

Silcat* VS-963

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Description

Silcat VS-963 silane is a fully stabilized crosslinking system (silane, peroxide, catalyst, antioxidants and metal deactivator) for the manufacture of crosslinked polyethylene LV & MV cables using the Monosil⁽¹⁾ one-step process. It provides excellent performance on equipment designed Monosil technology.

(1) Maillefer SA and BICC Ltd.

Key Features and Benefits

- Silcat VS-963 silane can be used with a wide range of non-stabilized polyethylene grades for optimum cost-effectiveness.
- With an appropriate resin, insulated copper cables crosslinked with Silcat VS-963 silane can meet the IEC aging test of 7 days at 135°C.
- A high onset temperature for grafting improves process stability and minimizes pregrafted/crosslinked particles in the insulation layer.

Typical Physical Properties

Appearance	Clear liquid
Color	Light yellow
Viscosity, mPa s (cP), @ 23°C ⁽²⁾	3.6
Specific Gravity, g/cm ³ , @ 23°C	0.976
Flash Point, Tag Closed Cup, ASTM D56-79, °C (°F)	25

(2) Brookfield LV/60rpm

Potential Applications

Low- and medium-voltage power cables.

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.

Processing Recommendations

Performance

Moisture-cured cables produced with Silcat VS-735/1 silane by the Monosil⁽¹⁾ process can meet the IEC 502 cable specification.

Recommended Resins

Silcat VS-963 silane can only be used with non-stabilized polyethylene resins. Recommended types are:

LDPE resin:

- Melt index(190°C/2.16 kg)	0.2 to 0.5 g/10 min.
- Density	0.915 to 0.935 g/cm ³

LLDPE resin:

- Melt index(190°C/2.16 kg)	2 to 6 g/10 min.
- Density	0.915 to 0.935 g/cm ³

(1) Mallefer SA and BICC Ltd.

Processing

Moisture content of the PE resin must be less than 200 ppm. In hot and humid countries pre-drying of the resin at 70°C by means of an air dessicator is highly recommended.

Grafting: Optimum addition levels for a given application must be determined experimentally. Data collected on Nextrom extruders indicate that the dose levels of Silcat VS-963 silane should be between 1.3 and 2.0 wt %.

Temperature profile setting of the extruder:

- Barrel	150/150/150/170/190/200/210°C
- Head and die	210°C
- Screw	80 to 100°C

Crosslinking: Rate of cure is dependent upon time, temperature and thickness of the layer and available moisture. Sufficient crosslinking can be achieved by any of the following methods:

- Immersion in water at 80-90°C, or
- Exposure to low pressure steam at 105°C, or
- Exposure to steam at atmospheric pressure (i.e. a sauna at 100°C)

Limitations

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

Contact Information

For product prices, availability, or order placement, contact our customer service at [Momentive.com/Customerservice/](https://www.momentive.com/Customerservice/)

For literature and technical assistance, visit our website at: www.momentive.com

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