WACKER SILICONES

SILRES®

SILRES® REN 171

Silicone Resin Solution

Characteristics

SILRES® REN 171 is a methyl phenyl group containing siliocne resin solution that is recommended as a varnish for nonstick coatings.

Special characteristics

SILRES® REN 171 is a fast curing silicone resin binder, specifically designed for the use of metal surfaces to enhance non-stick characteristics.

This binder is a ready-to-use product to get non-stick surfaces for an optimum release of bakery products.

Some specific properties of SILRES® REN 171 are:

- ready-to-use product
- contains a catalyst for fast curing
- excellent nonstick characteristics at final coating
- contains only ingredients which confirm to the FDA requirements under FDA 175.300.

SILRES® REN 171 is solved in a mixture of acetone and isobutyl isobutyrate.

The solids content of the product is 23%. By this solids content and by its low viscosity, SILRES® REN 171 is a product ready to be used.

Application

There are several ways to provide bakery equipment with nonstick properties.

Release papers are often used at small bakeries but are not efficient from the economical view.

Fluoro polymers (PTFE, FEP, PFA) give best nonstick properties but are quite expensive and difficult to apply. Furthermore the available coating colors are limited and restoration of trays is difficult.

Silicone elastomers (WACKER ELASTOSIL® E60) give very good release properties, cure at low temperatures, but are relatively soft and just available in one color. Due to the elasticity of the silicone, the coating removal by sandblasting is extremely difficult during restoration process.

Silicone resins are an optimum choice. SILRES® REN 171 enables the manufacture of hard coatings with very good nonstick properties. SILRES® REN 171 is the basis for clear varnishes as well as for pigmented nonstick coatings in various colors. Restoration (deglazing) of pans and trays is easily done either chemically or by sandblasting.

Product data

Properties	Test Procedure	Unit	Value
Appearance			Yellowish liquid
Solids content	1 h/200 °C (392 °F)	[%]	approx. 23
Viscosity at 25 °C (77 °F)		[mPas]	approx. 9
Specific gravity at 25 °C (77 °F)		[g/ml]	0.86 – 0.89
Flash point	Closed cup	[°C]	13 (55 °F)

These figures are intended as a guide and should not be used in preparing specifications.

Processing

Adhesion

To get an optimum adhesion of the varnish or the heat resistant coating, substrates have to be free from any dirt and rust. Sand-blasting to get a mechanically roughened surface and the complete removal of any oil and grease by suitable solvents is highly recommended.

Furthermore, coating thickness is a substantial condition for good adhesion at higher temperatures. The optimum film thickness for SILRES® REN 171 is seen between 5 and 10 µm after baking.

Application

SILRES® REN 171 can be applied by any of the traditional methods such as spraying, dipping and brushing.

Film formation

Physical drying of the paint already begins during application, through evaporation of the solvent.

Heat resistant varnishes based on SILRES® REN 171 normally dry within 30 minutes after application.

Heat curing and baking

To get maximum resistance to heat, corrosion and chemicals, a heat resistant paint has to be baked.

In case of SILRES® REN 171, 1 hour at 200°C (390°F) is recommended as a standard.

Coating removal (de-glazing, restoration)

For restoration of baking trays or pans there is either the possibility of mechanical treatment (sandblasting) or a chemical alternative.

Chemically, the SILRES® REN 171 can be removed by immersion the coated equipment into a mixture of 48% DI-ethylene glycol, 48% hexylene glycol and 4% potassium hydroxid (KOH, caustic soda) at 100°C (210° F). The solution must not contain water.

The procedure has to be done very carefully as potassium hydroxide causes severe burns to skin and eyes. The manufacturer's handling precautions have always to be observed.

Storage stability

SILRES® REN 171 has shelf life of at least 12 months if stored in tightly closed original containers between 5°C (41°F) and 30°C (86°F). The “Best use before end” date of each batch is shown on the product label.

If the material is kept beyond the shelf life recommended on the product label it is not necessary unusable, but a quality control should be performed of the properties relevant to the application.

The management system has been certified according to DIN EN ISO 9001 and DIN EN ISO 14001

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