

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

| <u>Typical properties of the uncured base compound</u> | | | |
|--|--------------|-------------------|-----------|
| Appearance | | | Colorless |
| Physical State | | | Solid |
| Density | DIN 53 479 A | g/cm ³ | 1.10 |
| ML (4) 25 °C | | M.U. | 26 |

| <u>Typical properties of the Vulcanized Rubber</u> | | | |
|---|------------------|------|-----|
| 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

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).

| <u>Typical Properties after Heat aging (Change)</u> | | |
|---|-----------|------|
| 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

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

Nothing contained herein shall be construed to imply the nonexistence of any relevant patents or to constitute the permission, inducement or recommendation to practice any invention covered by any patent, without authority from the owner of the patent.

Product Safety, Handling and Storage

Customers should review the latest Safety Data Sheet (SDS) and label for product safety information, safe handling instructions, personal protective equipment if necessary, emergency service contact information, and any special storage conditions required for safety. Momentive Performance Materials (MPM) maintains an around-the-clock emergency service for its products. SDS are available at www.momentive.com or, upon request, from any MPM representative. For product storage and handling procedures to maintain the product quality within our stated specifications, please review Certificates of Analysis, which are available in the Order Center. Use of other materials in conjunction with MPM products (for example, primers)

may require additional precautions. Please review and follow the safety information provided by the manufacturer of such other materials.

Limitations

Customers must evaluate Momentive Performance Materials products and make their own determination as to fitness of use in their particular applications.

Contact Information

Email

commercial.services@momentive.com

Telephone

| Americas | Latin America | EMEAI- Europe, Middle East, Africa & India | ASIA PACIFIC |
|---|--|--|--|
| +1 800 295 2392 Toll free* +704 805 6946 Direct Number | Brazil +55 11 4534 9650 Direct Number | Europe +390510924300 Direct number | China 800 820 0202 Toll free +86 21 3860 4892 Direct number |
| *All American countries | Mexico +52 55 2169 7670 Direct Number | India, Middle East & Africa + 91 44 71212207 Direct number* | Japan +81 3 5544 3111 Direct number |
| | | *All Middle Eastern countries, Africa, India, | Korea +82 2 6201 4600 |

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