

Vulkalent® E/C

Specialty and Standard Chemicals

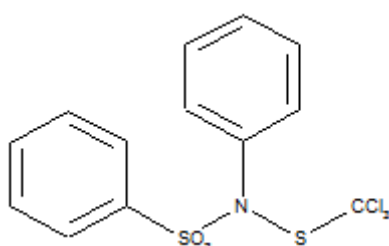
Function

Vulkalent® E/C is a highly effective retarder. It is considerably more powerful than retarders of the organic acid types, such as salicylic acid or phthalic anhydride (Vulkalent® B/C).

Vulkalent® E/C can also be used as a replasticizing agent.

Product description

Composition: N-phenyl-N-(trichloromethylsulphenyl)-benzene sulphonamide with additives



Appearance: white to beige powder, oil coated
Density: approximately 1.6 g/cm³

Property	Nominal value	Unit	Test method
Assay	≥ 90.0	%	335
Oil content	1.5 ± 0.5	%	32 E
Volatile matter	≤ 0.3	%	ASTM D 4571 (15-23)
Ash content	≤ 6.0	%	ASTM D 4574
Sieve residue (0.063 mm)	≤ 0.5	%	DIN EN ISO 4610

Use

Mode of action: Vulkalent® E/C increases the scorch time considerably, and therefore extends the flow time. As the level of Vulkalent® E/C is increased, the retarding effect increases more or less proportionally. The vulcanization time is increased, but to a relatively small extent. Vulkalent® E/C therefore gives very steep vulcanization curves. The flow time/cure time ratio is highly favorable. This is a significant advantage of Vulkalent® E/C over conventional retarders since very short vulcanization times, if compatible with good scorch resistance, are almost universally desired.

Where the vulcanization of the compound is accelerated with sulfenamides like Vulkacit® NZ or Vulkacit® CZ Vulkalent® E/C is significantly more effective than Vulkalent® B/C. Consequently the amount of retarder used should be reduced substantially. Where the accelerator is Rhenogran® MBS-80, Vulkalent® E/C is also more effective than Vulkalent® B/C.

Vulkalent® G is an even more efficient retarder for sulfenamide cure systems.

If the accelerator is Vulkacit® DM or Vulkacit® Merkapto, the difference in effectiveness between Vulkalent® E/C and Vulkalent® B/C is even greater than is seen in sulfenamide systems.

Vulkalent® E/C, like most other retarders, has a very slight retarding effect, or none at all, on the vulcanization of compounds containing Rhenocure® TMTD/C and little or no sulfur. NBR compounds, whose vulcanization can be retarded with Vulkalent® E/C, are an exception; here the retarding effect can be intensified by adding sulfenamides, especially Rhenogran® MBS-80. If magnesium oxide is included, Vulkalent® E/C is also effective in thiuram-cured compounds based on NR or SBR.

Vulkalent® E/C is most effective in compounds accelerated with Vulkacit® DM, Vulkacit® Merkapt, Vulkacit® CZ, Vulkacit® NZ or Rhenogran® MBS-80.

Processing: Vulkalent® E/C is easy to incorporate and even small additions disperse easily.

Vulkalent® E/C has practically no influence on viscosity.

The cure time must be adjusted to the changed rate of vulcanization.

Vulcanizate Properties: Vulkalent® E/C generally has no undesirable effect on the mechanical properties of the vulcanizates. In particular it leaves the tensile strength and resilience properties substantially unchanged. It may increase the degree of crosslinking (and hence the modulus) by about 5 - 10 %. In some cases, however, it has been found that large proportions of Vulkalent® E/C (> 0.5 phr) slightly reduce the modulus values of vulcanizates based on NR or SBR and containing Vulkacit® CZ.

Vulkalent® E/C does not influence the intrinsic color of the vulcanizates. It also causes no contact staining. Vulcanizates exposed to light undergo no discoloration unless they are pure white, in which case they undergo slight yellowing under prolonged exposure.

No blooming is observed when the recommended additions are used.

The recommended additions of Vulkalent® E/C give the vulcanizates no odor.

Dosage: Typical levels of addition based on 100 parts by weight of elastomer are:

Retarder for sulfenamides and mercaptos
0.1 - 1.0 Vulkalent® E/C

Retarder for other accelerators
0.2 - 2.0 Vulkalent® E/C

Curing system for injection molding NBR compounds
0.6 Sulfur
2.0 Rhenocure® MPTD
2.0 Rhenogran® MBS-80
1.0 Vulkalent® E/C

Replasticising agent
0.2 - 2.0 Vulkalent® E/C

Application: Vulkalent® E/C is used to delay the onset of vulcanization. The addition of Vulkalent® E/C enables the processing safety and scorch resistance to be controlled within wide limits without having to change the formulation.

Even intricately shaped goods can be molded and vulcanized without difficulty.

As a replasticizing agent, Vulkalent® E/C can be used to restore Mooney scorch values which have been reduced in consequence of a particular heat history. In other words, a flow time which has been reduced by heat or unsuitable processing can be increased by adding Vulkalent® E/C. Vulkalent® E/C is particularly suitable for tire compounds because its retarding effect on thiazole accelerators is exceptionally marked. It is also suitable for use in the manufacture of other goods, including technical goods and footwear. Vulkalent® E/C is particularly recommended for molded goods, e.g. those produced by injection and transfer molding.

Solubility

Vulkalent® E/C (active ingredient) is soluble in ethyl acetate, methylene chloride; slightly soluble in acetone, alcohol, petrol (gasoline); practically insoluble in water.

Packaging

25 kg box on 625 kg skid or 450 kg big bag.

Storage stability

In original closed containers under cool (approximately 25 °C) and dry conditions 547 days from date of production.

Handling

For additional handling information on Vulkalent® E/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.

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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>