DEGADUR® 418 and DEGADUR® 527

For industrial and commercial floors in dry areas

General Description

Under the DEGADUR® trademark, Evonik Industries produces rapidly curing methacrylic resins that are used to formulate floor coatings, with the addition of fillers and pigments. Their rapid curing (even at temperatures as low as minus 30 °C) ensures very short interruptions in routine operations. The coatings can be used to provide smooth or textured surfaces. Seamless DEGADUR® industrial floor coatings are robust and resistant to many conventional chemicals such as acids and alkalis. The degree of mechanical strength and slip resistance can be precisely adjusted according to the specific requirements or relevant industrial regulations. Individual wishes can be met in terms of color or design. DEGADUR® coating systems can generally be applied on concrete and metal substrates, asphalt, indoor and outdoor areas as well as in wet and dry rooms.

Decorative systems for dry areas

Coatings based on DEGADUR® 418, sealed with DEGADUR® 527, are especially suitable for smooth floors that may be colored or broadcast with color chips, in mainly dry areas. The surfaces can be decoratively designed, are abrasion-resistant and easy to clean.

Summary of benefits

- Rapid curing - floor can be used and exposed to normal loads after two hours, which means minimal downtimes
- Coating possible at ambient temperatures of -30 °C to +35 °C
- Good wear resistance
- Seamless and water-tight
- Good chemical resistance to acids, alkalis and many cleaning agents
- New DEGADUR® coatings can be applied to old DEGADUR® substrates

DEGADUR® 418/527
For custom-tailored system solutions

- Decorative industrial and commercial surfaces
- For floors exposed to light mechanical loads
- Easy-to-clean surfaces
- Variety of colored designs,
- Option to use broadcast color chips

Fields of application

- Supermarkets and retail stores
- Salesrooms and exhibition rooms
- Bakeries, cafés, beverage stores
- Offices, warehouses and storage rooms
- Firefighting equipment sheds, vehicle hangars
- Laboratories, pharmaceutical industry
- Printing shops, distributing centers, workshops
- Discothèques, gyms
- Changing rooms and sanitary facilities
- Zoo enclosures (indoors)
- Corridors (e.g. in schools, gyms, hospitals, nursing homes, public offices)

Substrate Composition

The substrate must be correctly prepared for coating as described below. The primer must be allowed to cure properly on the substrate in order to guarantee a durable bond. This applies equally to concrete, asphalt and metal substrates. **The surfaces must be solid, dry, offer good grip and be capable of bearing loads. They must be free from laitance, loose particles, flakiness and substances like grease, oil, rubber fines, paint residues or other contaminants that would prevent bonding.**

The best floor preparation is usually achieved by means of shotblasting or mechanical removal (grinding). For very soiled surfaces, these mechanical methods can be advantageously combined with flame paring. After preparing the substrate, its pull-off strength must be at least 1.5 N/mm². Tensile bond measurements can be performed using a Herion appliance, for example. A simple adhesive test patch with the chosen primer, e.g. DEGADUR® 112, may provide an indication of how well the floor has been prepared.

The floor-laying company must furnish proof of adequate adhesion!

Since it is very important to correctly prepare and assess the substrate, we recommend that you consult the Technical Information Sheet „Substrate Analysis and Floor Preparation for Coating Work with DEGADUR® Systems."

Adhesive test patch

Maximum substrate humidity

Substrate	Ambient humidity (before and after coating)
Reinforced concrete floor	2.0–3.0 %
Pumice concrete	3.0–5.0 %
Cementitious screed, depending on mixing ratio	1.5–3.0 %
Aerated concrete screed, cement-bound	2.5–3.5 %
Cold bitumen screed, cement-bound	1.5–2.0 %
Magnesia flooring	8.5–12.0 %
Anhydride and gypsum screeds	less than 0.5 %
Chipboard, hardboard, wooden floors	8.0–12.0 %

Primer

The primer DEGADUR® B 71 or DEGADUR® 112 is mixed with the correct amount of BPO hardener powder by stirring, distributed on the substrate using a rubber blade and rolled out in an evenly thin layer (400 - 500 g/m²). Highly absorbent substrates are coated with primer twice to ensure that a thin, continuous film exists over the entire surface to bind the broadcast material. The primer is broadcast with quartz sand (Ø 0.4 - 0.8 mm). This process takes little time but guarantees an ideal bond between the primer and the coating.

BPO hardener quantities for DEGADUR® 112 primer

Temperature [°C]*)	Hardener [w/w %] **)	Pot life [min]	Curing time [min]
+5	5	appr. 8	appr. 30
+10	4	appr. 8	appr. 30
+15	3	appr. 7	appr. 30
+20	2	appr. 8	appr. 30
>30	1	appr. 6.5	appr. 30

*) The temperature refers to the resin, floor and air temperature

**) The hardener quantities refer to DEGADUR® 112; for DEGADUR® B 71, see data sheet

Note:
The stated values are based on laboratory tests. In practice, external influences may lead to deviations from these values.

Coating

Coatings with DEGADUR® 418 are characterized by their good filling and leveling properties. Owing to its good filler and pigment wetting properties, DEGADUR® 418 is the preferred choice for self-leveling coatings in layer thicknesses of 2-4 mm thickness. The typical filler consumption, depending on type, is approx. 1.8 kg/m² per mm layer thickness.

Typical formulation for 2 – 4 mm coating

Quantity [pbw]	Product
33.00	DEGADUR® 418
20.00	Fine filler ≤ 50 µm (do not use carbonate-containing fillers)
45.00	Quartz sand 0.06 - 0.3 mm
2.00	Pigment powder

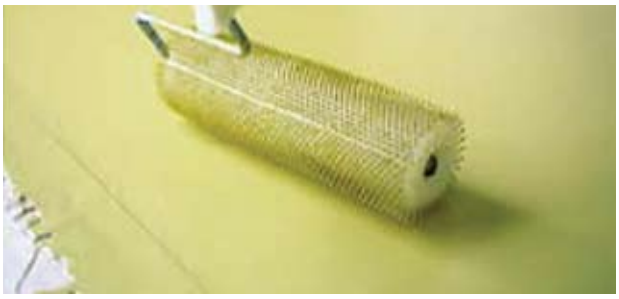
BPO hardener quantities for DEGADUR® 418

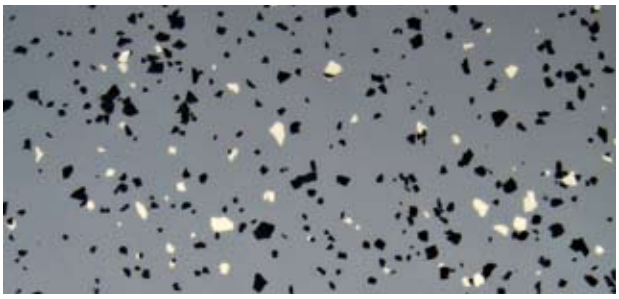
Temperature [°C]*)	Hardener [w/w %] **)	Pot life [min]	Curing time [min]
+5	4.5	appr. 40	appr. 70
+10	3.0	appr. 35	appr. 75
+20	2.0	appr. 15	appr. 35
+30	1.0	appr. 25	appr. 70

*) The temperature refers to the resin, floor and air temperature
**) The hardener quantities refer to DEGADUR® 418

Note:
The stated values are based on laboratory tests. In practice, external influences may lead to deviations from these values.

The self-leveling mixture for practical application is distributed using a pin rake. The wet layer thickness must be at least 2 mm.





Color chips, preferably sized 3–4 mm, can be broadcast over the self-leveling coating before it has cured to provide decorative floors.

Seal Coat

The entire quantity of DEGADUR® 527 mixed with BPO powder is poured onto the coating, distributed roughly using a serrated rubber blade (serration approx. 1 mm) and then evenly applied with a mohair roller (pile 4 mm).

BPO hardener quantities for DEGADUR® 527 seal coat

Temperature [°C]*)	Hardener [w/w %] **)	Pot life [min]	Curing time [min]
+5	1.5	30–25	50–45
+10	1.5	20–15	40–35
+20	1.0	15–12	30–25
>25	1.0	12–8	20–15

*) The temperature refers to the resin, floor and air temperature
**) The hardener quantities refer to DEGADUR® 527

Note:
The stated values are based on laboratory tests. In practice, external influences may lead to deviations from these values.

Important points to bear in mind for the seal coat

- DEGADUR® 527 should be applied to smooth coatings in layer thicknesses of at least 0.4 to max. 0.8 mm (400 - 800 g/m²).
- The seal coat can be pigmented with 2–10% w/w pigment powder. A temperature of +35 °C should not be exceeded when stirring in the pigment.
- The storage stability of pigment mixtures with DEGADUR® resins is limited and must be examined by the customer in preliminary tests.
- The hardener powder must be thoroughly stirred in for at least one minute.
- Before applying a seal coat to a surface broadcast with chips, any loose or protruding chips should be lightly ground using a suitable grinder equipped with Nylpads (abrasive discs of low hardness) and then vacuumed. This prevents unevenness and bubble formation in the top coat.
- Good ventilation during processing ensures good curing of the seal coat.

Properties of a coating system with DEGADUR® 418 and DEGADUR® 527

Property	Standard/Test Method	Unit	Result (according to typical formulation on page 2)	Class according to EN 13813
Tensile strength	DIN EN ISO 527	[MPa]	18	F 15
Compressive strength	DIN EN ISO 604	[MPa]	48	C 40
Elongation at break	DIN EN ISO 527	[%]	2.3	-
Elastic modulus	DIN EN ISO 527	[MPa]	2120	E 2
Tensile bond strength on concrete	DIN ISO 4624 ZTV-SIB	[MPa]	3,4	B 2.0
Impact strength	EN ISO 6272	[Nm]	8	IR 8
Wear resistance according to BCA	prEN 13892-4	[µm]	< 10	AR 0.5
Slip resistance/displacement volume	BGR 181 and DIN 51130	[R/V]	R9/V-.-	-
Fire rating	prEN ISO 11925.2 exposure =15 s	[Class]	Fs ≤ 150 mm within 20 s	E_{fl}
Physiological inoffensiveness	EU Regulation 1935/2004 of the European Parliament dated 27 Oct. 2004	Food Contact Declaration	(Test report No. 26049 U 08) The coating system is physiologically safe. Suitable for food processing companies.	-

According to §9 of the German Construction Product Act (implementing Construction Products Directive 89/106/EEC), the described system complies with the provisions of EN 13813:2002 and meets the prerequisites for CE marking according to Annex ZA 1.5 of EN 13813:2002.

® = registered trademark
DEGADUR is a registered trademark of Evonik Röhm GmbH, Darmstadt, Germany

Evonik Röhm GmbH is certified to DIN EN ISO 9001:2008, DIN EN ISO 14001:2004 and BS OHSAS 18001:2007.

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