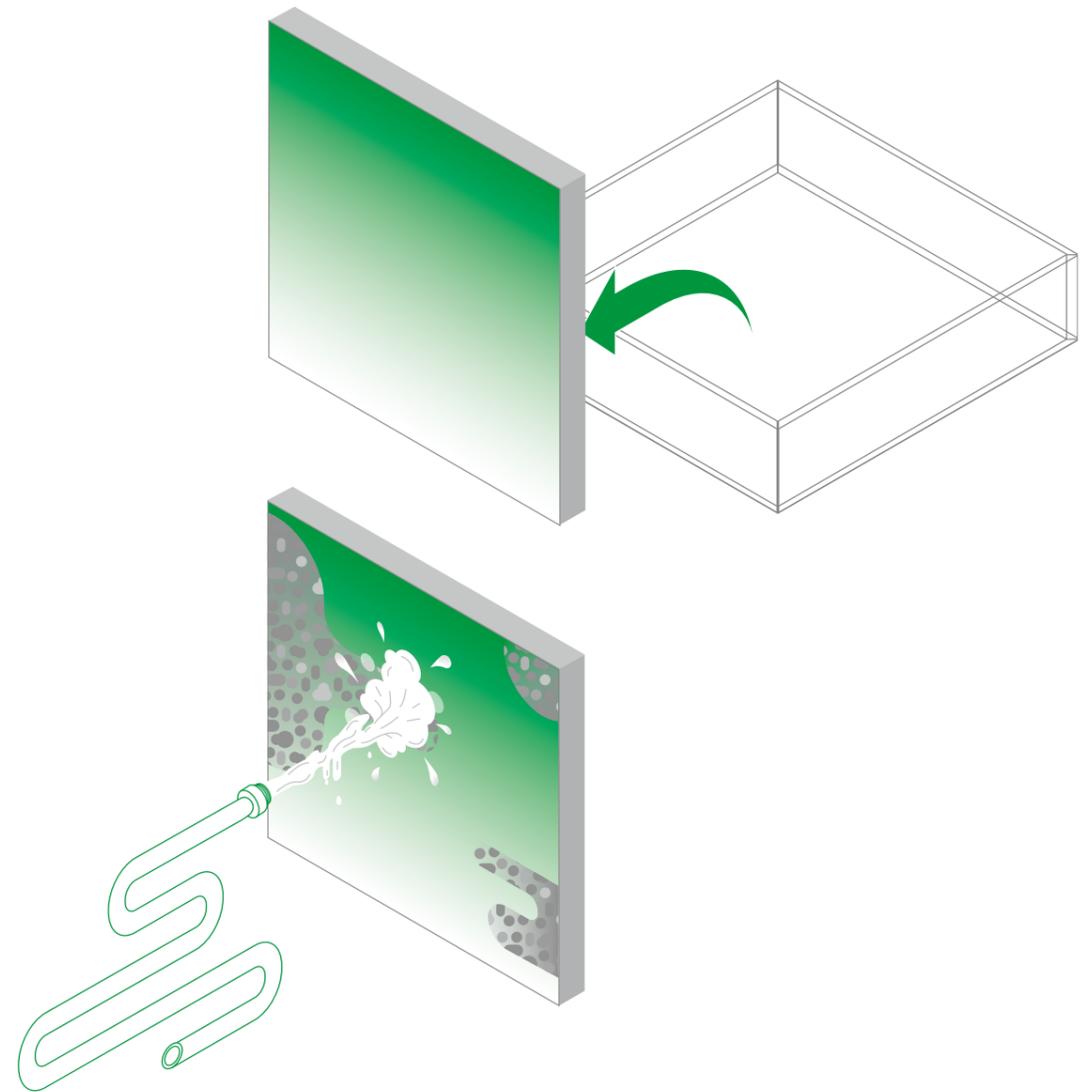
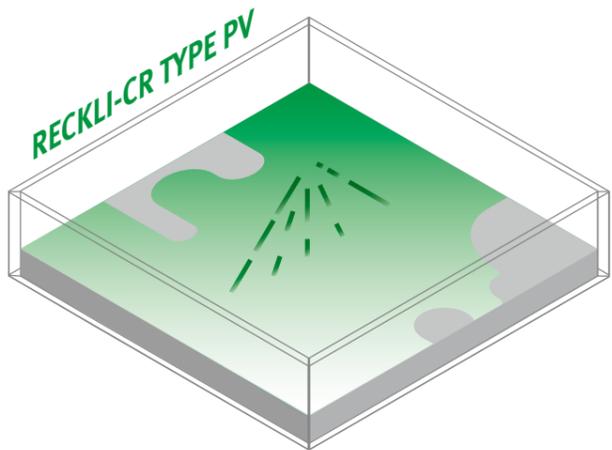
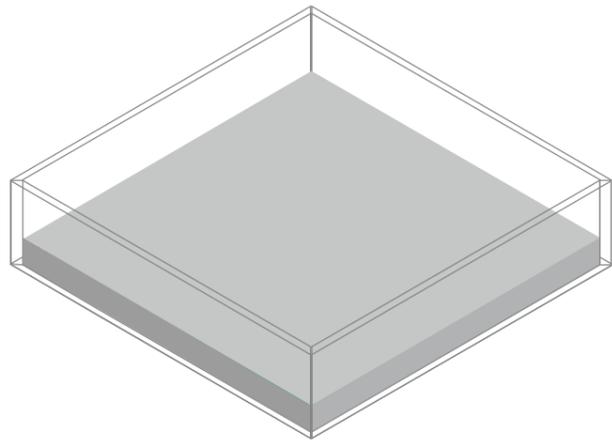
RECKLI-CR Type PV must be adjusted according to the cement used, as well as the amount of cement and other parameters that influence the washing depth (such as temperature, air circulation and moisture).

### PROCESSING

RECKLI-CR Type PV must be thoroughly stirred before each use. Once the concrete has been placed and smoothed out, and once any puddles have evaporated, apply a layer of the product to the fresh concrete and be sure to cover the entire area.

An airless sprayer works best for this procedure. When using a traditional sprayer be careful not to set the pressure too low or too high.

As soon as the concrete has set (generally within 1 to 3 days, but not exceeding 3 days, of applying RECKLI-CR Type PV) it can be rinsed.



As a safety precaution, skin and eyes should be protected from spray. Please also refer to the material safety data sheet issued by the German Standards Institute (DIN).

### TECHNICAL PROPERTIES

Positive surface retarder  
that is solvent-free, aqueous, ready-to-use and colored according to type.  
Non-flammable  
Density: approx. 1g/cm<sup>3</sup>  
pH value: 3 ± 0.5

### USAGE

Approx. 200 g/m<sup>2</sup>, depending on application

### PACKAGING

25kg canister

### STORAGE

Protect against frost, store at lower than +35°C

### SHELF LIFE

Best if used by 12 months after the manufacturing date, as long as the original seal has not been broken

# RECKLI-CEMGEL K AND KS

RECKLI-CemGel K and KS are viscous micro-rinsing gels made of surfactant acids that help you achieve the best surface concrete rinses when using the positive process. Depending on the area of application, RECKLI-CemGel is available as a concentrated (K) or a heavily concentrated (KS) product with 15 to 20% acidity. Washing depth is approx. 0.05mm.

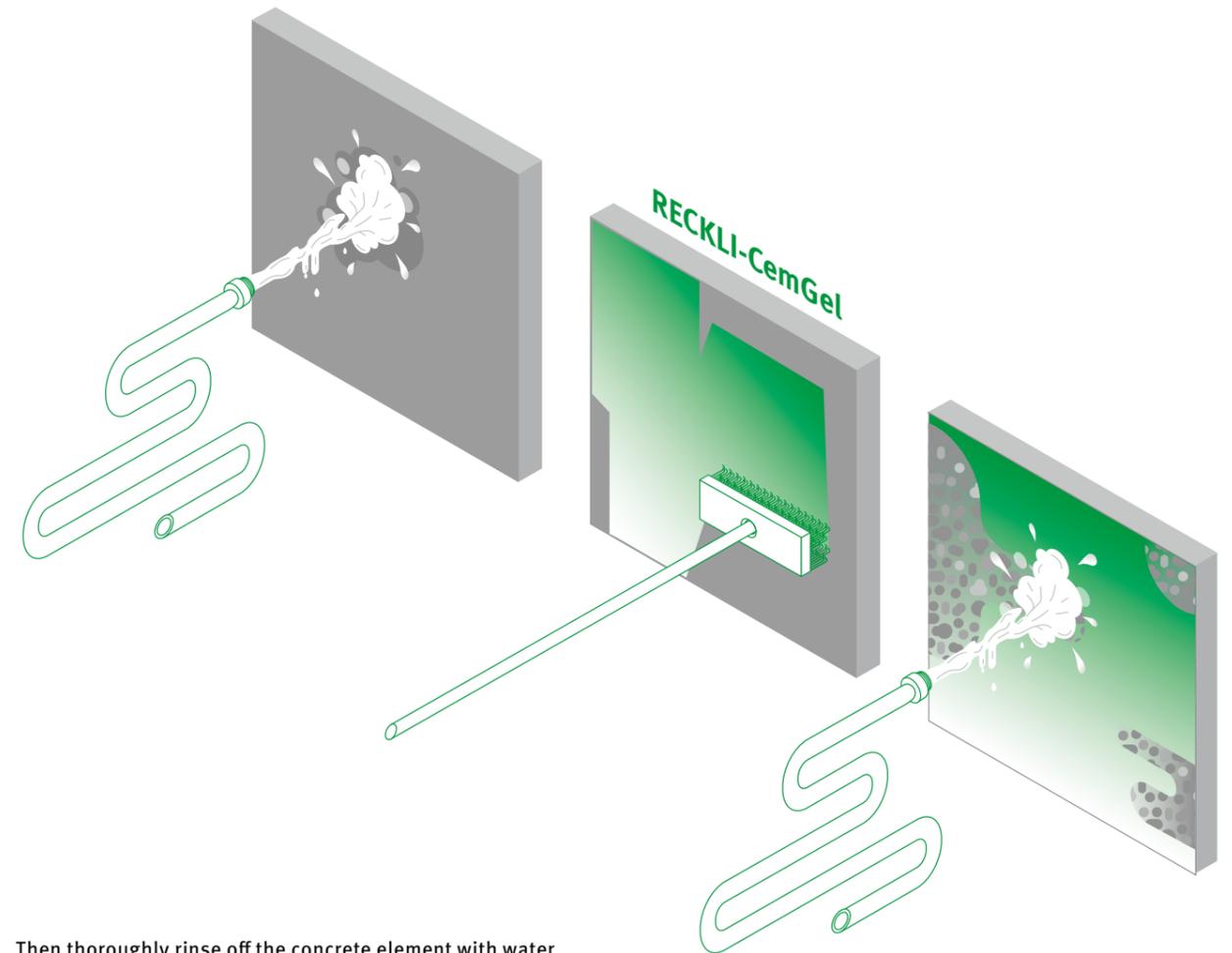
## USE

RECKLI-CemGel can be used in the treatment of concrete-bound elements such as façade elements, windowsills, ledges, columns, etc.. Concrete types and performance do not impact the product's mode of action. RECKLI-CemGel reacts to the concrete's surface. The substrate emerges and gives the surface area a natural-looking appearance (a sandy effect). The gel consistency prevents run-off on verticle surfaces. RECKLI-CemGel does not penetrate the concrete's capillaries and does not compromise its reinforcement.

## PROCESSING

Shake or stir RECKLI-CemGel well before use. Apply the undiluted gel to the (preferably) 2 to 3 day-old element that has been generously moistened with water.

The product can be applied using a brush, broom or sprayer. Once applied, the product reacts with the alkaline contact of the concrete's contact surface. It will begin to foam. For neutralizing purposes, the applied quantity should be spread around until the product no longer foams.



Then thoroughly rinse off the concrete element with water. For a slightly deeper washing effect, reapply RECKLI-CemGel as needed, or use the concentrated version, RECKLI-CemGel KS. We recommend following up with a treatment using one of our RECKLI-OS surface protection systems.

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