SILBIONE RES 76405

Silicones | Delivering your potential

Technical Data Sheet n° 988-V6 – 2019/06/12

Description

SILBIONE RESINE 76405 is a polymethylphenyl-siloxane resin supplied as 50% solution in toluene.

SILBIONE RESINE 76405 is used as release coating for materials that will be in contact with foodstuff.

This resin can also be used as a binder in paints developed to protect and decorate these materials.

The products obtained after crosslinking of **SILBIONE RESINE 76405** contain only substances permitted by the Food Contact regulations currently in force. Contact BS for more detailed information.

Important remarks:

Manufacturers of paints, varnishes or coatings must naturally make sure that the other constituents in their formulas (solvents, pigments, additives, etc.) also comply with the regulations. They must also check that the coatings obtained have been correctly applied, in particular to avoid any risk of migration of constituents.

Examples of applications

- Non-stick linings for baking tins and dishes for bread, rusks, cakes, pâté, ham, etc.
- Coatings for toasters, grills, waffle-irons, etc.

Key benefits

- Excellent heat stability.
- Good ageing resistance (by oxygen, ozone, water and light).
- Very good release properties.
- Chemically inert.

Typical properties

Properties	**SILBIONE RESINE 76405**
Appearance	Clear to almost clear liquid
Colour	Colourless to slightly yellow
Solids content *(%, approx.)*	50
Specific gravity *(at 25 °C, approx.)*	1.02
Viscosity, *(at 25°C, mm^2/s, approx.)*	30 to 60
Solvent	Toluene
Flash point *(closed cup, °C, approx.)*	6

Please note: The typical properties are not intended for use in preparing specifications. Please contact our local Sales Department for assistance in writing specifications.

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Instruction of use

1. Surface preparation

The materials treated are generally ordinary or stainless steel, aluminium or light alloys.

- For new materials, the most satisfactory method is to degrease the metal with trichloroethane, trichloroethylene or perchloroethylene (by dipping or in vapour phase), followed by careful sand-blasting.

For reconditioning, the silicone coating will usually be removed by soaking in trichloroethylene for about 30 minutes and subsequent brushing.

For difficult cases:

- Steel based materials may be immersed for some hours in a 20 to 30% NaOH solution in water between 60°C and 90°C. Rinse thoroughly with hot water.

Short immersion in a bath of 3 to 5% hydrochloric acid will allow neutralization of the surface. Rinse and dry.

- Aluminum based materials (or light alloys) are more sensitive to basic media. Therefore use a diluted (approx 5%) NaOH solution in water at 60°C. Immerse just the time needed to delaminate the coating and then proceed as mentioned above.

- Steel based materials may also be treated by pyrolysis at 500 to 700°C. The heating elements of the stoves must be protected.

2. Applying the resin

SILBIONE RESINE 76405 may be used as supplied. We recommend to apply the resin by spray. The use of a pneumatic spray gun assures a smooth and regular film with optimum anti stick properties.

If, for optical reasons, an orange peel like surface is preferred, we recommend to dilute 80 parts of **SILBIONE RESINE 76405** with 20 parts of cyclohexane.

To increase the service life of the coating and to increase the anti-stick properties SILBIONE FLD 70047 V 350 may be added.

We recommend to formulate 100 parts of **SILBIONE RESINE 76405** with 3 parts SILBIONE FLD 70047 V 350 and 5 parts of a solvent like Toluene, Xylene or Cyclohexane.

These mixtures are not homogeneous as the whitish colour of the dispersion shows. So it is very important to homogenise just before use.

In any case, users must make sure that the thinners they are planning to use (recommended or not) are permitted by law in the country concerned.

In all cases, the application of the coating should be done by the use of a pneumatic spray gun, so as to obtain a homogeneous coating with maximum anti-stick properties.

3. Drying and curing the resin

The spray treated articles are air-dried for thirty minutes.

Then the resin can be cured. The curing may be done in a continuous or discontinuous process. In any case the coating should be cured in **stoves with forced ventilation and protected resistors**.

For perfectly cured coatings the treated articles are air-dried for thirty minutes, loaded into the cold stove and then subjected to the following curing cycle:

- Heating up to 200°C in 30 minutes.
- 200°C held for 30 minutes.
- Heating up to 300°C.
- Final curing at 300°C for 2 hours.

The purpose of the gradual heating is to avoid the risk of bubbles in the coating.

The curing time at 300°C ensures maximum non-stick properties.

The coating is slightly thermoplastic after curing, so certain precautions are necessary when handling hot articles:

- Do not scratch the coating.
- Do not stack the articles until they have cooled.
- Exclude frictions between the coating and other materials.

Thermoplasticity may be reduced by the addition of a catalyst, such as iron octoate (Iron (+III) octoate containing 6% Iron: 5 g/kg resin), before spray application.

In any case users must make sure that the catalyst they are planning to use (recommended or not) is permitted by law in the country concerned.

Regulation	Extensive toxicology testing on SILBIONE® products has demonstrated their adequate biocompatibility and suitability for the recommended applications. SILBIONE RES 76405 satisfies regulatory requirement in several countries and complies with a number of medical and pharmaceutical regulations. Contact Elkem Silicones for more detailed information.
Limitations	Please consult your local ELKEM SILICONES sales office.

Packaging	• SILBIONE RES 76405 is available in
	  ○ Drum of 25 KG (55.13 LB)
	  ○ Drum of 200 KG (441 LB)

Storage and shelf life	When stored in its original packaging: SILBIONE RES 76405 may be stored at a temperature between -20 °C/ -4 °F and 30 °C/ 86 °F for up to 18 months from its date of manufacturing. Comply with the storage instructions and expiration date marked on the packaging. Beyond this date, Elkem Silicones no longer guarantees that the product meets the sales specifications.
Safety	Please consult the Safety Data Sheet of: SILBIONE RES 76405

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Warning to the users

The information contained in this document is given in good faith based on our current knowledge. It is only an indication and is in no way binding, particularly as regards infringement of or prejudice to third party rights through the use of our products. ELKEM SILICONES guarantees that its products comply with its sales specifications. This information must on no account be used as a substitute for necessary prior tests which alone can ensure that a product is suitable for given use. Determination of the suitability of product for the uses and applications contemplated by users and others shall be the sole responsibility of users. Users are responsible for ensuring compliance with local legislation and for obtaining the necessary certifications and authorisations. Users are requested to check that they are in possession of the latest version of this document and ELKEM SILICONES is at their disposal to supply any additional information.

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