

The manufacture of polymers through the interlinking of many small molecules is known as polymerisation (hardening). In Silikal reactive resins, this hardening mechanism is triggered by the addition of a hardening powder (dibenzyl peroxide, or BPO for short). The hardening powder sets off a chain reaction and can therefore be regarded as the initiator for a chemical reaction.

Dosage

The quantity of hardening powder required depends on temperature and can be taken from the relevant product data sheets in the “**Hardener dosages**” table. The quantities of hardening powder are indicated as a percentage by weight (pbw.), related to the proportion of resin.

More hardening powder is advisable for

1. thinner coating thickness
2. higher degree of filling

Less hardening powder is advisable for

1. coating over thicker old methacrylic coatings
2. sealing of self-levelling, smooth methacrylic coatings not sprinkled with sand or colour flakes

However, you must not dose less than the quantity of hardening powder indicated in the respective product data sheets, as this will jeopardize the curing process. You must also avoid overdosing the hardening powder, as this can likewise lead to serious curing problems triggered by excessive temperatures.

Hardener quantities are best dosed by means of an electronic scale. Should there be no scale on the building site, graduated measuring beakers can be used instead; in this case the quantity of hardener must be converted from weight to volume. Measuring beakers with a special BPO scale can be obtained from Silikal.

To convert from weight to volume, apply the following basic rule of thumb:

Quantity of hardening powder in g x 1.5 = volume of hardening powder in ml

Example:

Batch quantity of SILIKAL® R 51 resin: 1.0 kg

According to the “Hardener dosages” table, at +20 °C add 3 % by weight of hardening powder.

3 % by weight of 1.0 kg of R 51 is 30 g, i. e. 30 g of hardening powder must be added to 1.0 kg of SILIKAL® R 51 resin.

Convert from g to ml using the following formula:

30 g x 1.5 = 45 ml

Advice on application

The hardening powder must not be added to the corresponding Silikal reactive resin and resin/filler mix until immediately before application. In the case of pourable mixes, the hardener should be the last component added, while for mortars or very thixotropic resins the full amount of filler or thixotropic agent should be stirred in first. Only in this way can the hardener dissolve evenly within the mixture.

The hardening powder must always be stirred into the corresponding mixture or the pure resin until it has completely dissolved. The stirring time will depend on the nature and the condition of the mixing equipment used and on the temperature of the material.

Special safety advice



BPO hardening powder must **never come into contact with Additive ZA accelerator** (see product data sheet), as this can lead to an uncontrollable explosion. Both substances must be stirred separately into the coating mass (stir before adding!).

Metal vessels (e. g. beakers, shovels) are not suitable for handling BPO hardening powders. Lengthy contact could cause an explosion!

Special advice

In practice, circumstances which cannot always be foreseen in advance (e. g. poor ventilation, colder substrate, thinner coats, or a combination of such circumstances) mean that there is a danger of slight (possibly only localized) hardening problems. In this case the quantity of hardener should be increased as a precaution by 0.5 – 1 % on the quantity recommended in the table.