



KETTLITZ-Kezadol GR

- technical leaflet -

Kezadol GR is a soft 81.5 % calcium oxide granule coated with special dispersing agents, for use as a desiccant in rubber compounds which are cured on micro-wave systems, LCM or hot air. Moisture which is present in all rubber chemicals, especially fillers, will be absorbed and the calcium oxide will change to calcium hydroxide after reaction with the moisture. This reaction will happen while storing the uncured rubber compounds.

It is also possible to use Kezadol GR as acid absorber e.g. in systems containing chlorine. By reaction of HCl (hydrochloric acid) with CaO, CaCl_2 is formed. Therefore the corrosive effect of HCl on metal parts (e.g. vulcanization molds) can be diminished.

Kezadol GR helps to decrease the formation of nitrosamines.

[D. W. Chasar, Brecksville, OH/USA; *alkaline earth oxides/hydroxides as nitrosamine inhibitors in rubber vulcanization*, in KGK magazine 45 (1992), page 18–20]

Kezadol GR has a delayed action but a fast reaction. If calcium oxide powder preparations are used they react during the mixing process, and so a higher dosage is required, which has a negative effect on the physical properties of the vulcanizate. Kezadol GR is inactive during mixing but then reacts quicker than other calcium oxide preparations, permitting shorter standing time between mixing and extrusion. After mixing, the storage time of the compound should be at least six hours.

In comparison to CaO-preparations in powder form, which react already during mixing process, Kezadol GR shows clear advantages due to its desensitized form. The most important point is, that the dosage may be reduced significantly, therefore the influence of CaO on physical properties of the compound is reduced.

CaO-preparations in pasty form often get very hard after some time of storing these materials. This causes dispersion problems which will not occur if Kezadol GR is used.

Kezadol GR granules are very soft so that the use and dispersion even in very soft rubber compounds, e.g. sponge rubber, and on open mills will be fast and without any problems.

One of the reasons for the softness of Kezadol GR is the fact that the dispersing agents used to produce the granules have no melting or softening point. Easy dispersion will take place immediately after addition to the compound.

The quality of the calcium oxide is important. Kezadol GR contains an extremely fine calcium oxide. Screen residue of the untreated CaO:

$\geq 45 \mu\text{m}$	max. 0,1 %
$\geq 150 \mu\text{m}$	max. 10 ppm

Recommended use

Kezadol GR should be used in order to prevent blisters and porosity in the following rubber processes.

- Pressureless continuous curing systems like micro-wave, LCM, fluid beds or hot air
- Low pressure curing in the cable industry
- In compounds cured in heat transfer fluids



Dosage

The dosage of Kezadol GR (80 % CaO) depends on the moisture contained in the compound. The molecular weight of calcium oxide is 56, and 18 for water. By these relations it can be seen that for every part of water by weight expected in the rubber compound approx. 4 parts of Kezadol GR are required in order to avoid blisters on profiles. It is a standard practice to add quantities in excess of this amount, however, usually between 5 and 10 % calculated on the filler quantity. We recommend to add Kezadol GR in the second mixing stage. A big part of the humidity can escape in the first step at higher mixing temperatures without being absorbed by CaO. Kezadol GR can be added to the compound together with the special packing, if mixing temperatures of more than 85 °C are achieved (melting range of the PE foil 60–85 °C).

Attention! AN OVERDOSAGE CAN CAUSE WHITE SPECKS

Calcium oxide which has not reacted with the moisture in the rubber compound will later on react with humidity. As result white specks will be observed because calcium hydroxide, which originates by reaction between calcium oxide and humidity, has a threefold bigger volume than calcium oxide.

Packing

For order quantities of minimum one pallet (1 big card box à 500 kg or 64 card boxes of 15 kg), Kezadol GR can be supplied in sachets containing any weight between 0.5 kg and 5 kg to suit customers' requirements at no extra cost. Usually bag and content can be applied directly to the mixer eliminating weighing and handling. Direct skin contact can be avoided to improve working place safety. For further information please study our safety data sheet.

Properties

Chemical Characteristics	calcium oxide coated by special dispersing agents
Appearance	light grey, soft granules (diameter 6–8 mm), free-flowing
Density at 20 °C (g/cm ³)	approx. 2.36
Physiol. Behavior	see safety data sheet
Storage Stability	1 year under cool and dry storage conditions in sealed packing
Packing	hermetically sealed PE bags of low melting PE foil (60–85 °C) of 1 kg each in cartons of 15 kg each, stored on pallets with 960 kg net (standard). on customers' request any measurement between 0.5 and 5 kg is possible.