



Technical Data Sheet

DOWSIL™ 3074 Intermediate

FEATURES & BENEFITS

- Solventless, liquid resin
- Methoxy functional
- Compatible with organic resins such as polyesters, alkyds, epoxies and acrylics.
- Can comply with FDA 21 CFR 175.300
- Can comply with BfR Empfehlungen XV. zu Silicone
- Improved weatherability and heat resistance.
- Low viscosity allows for low-VOC formulating
- Easy handling vs flake resin

COMPOSITION

- Phenyl, methyl silicone, methoxy functional

Silicone resin intermediate used in combination with organic resins via cold-blends or pre-reaction to improve weatherability and heat resistance, or with phenyl-containing silicone resin as a reactive diluent for low VOC high temperature coatings.

APPLICATIONS

- Silicone intermediate for coil coatings
- Appliance finishes
- Industrial maintenance coatings
- Protective Coatings
- High-temperature applications
- OEM coatings
- Cookware/Bakeware Coatings

TYPICAL PROPERTIES

Specification Writers: These values are not intended for use in preparing specifications.

Property	Unit	Result
Percent Actives	wt%	100%
Methoxy Content	wt%	15–18
Theoretical Silicone Resin Content ¹	wt%	82–85.0
Theoretical Silicon dioxide Ash Content	wt%	54
Specific Gravity at 25°C (77°F)		1.16
Viscosity at 25°C (77°F)	cSt	90–180
Appearance		Clear, Water white
Molecular Weight Range (weight average)	Daltons	1200–1700
Flash Point (closed cup)	°C (°F)	120 (248)

¹As hydrolyzed, with methoxy groups replaced by =Si-O-Si= linkages.

DESCRIPTION

DOWSIL™ 3074 Intermediate is a methoxy-functional, solventless liquid silicone resin. It chemically reacts with organic resins that contain active hydroxyl groups to form silicone-organic copolymers, or can hydrolyze and self-condense to produce a cured, silicone homopolymer.

FOOD CONTACT GUIDELINES

When fully cured and used in accordance with the prescribed conditions of FDA 21 CFR 175.300, DOWSIL 3074 Intermediate is suitable for use in food contact coatings as an indirect food additive.

When cured as recommended by Dow in accordance to German BfR Recommendation XV. on Silicone for food contact (BfR Empfehlungen XV. zu Silicone) DOWSIL 3074 Intermediate shall meet requirements for finished products for use in contact with foodstuffs when used as an additive in plastic materials and processed as directed.

CAUTION

DOWSIL 3074 Intermediate reacts in the presence of water, water vapor or alcohol to form methanol. Use with adequate ventilation.

HOW TO USE

In Silicone Polyester Copolymers

The modification of polyester resins with DOWSIL 3074 Intermediate improves thermal stability and weather resistance for applications such as coil coatings, industrial maintenance and exterior cookware coatings. Table 1 provides starter formulations for thirty-percent silicone and fifty-percent silicone-modified polyesters.

HANDLING

PRECAUTIONS

PRODUCT SAFETY

INFORMATION REQUIRED FOR SAFE USE IS NOT INCLUDED IN THIS DOCUMENT. BEFORE HANDLING, READ PRODUCT AND SAFETY DATA SHEETS AND CONTAINER LABELS FOR SAFE USE, PHYSICAL AND HEALTH HAZARD INFORMATION. THE SAFETY DATA SHEET IS AVAILABLE ON THE DOW WEBSITE AT WWW.CONSUMER.DOW.COM, OR FROM YOUR DOW SALES APPLICATION ENGINEER, OR DISTRIBUTOR, OR BY CALLING DOW CUSTOMER SERVICE.

Table 1: Silicone Polyester Copolymer Formulations

	30% Si Parts (wt)	50% Si Parts (wt)
Trimethylolpropane (TMP)	19.94	14.76
Isophthalic Acid (IPA)	12.17	9.02
Adipic Acid (AA)	6.71	3.97
Ethyl 3-Ethoxypropionate (EEP)	27.62	26.64
DOWSIL 3074 Intermediate	16.64	27.82
Tetraisopropyl titanate (TIPT)	0.03	0.05
Ethyl 3-Ethoxypropionate (EEP)	14.84	16.74
n-Butanol	2.05	1
	100	100
Maximum Reaction Temperature (°C)	130	140
Viscosity of 50% Solution (cPs)	400-550	225-240

Cooking Procedure:

1. Charge the TMP, IPA and AA into kettle.
2. Purge with nitrogen and maintain blanket.
3. Heat slowly until agitation is started.
4. Increase temperature to 200°C.
5. Add small amount of xylene to aid azeotrope.
6. Increase temperature to 220°C with good reflux.
7. Hold at temperature until an acid number of 8 to 12 is achieved.
8. Cool polyester to 160°C then add EEP (1).
9. Heat polyester solution to 120°C.
10. Add PREMIXED DOWSIL 3074 Intermediate and TIPT.
11. Increase temperature slowly to maximum temperature.
12. The reaction is stopped when a 50% NVC solution reaches target viscosity.
13. Cool to 90°C then add EEP (2).
14. Add butanol.

USABLE LIFE AND STORAGE

When stored in original, unopened containers at or below 25°C (77°F), DOWSIL 3074 Intermediate has a shelf life of 36 months from date of manufacture. Opened containers should be tightly closed after use to prevent contaminants and water vapor from entering the product.

PACKAGING INFORMATION

DOWSIL 3074 Intermediate is available in 1 and 500 lb (0.45 and 227 kg) containers, net weight.

LIMITATIONS

This product is neither tested nor represented as suitable for medical or pharmaceutical uses.

HEALTH AND ENVIRONMENTAL INFORMATION

To support customers in their product safety needs, Dow has an extensive Product Stewardship organization and a team of product safety and regulatory compliance specialists available in each area.

For further information, please see our website, www.consumer.dow.com or consult your local Dow representative.

LIMITED WARRANTY INFORMATION – PLEASE READ CAREFULLY

The information contained herein is offered in good faith and is believed to be accurate. However, because conditions and methods of use of our products are beyond our control, this information should not be used in

substitution for customer's tests to ensure that our products are safe, effective, and fully satisfactory for the intended end use. Suggestions of use shall not be taken as inducements to infringe any patent.

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Your exclusive remedy for breach of such warranty is limited to refund of purchase price or replacement of any product shown to be other than as warranted.

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