Technical Data Sheet

Vulkasil®
C

Specialty and Standard Chemicals

Function

Vulkasil® C is a silica filler with a medium reinforcing effect.

Product description

Composition: precipitated silica

Appearance: white amorphous powder
Density (at 20 °C): approximately 2.0 g/cm³
Ignition loss: approximately 4.0 % (referred to dry substance)

Property	Nominal value	Unit	Test method
Volatile matter (2 h at 105 °C)	5.5 ± 1.5	%	DIN ISO 787/2
pH value (5 % in water)	9.0 ± 0.7	---	DIN ISO 787/9
Specific surface area (BET)	55 ± 10	m²/g	ISO 9277
Electrical conductivity (4 % in water)	≤ 1300	µS/cm	DIN ISO 787/14
Sieve residue (0.045 mm)	≤ 0.3	%	DIN ISO 787/18

Use

Mode of action: Vulkasil® C is able to interact not only with products of low molecular weight, e.g. water or compounding ingredients like accelerators, but also to some extent with itself and the polymer. If the filler-filler interaction can be reduced, the viscosity of the compound falls correspondingly. So if substances that are adsorbed by the filler more readily than the rubber are added to the compound, the viscosity is reduced and the compound becomes easier to process.

Additives of this kind include basic accelerators such as DPG (Vulkacit® D); compounds containing hydroxyl groups, such as glycols; and almost all compounds containing basic nitrogen, e.g. triethanolamine, dicyclohexylamine etc.

Because most of these additives not only facilitate processing but reduce the accelerator adsorption or have accelerating effects themselves, they are often termed "activators". LANXESS supply a range of such activators under the trade name Rhenofit® as well as processing promoters under the trade name Aflux® and Aktiplast®.

The amount of activators needed with Vulkasil® C is considerably lower than with Vulkasil® S or Vulkasil® N. If the usual mercapto or sulfenamide accelerators are employed, it is generally sufficient to add 4 - 5 phr of a glycol or 2 - 3 phr Vulkacit D.

Silanes are also suitable filler activators for Vulkasil® C. They take part in a chemical reaction with the silanol groups of the silica filler. This "hydrophobizing" effect influences the filler-filler interaction. Processing is facilitated so much that fairly large quantities of Vulkasil® C can be incorporated.

Processing: Vulkasil® C can be mixed into the rubber in an internal mixer or on a two-roll mill. It is more easily incorporated into rubber compounds than Vulkasil® S or Vulkasil® N.

Vulcanizate Properties: As Vulkasil® C gives less reinforcement than Vulkasil® S or N at comparable loading, goods containing it have mechanical properties that are slightly inferior to those of goods containing the highly active silicas, but they have better elasticity and more favorable compression set behavior. In most cases the reinforcing effect of Vulkasil® C is slightly weaker than of Vulkasil® A 1. The two products differ more in their effects on the rate of cure of compounds. Normally the rate of cure is lower with Vulkasil® C.

	The aforementioned filler activators facilitate processing and activate the cure. They improve the mechanical properties of the vulcanizates.
Dosage:	Vulkasil® C can be used in large quantities of up to 100 phr, depending on the type of rubber, activator and properties desired in the final product.
Application:	Vulkasil® C is a suitable filler for all rubbers except silicone rubber. It is always used where both ease of processing and good mechanical strength properties are desirable, and a favorable compromise is therefore necessary. Vulkasil® C is particularly suitable for soling materials and technical rubber goods that need good mechanical properties. The slight retardation of cure given by Vulkasil C improves the yield gas in compounds for sponge soles, thereby improving the blowing action. If Vulkasil C is used, the article is not transparent but light-colored and the compound is easily pigmented.

Packaging

20 kg paper bag on 780 kg skid.

Storage stability

In original closed packaging under cool (approximately 25 °C) and dry conditions 730 days from date of production.

Handling

For additional handling information on Vulkasil® C please consult current safety data sheet.

These raw material properties are typical and, unless specifically indicated otherwise, are not to be considered as delivery specification.

RheinChemie Additives

LANXESS Deutschland GmbH
BU Rhein Chemie
Kennedyplatz 1
50569 Cologne, Germany
Phone: +49 (0)221 8885-0
E-Mail: rubber.additives@lanxess.com
http://rch.lanxess.com