Technical Data Sheet

Silcat™ RHE

Silcat* RHE

Description

Silcat RHE silane is a crosslinking system (silane, peroxide and catalyst) for the manufacture of crosslinked LDPE & LLDPE polyethylene LV & MV cables using the Monosil(1) one-step process. It provides excellent performance on equipment designed for Monosil technology.

(1) Maillefer SA and BICC Ltd.

Key Features and Benefits

- Silcat RHE silane can be used with a wide range of stabilized LLDPE polyethylene grades for optimum cost-effectiveness. This also applies for non-stabilized resin used in association with an antioxidant masterbatch
- A high onset temperature of the silane crosslinking agent improves process stability and minimizes pregrafted/crosslinked particles in the insulation layer

Typical Physical Properties

Appearance	Clear liquid
Color	Light straw
Viscosity, mPa s (cP), @ 23°C(1)	2.2
Specific Gravity, g/cm^3, @ 23°C	0.962
Flash Point, Tag Closed Cup, ASTM D56-79, °C	23

(1) Brookfield LV/60rpm

Potential Applications
Low- and medium-voltage power cables

Patent Status
Standard copy to come

Product Safety, Handling and Storage
Standard copy to come

Processing Recommendations

Recommended Resins

Silcat RHE silane can be used whether with non-stabilized polyethylene resins and an antioxidant masterbatch or with stabilized cable grade resins.

Test carried out have shown that the following resins have given outstanding results:

-Exxon Escorene LLN 1004YB together with an antioxidant masterbatch
-BP 3000 series

Other 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)	0.5 to 6 g/10 min.
- Density	0.900 to 0.935 g/cm^3

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 desiccator is highly recommended.

Grafting: Optimum addition levels for a given application must be determined experimentally. Data collected on Nextrom extruders indicates that the dose levels of Silcat RHE silane should be between 0.8 and 1.3 wt %.

Temperature profile setting of the extruder:

- Barrel	150-220°C
- Head and die	230°C
- Screw	70 to 90°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

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