RETANOL®

511/EKA/EKA BLAU/EKA BW/EKA PRO/VIWA/VIWA GELB

FOR PRECISELY ADJUSTABLE DRYING TIMES STARTING WITH 3 DAYS.
GUARANTEED.

PCT CHEMIE

RETANOL® PRO

THE RETANOL® SUCCESS STORY CONTINUES

A well-known proverb says:
„Those who cease to improve themselves, cease to be good.“

With the development of the original RETANOL® RAPID 511 and the further developments of the individual RETANOL® product groups based on it, PCT Performance Chemicals GmbH has set unprecedented standards in the cement screed sector. RETANOL® EKA PRO 1 and PRO 2, RETANOL® EKA Blau PRO 1 and PRO 2 as well as RETANOL® EKA BW PRO 1 and PRO 2 follow on from this and set new and even higher screed technology standards. The PRO types are designed for a processing which has been lifted into a completely new dimension: Conveying, distributing, screeding, smoothing as if from another planet.
Incidentally, there are increases in compressive and flexural strengths of 15 - 25 %. At the same time, surface properties such as uniformity as well as grid scratch and surface tensile strength are improved. The targeted workability remains unchanged and improves by 0.25 - 0.5 CM %.

WHY RETANOL® PRO 1 UND PRO 2 MAKE SENSE.

Simplicity of processing - what can be directly experienced by the processor - has always been a particularly important concern for PCT Performance Chemicals GmbH.
The two PRO 1 and PRO 2 variants do justice to this. From now on, the processors have the possibility to make the best choice according to their needs and the differences in the nature of the raw materials they use. RETANOL® PRO - another quantum leap in cement screed technology.

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RETANOL® 511/EKA/EKA BLAU/EKA BW/EKA PRO/VIWA/VIWA GELB FASTER CONSTRUCTION PROGRESS – FLOORCOVERING AFTER 3*/5/14/21 DAYS.

All subsequent advices in chapters 1. to 13. apply equally and without restriction for the products Retanol® EKA Pro, Retanol® EKA-BLAU, Retanol® EKA BW and VIWA GELB. These alternatives have only been modified with regard to processing properties and quantities of water added.

1. APPLICATION RANGE

Retanol® 511 and und Retanol® EKA/EKA BLAU/EKA BW/EKA PRO/VIWA/VIWA GELB are suitable for screeds indoors and outdoors, for early floorcovering, strong bonded screeds, screeds on separation or insulation layers and particularly for heating screeds.

2. PRODUCT PROPERTIES

Depending on the dosage, floor coverings such as tiles, parquet, laminate, linoleum, PVC or carpet can be laid after only 3*/5/14/21 days. Please see the technical data for notes on dosage. Retanol® 511 and Retanol® EKA/EKA BLAU/EKA BW/EKA PRO/VIWA/VIWA GELB provide a long workable life, can be walked on and subjected to load at an early stage, and cure with low shrinkage* and tension-reduced.
Improvement in thermal conductivity compared with cement screeds without Retanol® 511/EKA/EKA BW/EKA PRO/VIWA/VIWA GELB. Depending on the aggregates used and the cement content as well as the water/cement ratio when installing the screed, the thermal conductivity of traditional cement screeds is 1.1-1.5. If Retanol® 511/EKA/EKA BW/EKA PRO/VIWA/VIWA GELB is used the thermal conductivity is 1.5-2.4.

3. MOST COMMON DOSAGES

Floorcovering after 18 – 21 days:
0.20 litres Retanol® per screed mixture (standard mixing vessel, 250 l gross capacity) = 1.000 ml/m³

Floorcovering after 12 – 14 days:
0.25 litres Retanol® per screed mixture (standard mixing vessel, 250 l gross capacity) = 1.250 ml/m³

Floorcovering after 3*/5 – 7 days:
0.35 litres Retanol® per screed mixture (standard mixing vessel, 250 l gross capacity) = 1.750 ml/m³

W/C ratio: max. 0.6 (for all dosages).
These data refer to 50 mm application thickness for unheated and 65 mm maximum for heated floor screeds.

In case of application thicknesses > 60 mm for unheated floor screeds, the dosage must be increased to 0.35 litres Retanol® = 1.750 ml/m³ irrespective of the desired workability. However, we do recommend this increase in dosage from > 50 mm floor screed thicknesses. Experience has shown that even at this dosage it takes longer until workability is obtained, especially in case of very fast acceleration phases (3*, 5 and 7 days). Delays of 2 to 3 days in case of screed thicknesses from 70 to 80 mm and 5 to 6 days in case of floor screed thicknesses from 80 to 100 mm are possible. It is possible to increase the dosage up to a maximum of 500 ml standard screed mixture = 2.500 m³. CAUTION: 500 ml=2.500 ml/m³ must under no circumstances be exceeded!

A dosage of 0.35 litres Retanol® = 1.750 ml/m³ is also necessary if pipe coverings are to be used for heating screeds from 35 mm.
For the specified floor screed qualities CT-C30-F5 or CT-C35-F5 (applicable to all screed types) a dosage of 0.35 litres Retanol® = 1.750 ml/m³ is also necessary at all times, irrespective of the screed thickness.

*Applies only to Retanol® 511/** According to DIN 18560-1, shrinkage class (SW2)

EUROPA-Galerie, Saarbrücken: **RETANOL® XTREME, RETANOL® EKA BLAU, CT-C55-F8-S80, workability: 14 days**

4. INSTRUCTIONS FOR USE

DIN 18560, DIN 13318 and DIN 13813 must be observed when applying Retanol® 511 and Retanol® EKA/EKA BLAU/EKA BW/EKA PRO/VIWA/VIWA GELB.

For aggregates, grading curve A/B, 0 – 8 mm, must be used for making screed concrete in accordance with DIN 1045-2.

Cement: see PCT Cement Approval List. Only use suitable types of cement.

The general guidelines, PCT data sheets and normative specifications for cement screeds are applicable to the laying and making of Retanol® screeds. The accelerated hardening process of Retanol® 511 and Retanol® EKA/EKA BLAU/EKA BW/EKA PRO/VIWA/VIWA GELB must be observed.

- Application temperature: +5 °C up to max. +28 °C (ambient and substrate temperature).
- Apply Retanol® 511 and Retanol® EKA/EKA BLAU/EKA BW/EKA PRO/VIWA/VIWA GELB within 60 minutes after mixing. Higher temperatures reduce, lower temperatures increase the workable life.
  In general: Retanol® screeds should have been levelled and smoothed/rubbed after max. 90 minutes.
- Never reactivate screed mortar which is already setting with water **– this also applies in particular to mechanical and manual smoothing –** nor mix with fresh Retanol® 511 and Retanol® EKA/EKA BLAU/EKA BW/EKA PRO/VIWA/VIWA GELB.
- Always shake Retanol® well prior to use.
- Shake the product at regular intervals (about every 30 minutes) during application. Long “standstill periods” of the canister cause the ingredients to deposit at the bottom, with a negative effect on the function of the product.
- Draught, direct sunlight and excessive heat (heating period in the cold season)* must be avoided during the entire application. It may be necessary to darken large window fronts and floor-level glass facade areas.

Marco Polo Tower, Hamburg: **RETANOL®511/RETANOL®EKA**, CT-C30-F5-H45-S65, workability: 10 days

5. MIXING

Fill the floor screed conveyor to about one-half with sand and the entire amount of cement as usual, add Retanol® 511 and Retanol® EKA/VIWA to the first mixing water (usually 5 – 10 litres) and then fill the conveyor completely. In so doing, gradually add the required amount of residual water until a stiff to pliable consistency is obtained. A mixing time of 2 minutes ensures proper blending of the ingredients and the effect of the added Retanol and must therefore be observed at all times.

Retanol® must never be mixed with other screed or mortar additives.

6. GENERAL NOTES ON HOW TO MAKE ACCELERATED CURING CEMENT SCREEDS

The consistency of the mixture must be either stiff to pliable or pliable! If the mixture is too soft or contains too much water, the strength of the screed is insufficient. This may lead to the formation of shrinkage cracks, deformations and curling. Readiness for floorcovering will then only be obtained much later.

The strength of the screed and the low residual moisture important for workability depend on the following factors:

6.1. COMPACTION OF THE FRESH MORTAR

Insufficient compaction of the screed results in low screed strength.

6.2. TEMPERATURE AND CLIMATIC CONDITIONS

Retanol® is suitable for almost all conditions on the construction site. At low or extremely high ambient and substrate temperatures and high relative air humidity (> 70 %) the curing and drying times may be slightly longer, approx. 1 – 4 days at a dosage for approx. 14 days. At an acceleration/dosage for 7 days it takes approx. 1 – 2 days longer until workability is obtained. These data refer to the comparison with ambient conditions at +20 °C and a relative air humidity of 60 %. Air exchange is however obligatory from the second day after laying the screed.
Please observe our notes on the regular ventilation of rooms in Section 7.3.
Screed surfaces must be neither partly nor fully covered during the curing process until workability has been obtained. This must in particular be observed by the client.
The screed readiness for floorcovering may only be determined with a CM measuring device. **Electronic measuring devices may not be used for Retanol® screeds.**

6.3. LAYER THICKNESSES

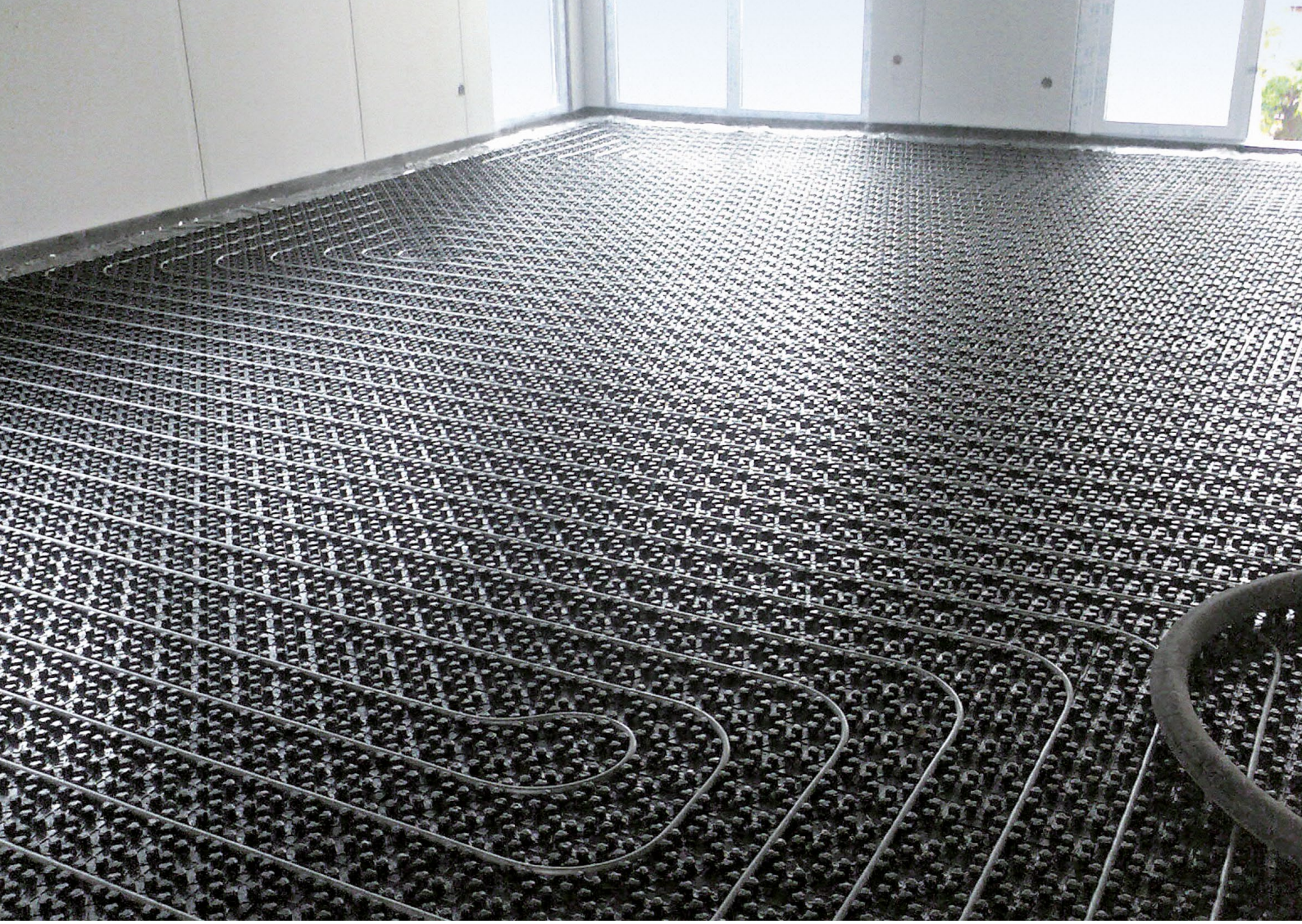
The required floor screed thickness depends on the provisions of DIN 18560. All drying times refer to 50 mm application height for unheated and 65 mm maximum for heated floor screeds. In case of greater application heights it takes longer until readiness for floorcovering is obtained.

6.4. TYPES OF CEMENT

Only use suitable types of cement approved by PCT.

6.5. AGGREGATES

Grading curve A/B, 0 – 8 mm, for making screed concrete in accordance with DIN 1045-2.



ENERGY-SAVING SCREEDS, REDUCED LAYER THICKNESSES. RETANOL®

7. NOTES

- Unfavourable conditions on the construction site such as low temperatures, high air humidity, an excessive W/C ratio and high layer thicknesses slow down the drying process and the strength development. This is not within the responsibility of the manufacturer PCT.
- The correct and thus successful application of our products is beyond the control of the manufacturer PCT. We only assume warranty for the quality of our products within the context of our General Terms of Business, Delivery and Sale but not for successful application. The user must carry out tests to verify the suitability of the product for the respective application.

This remark is not applicable to construction sites supervised by PCT. Here, PCT assumes guarantee and warranty for all the listed product properties. For the warranty a separate assignment for supervision of the construction site is required. Please request information material and an individual consultation.

Measures relating to accident prevention and health protection resulting from the information and documents on the product and in particular from the safety data sheet must be observed. This data sheet replaces all previous versions. Information going beyond this data sheet must be confirmed in writing, even if given by employees.

The information given in DIN 18560-2, DIN EN 1264-4 and the individual technical data sheets of the floor covering manufacturers must be observed when making and laying heating screeds. This applies in particular to the making of expansion joints in heating screeds. PCT recommends securing expansion joints in heating screed surfaces against height offset and vertical movements by means of expansion joint anchors in accordance with customary industry practices and standards.
The operation of floor heating systems during screed application in the cold season presents great risks as regards screed strength, surface quality (deformations) and susceptibility to crack formation and is therefore not recommended.

7.1. WINTER RULES

The application of cement screeds in winter at too low temperatures always presents a risk. Not without reason does the cement industry specify a minimum temperature of ≥+5 °C for the application of cement. Below this limit, cement reacts only very slowly or not at all. The desired strengths and other screed properties are not obtained. We have summarized the following “12 Golden PCT Winter Rules” for you:

1. Too cold: refuse the application or express your concerns.

Always inform the builder-owner/client in writing about the risks of applying screeds in winter and express your concerns. If screed application without any additional measures is expressly requested make sure that the application is supervised separately.

2. Heat the mixing location and building to at least +5 °C.

Heat the mixing location and building such that the cement and aggregates as well as the applied screed will not freeze and their temperature will not fall below +5 °C.

3. Do not use heating lances.

The use of heating lances for heating the screed sand has hardly any effect apart from partially overheating the sand (often +80 °C within a radius of approx. 25 cm) and varying drying stages. On the other hand, differences in dryness and temperature may lead to varying mortar consistencies and initial reactions of the cement, and may consequently result in strength and drying problems.

4. Room climate: max. +15 °C temperature, min. 45 % air humidity.

The temperature inside the building must not fall below +5 °C (for accelerated screeds until workability has been obtained). Maximum temperatures of +15 °C and air humidity above 45 % are recommended. This prevents shock effects, too rapid surface drying and excessive deformations.

5. Do not use floor heating during application.

Use other heating methods for “antifreeze protection”. It is not recommended to use floor heating – even at flow temperatures from +15 °C to +20 °C. Large deformations frequently occur at joints and edges when using floor heating during application. Moderate heating by other methods is preferable.

6. Avoid warm airflows on and near the screed.

Special caution with large winter heating systems! “Forced heating” in the building with Hailo or similar systems results in too rapid drying. High temperatures and strong blowers cause detrimental air movements. Select the air flow and temperature such that the screed will not be damaged.

7. Heat the building beforehand.

Start heating the building at least 5 – 6 days before screed application. This time is necessary for obtaining the required temperature in cold buildings.

8. No fire-dried sand for mineral screeds.

Fire-dried sand must never be used for making mineral screeds.

9. Do not use antifreeze agents.

The use of antifreeze agents in screed is expressly not recommended.

10. Warm water is no help.

Example: At 0 °C temperature of the base materials, +30 °C warm water only increases the temperature of the screed mixture to +1.6 °C. At this temperature neither the cement nor the additives react. Warm water is however suitable for cleaning conveyors and tools.

11. Never leave additives and cement outdoors in vehicles overnight.

Additives and cement must never be stored outdoors in vehicles overnight in the winter season.

12. Warm up RETANOL®.

Warm up Retanol® (especially Retanol® Xtreme) for example with warm water. At temperatures of about +15 to 20 °C Retanol has an ideal viscosity and is fully effective.

GET THROUGH THE WINTER SEASON WITHOUT ANY PROBLEMS WITH PCT!

Should you have any questions or problems, stay cool and call PCT on: +49 7150 206790.

7.2. RETANOL® SCREEDS AFTER APPLICATION (DATA SHEET 3.0.2)

Notes for the client for the time after screed application

The client is responsible for providing a suitable room climate. Please observe the following rules:

VENTILATION AND AERATION IMMEDIATELY AFTER APPLICATION

Retanol® accelerates hydration, so that varying construction site conditions are almost controlled. Air exchange is however indispensable. High air humidity prolongs the curing and drying time.

Sufficient ventilation and aeration must be provided for 24 hours after applying Retanol® screed by means of regular ventilation. All windows and doors must be opened for 20 to 30 minutes 3 or 4 times a day.

IMMEDIATE HEATING

Heating can be started 24 hours after the application of Retanol® screed*. Generally it is not necessary to heat the screed until it is fully dry. Heating merely supports the drying process. Initial heating and cooling must however take place before laying the floor covering.

Please observe the notes in the individual Retanol® heating records!

The PCT heating records for the various products can be downloaded from www.pct-chemie.de under Downloads/Technical Data/Technical Data Retanol® screed or are available from your PCT consultant.

* This is possible for heating screeds which have been made using the products Retanol® 511/611/711, EKA/EKA BW/EKA-Blau, VIWA/VIWA-Gelb with a dosage of 350 ml. Smaller dosages delay the start of the heating process. For Xtreme and Xthinn heating screeds this quick start of the heating phase is mandatory.

NO FROST

Retanol® screed must be protected from frost during the entire drying phase.

NO WATER

Protect the screed surface from water from the time of applying the screed until laying the floor covering. Danger: any water impact while the screed is still fresh or setting leads to crumbling screed surfaces and impedes the drying process.

WHEN CAN SCREEDS BE WALKED ON AND SUBJECTED TO LOAD?

Retanol® screeds can be walked on 24 hours after application. They can be subjected to load if exposed to standard site traffic after 2 days in case of 3*/5 to 7-day acceleration times. This means that rolling loads such as wheelbarrows can be used. Manual lift trucks may only be used when the (specified) final strength has been obtained. Exception: Retanol® Xtreme screeds. Manual lift trucks can be used on these screeds after 3 days.
Danger: too early subjection to loads results in damage to the screed surface and the screed structure and promotes crack formation.

COVERING OF FINISHED SCREEDS

Retanol® screeds may not be covered during the entire drying process.
Danger: the storage of construction materials on the screed, even if only partially, for example for interior work, slows down the drying process and may falsify the results of the moisture measurement.
Retanol® screeds, if they are covered with a parquet/solid wood, must under no circumstances be provided with diffusionblocking or diffusion-inhibiting covers.

NO VIBRATIONS

Screed vibrations must be permanently avoided.

DO NOT CUT THE BORDER STRIPS

The border strips must not be cut off before the surfacing process for laying floor coverings or the jointing process for laying tiles has been completed, and this must be done by the floor layer or the tiler.
Danger: cutting the border strips too early often leads to soiling or filling (e.g. with floor covering materials or joint filling compounds) of the border joint. This results in sound bridges and crack formation.

DRYING MEASURES

Forced drying, e.g. by means of condensation dryers, is possible after 14 days after the screed application at the earliest. This also applies to the use of ventilation blowers for air circulation.
Danger: premature further drying and air circulation causes additional high deformations in the screed. Especially in the areas around joints this often results in concave bulging which cannot be rectified, along with a possible height offset between the screed sections. This also increases the risk of crack formation.

HEATING WITH FLOOR HEATING AND VENTILATION

The data in the Retanol® heating records must be complied with during the heating phases and observed without night setback. This promotes the screed drying process.

Ventilation is particularly important when using floor heating to ensure that the interior air humidity is constantly discharged from the building (regular ventilation). All windows and doors must be opened wide for 20 to 30 minutes 3 or 4 times a day.

Windows and doors must not be covered on the outside with for example construction foil which impedes air exchange. Danger: if the rooms are not ventilated at all or insufficiently ventilated the high interior air humidity is precipitated on the screed in the form of condensation water. This considerably slows down the drying process and the desired workability is not obtained.

LAYING OF COVERINGS ONLY WHEN READINESS FOR FLOORCOVERING HAS BEEN OBTAINED

Floor coverings must not be laid before readiness for floorcoverings of the screed has been obtained. The residual humidity may only be determined by CM* measurement (according to the CM* measuring instruction for Retanol® screeds). Humidity measurements of Retanol® screeds with electronic measuring devices result in - due to the electrical conductivity, also of cured/fully dried screed mortars - unreliable or falsified humidity content measurements.
Danger: incorrect or inappropriate measurements may falsify the actual water content and cause considerable damage if coverings are laid on the screed too early.

LAYING PARQUET ON RETANOL® SCREEDS

Parquet and solid wood floors laid on Retanol® screeds must not be covered with diffusion-blocking or diffusion-inhibiting materials.

7.3. FLOOR HEATING

Retanol® heating screeds are special screeds made in accordance with the technical documentation on rapid setting screeds and accelerated screeds.

PCT has developed heating and cooling measures especially for Retanol® heating screeds which support the necessary „initial destressing“ of new floor screeds. The heating and cooling measures **must be** performed by the heating engineer before laying a floor covering. For the individual start times and temperature steps, please see the table in Section 7.2. The performance of the heating and cooling measures according to specifications must be noted in a heating record and handed over to all persons involved, including the floor layer, before laying the floor covering.

In spring and winter, heating should be carried out with additional intermediate temperature steps in order to avoid shock effects and resulting deformations and cracks.

The following items must be observed and/or recorded when heating and cooling screed floors and preparing the associated documentation.

- Date of heating start.
- Date and time of set/applied flow temperatures.
- Maximum flow temperature attained.
- Information on room climate (air and floor temperature, relative air humidity).
- Date of completed cooling.
- Date of putting into service.
- Sufficient ventilation and aeration must be provided during the entire process.
- All draught must be avoided.

Heating records for Retanol® are available for download on **www.pct-chemie.de.** Before laying the covering, readiness for floor-covering of the Retanol® heating screed must also be verified with a CM* measuring device. **Electronic measuring devices are not admissible when using Retanol® screeds.**

Important note: The normative heating phases specified in the „Interface coordination for heated floor structures“ **(functional and preparatory heating)** are not required to obtain the technical properties and readiness for floorcovering of Retanol® screeds. These two very time-consuming measures would make swift laying of floor coverings on accelerated screed impossible.

7.4. HEATING PHASES FOR USE AS HEATING SCREED

Selected dosage RETANOL® 511/EKA/VIWA	**3*/5–7 days** *applies only to RETANOL® 511	**10–14 days**	**18–20 days**
Can be walked on after	24 hours	24 hours	24 hours
Can be subjected to load after	2 days	3 days	4 days
Flow temperature of floor heating during heating phase without night setback	1st day +25 °C 2nd day max. +55 °C 3rd day max. +55 °C 4th day +25 °C	from 2nd–4th day +25 °C from 5th–8th day max. +55 °C from 9th day max. +45 °C from 10th day +35 °C from 11th day +25 °C	from 5th day +25 °C from 8th day +45 °C from 10th day max. +55 °C from 14th day +35 °C from 18th day +25 °C
	From the 3rd–7th day workability of the screed is obtained.	From the 10th–14th day workability of the screed is obtained.	From the 18th–20th day workability of the screed is obtained.
Heating phases can be extended as desired.			
Decrease the temperature to +20 °C for applying the covering.			
This information is only valid in connection with the application notes and the technical data sheet. A CM* measurement must be performed before laying the covering (not applicable to construction sites previously supervised by PCT).			

7.5. REGULAR VENTILATION OF ROOMS WITH HEATED AND UNHEATED RETANOL® SCREEDS

High indoor air humidity is unconducive to the drying process. This is why regular ventilation is necessary from the second day after completion of the screed application. All windows and doors must be opened for 15 to 20 minutes two or three times a day. This provides for the necessary air exchange and supports the drying process. In case of insufficient regular ventilation or if rooms are not ventilated it takes considerably longer to obtain readiness for floorcovering.

Sufficient ventilation and aeration must be provided during the heating and cooling process of all types of screed.

- Avoid all draught! This applies to all types of screed.
- Do not allow the room to cool down below +15 °C.
- Do not allow the screed surface to cool down below +15 °C.
- The heating engineer must prepare a record on the initial heating and the subsequent putting into service; this record is available from PCT. The record must be handed out to all persons involved and contain the following information:
  - heating data with respective flow temperatures,
  - maximum flow temperature attained,
  - operating condition and outdoor temperature upon handover and
  - date of putting into service.

Various coverings can be applied to the properly heated screed.

8. SAFETY ADVICE

Retanol® 511 and Retanol® EKA/EKA BLAU/EKA BW/EKA PRO/VIWA/VIWA GELB produce an alkaline reaction after contact with humidity or mixing water and cement; for this reason skin irritation or burns of mucous membranes (e.g. eyes) are possible. There is a risk of serious damage to the eyes, therefore avoid contact with eyes and prolonged contact with skin. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. In case of contact with skin, remove soiled clothes immediately and wash skin with plenty of water and soap.

Wear suitable protective gloves.

If the product is swallowed, seek medical advice immediately and show the package, the safety data sheet or this product information.

Keep Retanol® 511 and Retanol® EKA/EKA BLAU/EKA BW/EKA PRO/VIWA/VIWA GELB out of reach of children. All the product information is based on our practical experience. The applicability, appropriateness and practicability of the information must be verified by means of preliminary tests by the user. This product information must only be used in connection with the technical data sheet.

9. APPLICATION DATA/TECHNICAL DATA SHEET 06/2009

Type and properties:

- For bonded screeds, screeds on separation or insulation layers and for heating screeds
- Observe the heating instructions
- Suitable for damp and wet rooms

MATERIAL DATA

Material base **Bulk density** **Consistency** **Colour**	Additive Approx. 1.1 g/cm³ Liquid Black-brown
Labelling according to the Directive on the Transport of Hazardous Goods by Road (GGVS/ADR), Hazardous Goods Directive (GefStdfV) For further information, please see the section „Safety Advice“	Non-hazardous goods Irritating
Storage **Storability** **Delivery form** **Consumption**	Dry, do not store above +30 °C/below +5 °C At least 9 months as of delivery date 20/100 and 1,000 litre container Approx. 0.014 – 0.02 litres/m² and 10 mm layer thickness depending on cement weight and dosage, depending on workability (see Dosage Table)
Amount of mixing water / Mixing ratio	From 0.4 % = 0.20 litres to 0.8 % = 0.40 litres additive related to the cement weight. The dosage depends on the cement percentage and workability (see Dosage Table).
Consistencies	The consistency of a Retanol screed should be adjusted in the area of earth-moist to pliable. Consistencies which are too “soft plastic” must be avoided at all costs. The W/C value of 0.65 shall not be exceeded. The actual quantity of added water depends on the sand moisture content.
Layer thickness · Minimum · Maximum	Pipe coverings for heating screeds from 35 mm (maximum load: 3 kN/m² area load) Approx. 25 mm for bonded screeds; adapt the grain size Approx. 35 mm for screeds on separation or insulation layer 80 mm (always consult PCT in case of high layer thicknesses)
Application temperature **Mixing technique** **Delivery technique** **Consistency of mortar** **Workable life**	+5 °C to +28 °C Standard screed feed pump, 250 litres gross capacity vessel, mixing truck like Bremat or Transmix Pneumatic Stiff to pliable up to pliable Approx. 60 – 90 minutes depending on dosage
Curing times: · Can be walked on after · Can be subjected to load after · Can be subjected to load after · Workable - water-vapour permeable coverings · Workable - water-vapour impermeable coverings	With temperatures < 15°C 2 days 2 days (readiness for floorcoverings after 3*/5 – 7 days) if exposed to standard site traffic 4 days (readiness for floorcoverings after 14 days) if exposed to standard site traffic See Section 10. See Section 10. Measured with a CM device. Weight of sample: 50 g, reading after 10 min. Generally, workability is obtained after 3 days (5 days Retanol® EKA/EKA BLAU/EKA BW/EKA PRO/VIWA/VIWA GELB) at a dosage of 0.7 % (0.35 litres) related to the cement weight. The amount of water is approx. 8 – 12 litres with a standard mixing vessel with 250 litres gross capacity depending on the sand moisture. The amount of water used is beyond our control. We therefore only assume warranty for the quality of our product, not for successful application and the drying time. These data are not applicable to building sites supervised by PCT. In this case PCT assumes both guarantee and warranty for the product properties.

*applies only to Retanol® 511.

10. CM MEASUREMENT – WORKABILITY

Sample weight: 50 g/reading after 10 minutes (see PCT CM* measurement record).

Type of planned covering	Screed age			
	3 – 8 days	9 – 28 days	29 – 56 days	from 57 days
Stone and ceramic coverings in thin bed method	3.2 %	3.0 %	2.6 %	depending on the sorption isotherm
Textile floor coverings	3.2 %	3.0 %	2.6 %	
Linoleum, rubber and similar without floor heating	3.2 %	3.0 %	2.6 %	
Linoleum, rubber and similar on floor heating	3.0 %	2.8 %	2.4 %	
Parquet without floor heating	3.2 %	3.0 %	2.6 %	
Parquet on floor heating	3.0 %	2.8 %	2.4 %	
Laminate without floor heating	3.2 %	3.0 %	2.6 %	
Laminate on floor heating	3.0 %	2.8 %	2.4 %	
Stone and ceramic coverings in thick bed method	4.2 %	4.0 %	3.6 %	
Screed insulation and screed sealings	5.2 %	5.0 %	4.6 %	

Screeds laid on floor heating must be heated and cooled according to the heating record of the manufacturer PCT before laying the covering. The workability of Retanol® screeds can only be determined by CM* measurement. Other measuring methods are unsuitable.

11. EXAMPLES OF DOSAGES OF RETANOL® 511 AND RETANOL® EKA/EKA BLAU/EKA BW/EKA PRO/VIWA/VIWA GELB

For 50.0 kg cement per mixture (standard mixing vessel with 250 ml gross capacity) = 1.250 kg/m³

Workability after days	Retanol®/Mixture	Water/Mixture
3*/5 (*applies only to Retanol® 511)	0.35 – 0.40 l =1.75 l – 2.0 l/m³	9 – 12 l = 45 – 60 l/m³
7	0.35 l = 1.75 l/m³	12 – 14 l = 60 – 70 l/m³
14	0.25 l = 1.25 l/m³	14 – 16 l = 70 – 80 l/m³
21	0.20 l = 1.00 l/m³	16 – 19 l = 80 – 95 l/m³

The specified quantities of water added are based on practical experience on the construction site. Regarding the individual times when the screed is ready for covering, please also observe the notes in chapter 3 „Most common dosages“.

When preparing the screed formulation, ensure that you select the types of cement and the cement quantity approved by PCT and the aggregates in accordance with DIN 1045-2, grading curve A/B, 0 – 8 mm, for making screed concrete. Your contact person will be pleased to advise you in detail. Object-related recommendations will be given free of charge.

OPTIMUM APPLICATION PROPERTIES OF RETANOL® SCREEDS.

12. CM* MEASURING INSTRUCTION

1. Samples must be taken over the total cross-section of the screed to be measured. The top 2 - 3 mm must be removed in order that no surface moisture is also measured.

2. Fill the accurately weighed and crushed sample (50 g) and the 4 steel balls into the CM* pressure cylinder. Then hold the CM* pressure cylinder in an inclined position and carefully slide in a calcium carbide vial.

3. Close the CM pressure cylinder with the lid and crush the CM* vial by vigorous horizontal shaking. When beginning the measurement, please note the time with a suitable stopwatch.

4. Then carry out circular and horizontal movements with the CM* pressure cylinder for two minutes to further crush the sample material and to mix it with the calcium carbide. Repeat this process for one minute after five minutes (circular movements). Read the value after a total measurement time of 10 minutes. Prevent the steel balls from vertical knocking against the measuring head below the manometer. This will damage the measuring head and the measured values will be useless.

Always wear gloves during the measurement!

13. DECLARATION OF EXEMPTION/CM APPROVAL MEASUREMENTS/CM SERVICE MEASUREMENTS

CM* measurement: declaration of exemption for the CM* values specified in Section 10 for CM* measurement during the prescribed use of Retanol®.

PCT Performance Chemicals GmbH exempts the covering layer and the screed layer from the warranty if the values specified in Section 10 have been complied with at the time of measurement. The values from the CM measurement record are decisive.

The declaration of exemption is granted in writing for every object.
This requires that a CM* measurement in the form of an exemption measurement has been commissioned by the screed layer or the architect and performed by an authorised PCT employee.

All the information on this product given above is based on extensive practical experience and tests implemented by PCT Performance Chemicals GmbH. However, it is not possible to take all construction site conditions into account and to give suitable instructions for use in each case. It is therefore recommended to verify the applicability, appropriateness and practicability of this information and the intended measures by means of individual tests. PCT assumes warranty for the correctness of this product information and the described properties as well as for the effect of the product. PCT reserves the right to change the product specifications. If the site is or has been supervised by PCT the user is under no obligation to check applicability and appropriateness.

CM service measurements: service measurements are performed in order to demonstrate the drying process of Retanol® screeds. CM service measurements are not CM approval measurements.

*CM = calcium-carbide method

SchükoArena, Bielefeld: RETANOL® VIWA, CT-C30-F5-T70, workability: 4 days

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