Technical Data Sheet

Silplus™ 40 HT

Description

Silplus* 40 HT heat cured silicone elastomer is an excellent candidate to consider for press- and injection-molding, calendaring and extrusion. Its increased heat stability can provide excellent resistance for applications exposed to high temperature.

Key Features and Typical Benefits

- Very good heat resistance up to 300 ˚C
- Easily blendable

Typical Physical Properties

Typical properties of the uncured base compound			
Appearance			Colorless
Physical State			Solid
Density	DIN 53 479 A	g/cm³	1.10
ML (4) 25 ˚C		M.U.	26

Typical properties of the Vulcanized Rubber 100 pbw Silplus 40 HT elastomer with 1.5 pbw bis-(2,4-dichlorobenzoyl)peroxide (50%). Vulcanization conditions: 10min/125˚C, post-curing: 6h/200˚C in hot air			
Hardness	DIN 53 505		40
Tensile strength	DIN 53 504 S2	MPa	6.5
Elongation at break	DIN 53 504 S2	%	450
Tear strength	ASTM D 624 die B	N/mm	10
Compression Set (22h/175 °C)	ISO 815	%	40

Using other peroxides might result in different mechanical properties. Diacyl-peroxides like di(2,4-dichlorobenzoyl)peroxide are non vinyl specific cross link peroxides (higher

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cross link density). Diaryl-peroxids like dicumyl-peroxide or dialkyl-peroxides like 2,5-dimethyl-2,5-di(tert.butylperoxy)hexane are vinyl specific cross link peroxides (lower cross link density).

Typical Properties after Heat aging (Change)		
10 days @ 200 ˚C		
Hardness	Δ Shore A	-4
Elongation at break	Δ %	-7%
Tensile strength	Δ MPa	-4%
10 days @ 250 ˚C		
Hardness	Δ Shore A	-3
Elongation at break	Δ %	-31%
Tensile strength	Δ MPa	-29%
10 days @ 300 ˚C		
Hardness	Δ Shore A	+18
Elongation at break	Δ %	-76%
Tensile strength	Δ MPa	-51%

Typical properties are average data and are not to be used as or to develop specifications.

Potential Applications

Silplus 40 HT heat cured elastomer is an excellent candidate to consider for applications where the final compound is regularly or continuously exposed to high temperatures. Potential applications include:

- Moldmaking for rotocasting
- High temperature hoses and bellows
- Aviation and aerospace applications

Processing Considerations

Crosslinking can be carried out with most peroxides commonly used for the press molding and extrusion process. If the goods are to be vulcanized without pressure, e.g. in hot air or in an infrared radiation tunnel, bis-(2,4-dichlorobenzoyl)peroxide (50%) is

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recommended. The dosage ranges between 1-2 pbw of crosslinking agent on 100 pbw of base compound. In general, good results have been achieved by the intermediate dosage of 1.5 pbw.
While the crosslinking agent is being incorporated, the temperature of the compound should not exceed 40 °C so the rolls of the mixing mill should always be well cooled.
The achievable compression set with bis-(2,4-dichlorobenzoyl)peroxide is generally less satisfactory than with dicumyl peroxide or comparable products. To vulcanize goods in a press or in steam recrystallized dicumyl peroxide is recommended. Instead of dicumyl peroxide, corresponding proportions of other peroxides (e.g. with less odor) may be considered.
Heat-stable compounds in higher hardness typically can be achieved with Silplus 70 HT heat cured elastomer as blending partner.

Regulatory Compliance
Silplus 40 HT heat cured elastomer is not compositionally compliant with 21 CFR §177.2600 or BfR XV.

Packaging
Silplus 40 HT elastomer is available in 500 kg boxes.

Patent Status
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