Gelest

Optical Materials

- Optical Encapsulants
- Optical Hard Coatings
- Refractive Index Matching Fluids
- UV Active and Fluorescent Molecular Coatings

Gelest

Enabling Your Technology

Gelest, Inc.

Telephone: General 215-547-1015
Order Entry 888-734-8344
FAX: 215-547-2484
Internet: www.gelest.com
e-mail: sales@gelest.com
Correspondence: 11 East Steel Rd.
Morrisville, PA 19067

For further information consult our web site at: www.gelest.com

In Europe:

Gelest Inc.
Livchem Logistics GmbH
Fritz-Klatte-Strasse 8
D-65933 Frankfurt/Main,
Germany
Tel: +49-(0)-69-3800-2150
Fax: +49-(0)-69-3800-2300
e-mail: info@gelestde.com
Internet: www.gelestde.com

In Japan:

For commercial and
research quantities contact:

AZmax Co. Ltd. Tokyo Office
TEKKO KAIKAN 5F
3-2-10 Kayabacho Nihonbashi
Chuo-ku, Tokyo 103-0025
Tel: 81-3-6661-1090
e-mail: sales@azmax.co.jp
on-line catalog: www.azmax.co.jp

In South-East Asia:

For commercial and research quantities contact:

Gulf Chemical
39 Jalan Pemimpin
Tai Lee Industrial Building #04-03
Singapore 577182
Tel: 65-6358-3185
Fax: 65-6353-2542
e-mail: support@gulfchem.com.sg

In India:

For commercial and research quantities contact:

Gautavik International
Office No 1 & 2 Bhavana Palace
Sector 21 Plot No 46 & 47
Near Gamdevi Mandir Ghansoli
Navi Mumbai 400701 India
Phone: 0091 9619190510
email: vasantiyadav@yahoo.co.in

In China:

For commercial and
research quantities contact:

A Meryer Chemical Technology
Shanghai Company
No. 3636, Jiangcheng Road
Shanghai, China 200245
Tel: +86-(0)-21-61259170
Fax: +86-(0)-21-61259169
e-mail: pur02@meryer.com

TABLE OF CONTENTS

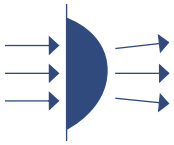
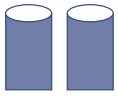
Optical Grade Silicone Encapsulants

Optical Grade Hard Resin Coatings

Silicone Elastomer Fabrication Toolkit

Values reported in this brochure are intended as a description of material performance.
They are not intended as specifications.

Gelest® OE 39 1.39 Refractive Index 2-Part Silicone RTV Elastomer (1:1 kit)

Refractive Index	Thickness	Cure	Hardness	Type
		Pt		
Capsular Description:	low	thick	catalyst	medium	100% active 2-part

Description

Gelest® OE 39 is an optically clear cladding, encapsulation and coating compound. Gelest® OE 39 can also be used to fabricate acoustic lenses. The moderate viscosity of the catalyzed mix, long pot-life at room temperature and moderate cure temperature make this extremely useful in laboratory, prototype and small production run applications.

Cured Properties

Refractive Index (25°C)	1.39
Tensile Strength	0.05 MPa
Elongation	1400-1600%
Durometer, Shore A	5
Specific Gravity	1.03

Uncured Properties of Gelest® OE 39

Viscosity (1:1) catalyzed: 3000-5000 cSt

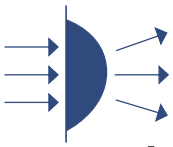
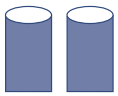
Application Methods

Thoroughly mix Part A with Part B in a 1:1 ratio. De-air mix under vacuum for about 20 minutes. The pot-life is 18 hours at 25°C. Pot-life may be extended by storing at 5°C. Pour into mold or apply to substrate. Avoid entrapping air. Cure at 80°C for 4 hours.

Standard Packaging

PP2-OE39 Gelest® OE 39
200 g kit (100g OE39-A, 100g OE-B): $400.00

Gelest® OE 41 1.41 Refractive Index 2-Part Silicone RTV Elastomer (1:1 kit)

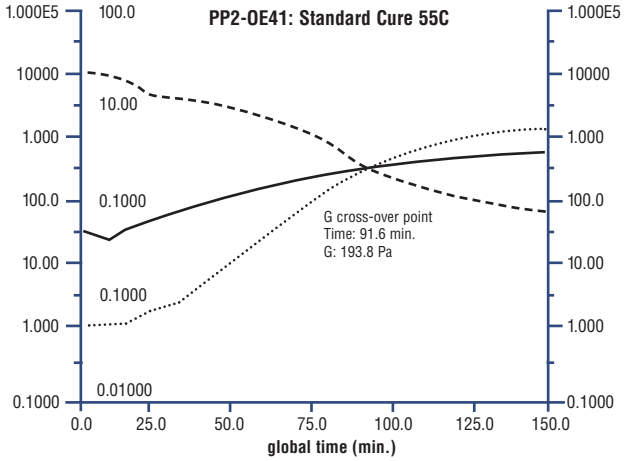
Refractive Index	Thickness	Cure	Hardness	Type
		Pt		
Capsular Description: standard	thick	catalyst	medium	100% active 2-part

Description

Gelest® OE 41 is a flexible, optically clear general purpose molding, encapsulation and coating compound. The low viscosity of the catalyzed mix, long pot-life at room temperature and moderate cure temperature make this extremely useful in laboratory, prototype and small production run applications.

Cured Properties

Refractive Index (25°C)	1.41
Tensile Strength	>2.0 MPa
Elongation	140-200%
Durometer, Shore A	15-30
Tear Strength	0.90-2.60 kN/m



Uncured Properties of Gelest® OE 41

Viscosity (1:1) catalyzed: 1750-2500 cSt

Application Methods

Thoroughly mix Part A with Part B in a 1:1 ratio. De-air mix under vacuum for about 20 minutes. The pot-life is 18 hours at 25°C. Pot-life may be extended by storing at 5°C. Pour into mold or apply to substrate. Avoid entrapping air. Cure at 55°C for 4 hours or at room temperature for 72 hours.

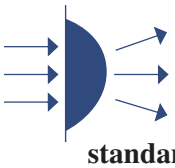
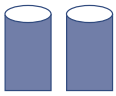
Standard Packaging

PP2-OE41 Gelest® OE 41
1 kg kit (500g OE41-A, 500g OE41-B): $116.00
6 kg kit (3000g OE41-A, 3000g OE41-B): $462.00

Application and Reference Data

1. Lien, V. et al. *IEEE Photon. Technol. Lett.* **2004**, *16(6),* 1525.
2. Jeong, J. et al. *Organic Electronics* **2011**, *12,* 2095.
3. Wang, C. et al. *Organic Electronics* **2017**, *41*, 340.

Gelest® OE 42 1.42 Refractive Index 2-Part Silicone RTV Elastomer (1:1 kit)

Refractive Index	Thickness	Cure	Hardness	Type
		Pt		
Capsular Description: standard	thick	catalyst	medium	100% active 2-part

Description

Gelest® OE 42 is a flexible, optically clear molding, encapsulation and coating compound, offering improved adhesion to substrates compared to Gelest® OE 41. The low viscosity of the catalyzed mix, long pot-life at room temperature and moderate cure temperature make this extremely useful in laboratory, prototype and small production run applications.

Cured Properties

Refractive Index (25°C)	1.42
Tensile Strength	>1.5 MPa
Elongation	90-150%
Durometer, Shore A	10-25
Tear Strength	0.90-1.75 kN/m

Uncured Properties of Gelest® OE 42

Viscosity (1:1) catalyzed: 1500-2000 cSt

Application Methods

Thoroughly mix Part A with Part B in a 1:1 ratio. De-air mix under vacuum for about 20 minutes. The pot-life is 18 hours at 25°C. Pot-life may be extended by storing at 5°C. Pour into mold or apply to substrate. Avoid entrapping air. Cure at 55°C for 4 hours or at room temperature for 72 hours.

Standard Packaging

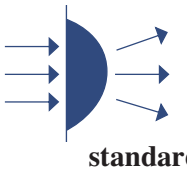
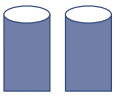
PP2-OE42 Gelest® OE 42
1 kg kit (500g OE42-A, 500g OE42-B): $248.00
6 kg kit (3000g OE42-A, 3000g OE42-B): $900.00

Application and Reference Data

Employed as core waveguide in fluidic-photonic integrated circuits.

1. Lien, V. et al. *Selected Topics in Quantum Electronics* **2005**, *11(4)*, 827.
2. Godin, J. et al. *Applied Physics Letters* **2006**, *89*, 061106.

Gelest® OE 43 1.43 Refractive Index 2-Part Silicone RTV Elastomer (1:1 kit)

Refractive Index	Thickness	Cure	Hardness	Type
				
Capsular Description:	**standard**	**thick**	**catalyst**	**low**	**100% active 2-part**

Description

Gelest® OE 43 is a flexible, optically clear molding, encapsulation and coating compound, offering improved adhesion to substrates compared to Gelest® OE 41. The low viscosity of the catalyzed mix, long pot-life at room temperature and moderate cure temperature make this extremely useful in laboratory, prototype and small production run applications.

Cured Properties

Refractive Index (25°C)	1.43
Tensile Strength	>1.5 MPa
Elongation	75-100%
Durometer, Shore A	5-15
Tear Strength	0.90-1.75 kN/m

Uncured Properties of Gelest® OE 43

Viscosity (1:1) catalyzed: 800-1500 cSt

Application Methods

Thoroughly mix Part A with Part B in a 1:1 ratio. De-air mix under vacuum for about 20 minutes. The pot-life is 18 hours at 25°C. Pot-life may be extended by storing at 5°C. Pour into mold or apply to substrate. Avoid entrapping air. Cure at 55°C for 4 hours or at room temperature for 72 hours.

Standard Packaging

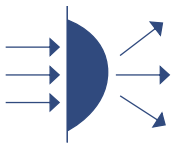
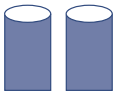
PP2-OE43 Gelest® OE 43
1 kg kit (500g OE43-A, 500g OE43-B): $248.00
6 kg kit (3000g OE43-A, 3000g OE43-B): $1,029.00

Application and Reference Data

Employed in microfluidics waveguides.

1. Kee, J. et al. *Optics Express* **2009**, *17(14),* 11739.

Gelest® OE 46 1.46 Refractive Index 2-Part Silicone RTV Elastomer (1:1 kit)

Refractive Index	Thickness	Cure	Hardness	Type
		Pt		
Capsular Description:	**medium**	**thick**	**catalyst**	**low**	**100% active 2-part**

Description

Gelest® OE 46 is a flexible, optically clear molding, encapsulation and coating compound. Refractive index of Gelest® OE 46 matches glass, allowing for fabrication with 'invisible' joints. The low viscosity of the catalyzed mix, long pot-life at room temperature and moderate cure temperature make this extremely useful in laboratory, prototype and small production run applications. This filler-free material offers the lowest transmission loss of the medium refractive index (1.46) elastomers.

Cured Properties

Refractive Index (25°C)	1.46
Tensile Strength	0.25 MPa
Elongation	30-50%
Durometer, Shore A	10-20
Specific Gravity	1.05

Uncured Properties of Gelest® OE 46

Viscosity (1:1) catalyzed: 1500-2500 cSt

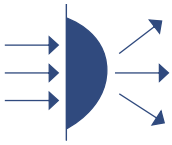
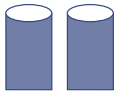
Application Methods

Thoroughly mix Part A with Part B in a 1:1 ratio. De-air mix under vacuum for about 20 minutes. The pot-life is 18 hours at 25°C. Pot-life may be extended by storing at 5°C. Pour into mold or apply to substrate. Avoid entrapping air. Cure at 55°C for 4 hours or at room temperature for 72 hours.

Standard Packaging

PP2-OE46 Gelest® OE 46
200 g kit (100g OE46-A, 100g OE46-B): $132.00
1 kg kit (500g OE46-A, 500g OE46-B): $372.00

Gelest® OE 46.1 1.46 Refractive Index 2-Part Silicone RTV Elastomer, Medium Strength (1:1 kit)

Refractive Index	Thickness	Cure	Hardness	Type
		Pt		
Capsular Description: medium	thick	catalyst	medium	100% active 2-part

Description

Gelest® OE 46.1 is a flexible, optically clear molding, encapsulation and coating compound. Refractive index of Gelest® OE 46.1 matches glass, allowing for fabrication with 'invisible' joints. The long pot-life at room temperature and moderate cure temperature make this extremely useful in laboratory, prototype and small production run applications.

Cured Properties

Refractive Index (25°C)	1.46
Tensile Strength	0.55 MPa
Elongation	65-75%
Durometer, Shore A	30-45
Specific Gravity	1.19

Uncured Properties of Gelest® OE 46.1

Viscosity (1:1) catalyzed: 15,000 cSt

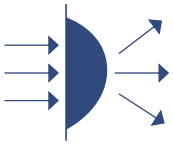
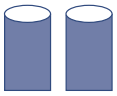
Application Methods

Thoroughly mix Part A with Part B in a 1:1 ratio. De-air mix under vacuum for about 20 minutes. The pot-life is 18 hours at 25°C. Pot-life may be extended by storing at 5°C. Pour into mold or apply to substrate. Avoid entrapping air. Cure at 55°C for 4 hours or at room temperature for 72 hours.

Standard Packaging

PP2-OE46.1 Gelest® OE 46.1
200 g kit (100g OE46.1-A, 100g OE46.1-B): $174.00
1 kg kit (500g OE46.1-A, 500g OE46.1-B): $503.00

Gelest® OE 46.2 1.46 Refractive Index 2-Part Silicone RTV Elastomer, High Strength (1:1 kit)

Refractive Index	Thickness	Cure	Hardness	Type
				
Capsular Description: medium	**thick**	**catalyst**	**medium**	**100% active 2-part**

Description

Gelest® OE 46.2 is a flexible, optically clear molding, encapsulation and coating compound. Refractive index of Gelest® OE 46.2 matches glass, allowing for fabrication with 'invisible' joints. The long pot-life at room temperature and moderate cure temperature make this extremely useful in laboratory, prototype and small production run applications.

Cured Properties

Refractive Index (25°C)	1.46
Tensile Strength	1-1.5 MPa
Elongation	200-250%
Durometer, Shore A	45-50
Specific Gravity	1.22

Uncured Properties of Gelest® OE 46.2

Viscosity (1:1) catalyzed: 30,000 cSt

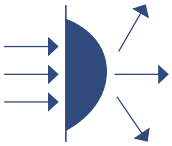
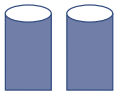
Application Methods

Thoroughly mix Part A with Part B in a 1:1 ratio. De-air mix under vacuum for about 20 minutes. The pot-life is 18 hours at 25°C. Pot-life may be extended by storing at 5°C. Pour into mold or apply to substrate. Avoid entrapping air. Cure at 55°C for 4 hours or at room temperature for 72 hours.

Standard Packaging

PP2-OE46.2 Gelest® OE 46.2
200 g kit (100g OE46.2-A, 100g OE46.2-B): $174.00
1 kg kit (500g OE46.2-A, 500g OE46.2-B): $503.00

Gelest® OE 50 1.50 Refractive Index 2-Part Silicone RTV Elastomer (1:1 kit)

Refractive Index	Thickness	Cure	Hardness	Type
		Pt		
Capsular Description:	**high**	**thick**	**catalyst**	**low**	**100% active 2-part**

Description

Gelest® OE 50 is a flexible, optically clear molding, encapsulation and coating compound. The higher refractive index of Gelest® OE 50 can act as cladding in optical waveguide applications. The low viscosity of the catalyzed mix, long pot-life at room temperature and moderate cure temperature make this extremely useful in laboratory, prototype and small production run applications.

Cured Properties

Refractive Index (25°C)	1.50
Tensile Strength	0.1 MPa
Elongation	75-100%
Durometer, Shore A	10-20
Specific Gravity	1.07

Uncured Properties of Gelest® OE 50

Viscosity (1:1) catalyzed: 3000-5000 cSt

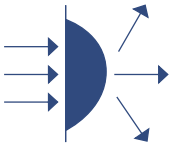
Application Methods

Thoroughly mix Part A with Part B in a 1:1 ratio. De-air mix under vacuum for about 20 minutes. The pot-life is 12 hours at 25°C. Pot-life may be extended by storing at 5°C. Pour into mold or apply to substrate. Avoid entrapping air. Cure at 55°C for 4 hours or at room temperature for 72 hours.

Standard Packaging

PP2-OE50 Gelest® OE 50
200 g kit (100g OE50-A, 100g OE50-B): $174.00
1 kg kit (500g OE50-A, 500g OE50-B): $503.00

Optisil® 1.55A1 1.55 Refractive Index Silicone Resin Hard Coating

Refractive Index	Thickness	Cure	Hardness	Type
				
Capsular Description:	**high**	**thick-thin**	**thermal**	**high**	**solvent-borne 1-part**

Description

Optisil® 1.55A1 is a primerless phenyl modified silicone dispersed in methoxypropanol for continuous use at temperatures up to 360°C

Film Properties

Color	clear
Refractive Index	1.55

Solution Properties

Form	liquid
Solids	10%
Flashpoint	35°C
Specific gravity	0.95
Viscosity	3-5 cSt

Application Methods

Optisil® 1.55A1 is applied as a coating by spraying, dipping, or brushing. Material is allowed to dry for 1 hour and then cured at 240°C for 20-30 minutes. Thinner films may be prepared by diluting with methoxypropanol. Cure can be accelerated by adding 0.5% zinc 2-ethylhexanoate.

Shelf life

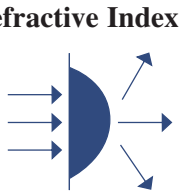
12 months when stored below 25°C in sealed containers. Keep container sealed after dispensing product.

CAUTION: Use in well-ventilated area. Flammable. Avoid contact with skin and eyes.

Standard Packaging

PP1-OS155A1 Optisil® 1.55A1
100g/$60.00
750g/$495.00
10kg/commercial package

Optisil® 1.55B2 1.55 Refractive Index Silicone Resin Hard Coating



Refractive Index	Thickness	Cure	Hardness	Type
Capsular Description:	**high**	**thick-thin**	**thermal**	**high**	**solvent-borne 1-part**

Description

Optisil® 1.55B2 is a primerless phenyl modified silicone dispersed in methoxypropanol for continuous use at temperatures up to 360°C

Film Properties

Color	clear
Refractive Index	1.54-1.56
Hardness, Rockwell	120R

Solution Properties

Form	liquid
Solids	20%
Flashpoint	35°C
Specific gravity	0.95
Viscosity	3-5 cSt

Application Methods

Optisil® 1.55B2 is applied as a coating by spraying, dipping, or brushing. Material is allowed to dry for 1 hour and then cured at 240°C for 20-30 minutes. Thinner films may be prepared by diluting with methoxypropanol. Cure can be accelerated by adding 0.5% zinc 2-ethylhexanoate.

Shelf life

12 months when stored below 25°C in sealed containers. Keep container sealed after dispensing product.

CAUTION: Use in well-ventilated area. Flammable. Avoid contact with skin and eyes.

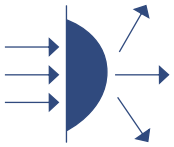
Standard Packaging

PP1-OS155B2 Optisil® 1.55B2
100g/$59.00
750g/$303.00
10kg/commercial package

Application and Reference Data

1. Leichle, T. et al, *Sensors and Actuators B: Chemical,* **2012**, *161*, 805.

Optisil® 1.56A1 1.56 Refractive Index Silicone Resin Hard Coating

Refractive Index	Thickness	Cure	Hardness	Type
				
Capsular Description:	**high**	**thick-thin**	**thermal**	**high**	**solvent-borne 1-part**

Description

Optisil® 156A1 is a primerless modified phenyl silicone resin for continuous use at temperatures up to 325°C, dispersed in methoxypropanol.

Film Properties

Color	clear
Refractive Index	1.56

Solution Properties

Form	liquid
Solids	10%
Flashpoint	35°C
Specific gravity	0.92
Viscosity	3-5 cSt

Application Methods

Optisil® 156A1 is applied as a coating by spraying, dipping, or brushing. Material is allowed to dry for 1 hour and then cured at 220°C for 25-30 minutes. Thinner films may be prepared by diluting with methoxypropanol. Cure can be accelerated by adding 0.5% zinc 2-ethylhexanoate.

Shelf life

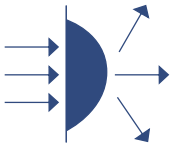
12 months when stored below 25°C in sealed containers. Keep container sealed after dispensing product.

CAUTION: Use in well-ventilated area. Flammable. Avoid contact with skin and eyes.

Standard Packaging

PP1-OS156A1 Optisil® 1.56A1
100g/$69.00
750g/$358.00
10kg/commercial package

Optisil® 1.57A1 1.57 Refractive Index Silicone Resin Hard Coating

Refractive Index	Thickness	Cure	Hardness	Type
				
Capsular Description:	**high**	**thick-thin**	**thermal**	**high**	**solvent-borne 1-part**

Description

Optisil® 157A1 is a primerless modified phenyl silicone resin for continuous use at temperatures up to 325°C, dispersed in methoxypropanol.

Film Properties

Color	clear
Refractive Index	1.57

Solution Properties

Form	liquid
Solids	10%
Flashpoint	35°C
Specific gravity	0.92
Viscosity	3-5 cSt

Application Methods

Optisil® 157A1 is applied as a coating by spraying, dipping, or brushing. Material is allowed to dry for 1 hour and then cured at 220°C for 25-30 minutes. Thinner films may be prepared by diluting with methoxypropanol. Cure can be accelerated by adding 0.5% zinc 2-ethylhexanoate.

Shelf life

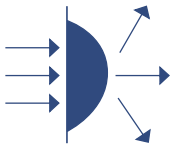
12 months when stored below 25°C in sealed containers. Keep container sealed after dispensing product.

CAUTION: Use in well-ventilated area. Flammable. Avoid contact with skin and eyes.

Standard Packaging

PP1-OS157A1 Optisil® 1.57A1
100g/$69.00
750g/$358.00
10kg/commercial package

Optisil® 1.57B2 1.57 Refractive Index Silicone Resin Hard Coating

Refractive Index	Thickness	Cure	Hardness	Type
				
Capsular Description:	**high**	**thick-thin**	**thermal**	**high**	**solvent-borne 1-part**

Description

Optisil® 157B2 is a primerless modified phenyl silicone resin for continuous use at temperatures up to 325°C, dispersed in methoxypropanol.

Film Properties

Color	clear
Refractive Index	1.56-1.58
Hardness, Rockwell	110R

Solution Properties

Form	liquid
Solids	20%
Flashpoint	35°C
Specific gravity	0.92
Viscosity	3-5 cSt

Application Methods

Optisil® 157B2 is applied as a coating by spraying, dipping, or brushing. Material is allowed to dry for 1 hour and then cured at 220°C for 25-30 minutes. Thinner films may be prepared by diluting with methoxypropanol. Cure can be accelerated by adding 0.5% zinc 2-ethylhexanoate.

Shelf life

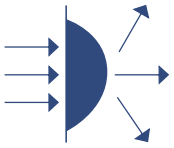
12 months when stored below 25°C in sealed containers. Keep container sealed after dispensing product.

CAUTION: Use in well-ventilated area. Flammable. Avoid contact with skin and eyes.

Standard Packaging

PP1-OS157B2 Optisil® 1.57B2
100g/$59.00
750g/$303.00
10kg/commercial package

Optisil® 1.58A1 1.58 Refractive Index Silicone Resin Hard Coating

Refractive Index	Thickness	Cure	Hardness	Type
				
Capsular Description:	**high**	**thick-thin**	**thermal**	**high**	**solvent-borne 1-part**

Description

Optisil® 158A1 is a primerless modified phenyl silicone resin for continuous use at temperatures up to 325°C, dispersed in methoxypropanol.

Film Properties

Color	clear
Refractive Index	1.58

Solution Properties

Form	liquid
Solids	10%
Flashpoint	35°C
Specific gravity	0.92
Viscosity	3-5 cSt

Application Methods

Optisil® 158A1 is applied as a coating by spraying, dipping, or brushing. Material is allowed to dry for 1 hour and then cured at 220°C for 25-30 minutes. Thinner films may be prepared by diluting with methoxypropanol. Cure can be accelerated by adding 0.5% zinc 2-ethylhexanoate.

Shelf life

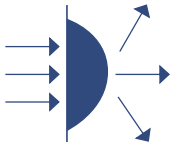
12 months when stored below 25°C in sealed containers. Keep container sealed after dispensing product.

CAUTION: Use in well-ventilated area. Flammable. Avoid contact with skin and eyes.

Standard Packaging

PP1-OS158A1 Optisil® 1.58A1
100g/$110.00
750g/$578.00
1kg/commercial package

Optisil® 1.59A1 1.59 Refractive Index Silicone Resin Hard Coating

Refractive Index	Thickness	Cure	Hardness	Type
				
Capsular Description:	**high**	**thick-thin**	**thermal**	**high**	**solvent-borne 1-part**

Description

Optisil® 159A1 is a primerless modified phenyl silicone resin for continuous use at temperatures up to 325°C, dispersed in methoxypropanol.

Film Properties

Color	clear
Refractive Index	1.59

Solution Properties

Form	liquid
Solids	10%
Flashpoint	35°C
Specific gravity	0.92
Viscosity	3-5 cSt

Application Methods

Optisil® 159A1 is applied as a coating by spraying, dipping, or brushing. Material is allowed to dry for 1 hour and then cured at 220°C for 25-30 minutes. Thinner films may be prepared by diluting with methoxypropanol. Cure can be accelerated by adding 0.5% zinc 2-ethylhexanoate.

Shelf life

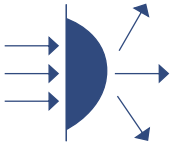
12 months when stored below 25°C in sealed containers. Keep container sealed after dispensing product.

CAUTION: Use in well-ventilated area. Flammable. Avoid contact with skin and eyes.

Standard Packaging

PP1-OS159A1 Optisil® 1.59A1
100g/$94.00
750g/$303.00
1kg/commercial package

Optisil® 1.64A1 1.64 Refractive Index Silicone Resin Hard Coating

Refractive Index	Thickness	Cure	Hardness	Type
				
Capsular Description:	**high**	**thick-thin**	**thermal**	**high**	**solvent-borne 1-part**

Description

Optisil® 164A1 is a high refractive index resin that can be used to fabricate wave guides. It is a primerless modified 2-dimensional silicone resin for continuous use at temperatures up to 325°C, dispersed in methoxypropanol.

Film Properties

Color	clear
Refractive Index	1.64

Solution Properties

Form	liquid
Solids	10%
Flashpoint	35°C
Specific gravity	0.95
Viscosity	2-3 cSt

Application Methods

Optisil® 164A1 is applied as a coating by spraying, dipping, or brushing. Material is allowed to dry for 1 hour and then cured at 220°C for 25-30 minutes. Thinner films may be prepared by diluting with methoxypropanol. Cure can be accelerated by adding 0.5% zinc 2-ethylhexanoate.

Shelf life

12 months when stored below 25°C in sealed containers. Keep container sealed after dispensing product.

CAUTION: Use in well-ventilated area. Flammable. Avoid contact with skin and eyes.

Standard Packaging

PP1-OS164A1 Optisil® 1.64A1
100g/$94.00
750g/$303.00
1kg/commercial package

Silicone Elastomer Fabrication Toolkit

UtenSil® Primer P1

Adhesive/Primer for Reprographic Grade Silicones

Description

UtenSil® Primer P1 enhances the adhesion of reprographic silicones to a desired substrate.

Solution Properties

Form	clear, colorless
Solids	5-10 wt%
Flashpoint	-4°C
Specific Gravity	0.70
Viscosity	1.0-2.0 cSt

Shelf life

12 months when stored below 25°C in sealed containers. Keep container sealed after dispensing product.

Application Methods

UtenSil® Primer P1 is applied as a coating by spraying, dipping or brushing. The solvent is removed by evaporation in an exhausted area. Moisture induced crosslinking occurs at room temperature over 1-2 hours at 35-85% relative humidity.

Standard Packaging

PP1-USP1 UtenSil® Primer P1
100g/$52.00
1kg/$358.00

UtenSil® Bonding Agent B1

Bonding Agent for Reprographic Grade Silicones

Description

UtenSil® Bonding Agent B1 binds reprographic silicone surfaces together irreversibly.

Solution Properties

Form	opaque, white*
Solids	5-10 wt%
Flashpoint	-1°C
Specific Gravity	0.78
Viscosity	2.0-3.0 cSt

**Turns clear after deactivation.*

Shelf life

6 months when stored below 25°C in sealed containers. Keep container sealed after dispensing product.

Application Methods

UtenSil® Bonding Agent B1 is applied by spraying, dipping or brushing. The solvent is removed by evaporation in an exhausted area. Bonding of silicone surfaces occurs at 80°C over 4 hours. After bonding is complete the process is deactivated by heating to 140°C for 4 hours in a exhausted area. An amine odor is generated during the deactivation step.

Standard Packaging

PP1-USB1 UtenSil® Bonding Agent B1
100g/$48.00
1kg/$168.00

UtenSil® Wetting Agent W1

Hydrophilic Modification Solution for Reprographic Grade Silicones

Description

UtenSil® Wetting Agent W1 increases the wettability of reprographic silicone surfaces.

Solution Properties

Form	clear, colorless
Solids	5-7 wt%
Flashpoint	6°C
Specific Gravity	0.88
Viscosity	1.0-2.0 cSt
Contact Angle, water (1mm thickness)	20°

Shelf life

12 months when stored below 25°C in sealed containers. Keep container sealed after dispensing product.

Application Methods

Immerse oxygen plasma treated reprographic silicone into UtenSil® Wetting Agent W1 for 1 hour. (Reprographic silicones with a thickness >1mm may require longer immersion time in UtenSil® Solution.) Dip the silicone into ethanol to remove excess material. Cure wetting agent on silicone surface at 100°C over 2 hours.

Standard Packaging

PP1-USW1 UtenSil® Wetting Agent W1
100g/$99.00
1kg/$594.00

UtenSil® Dissolution Agent D1

Digestion Solution for Reprographic Grade Silicones

Description

UtenSil® Dissolution Agent D1 is a cleaning solvent that chemically reacts and dissolves silicones.

Solution Properties

Form	amber-light brown
Solids	20-30 wt%
Flashpoint	93°C
Specific Gravity	0.85
Viscosity	5-10 cSt

Shelf life

12 months when stored below 25°C in sealed containers. Keep container sealed after dispensing product.

Application Methods

Place silicone to be dissolved in a stainless steel or glass container which may be covered to reduce evaporation. Remove any water on the silicone by physical drying or heating in an oven. Immerse silicone in UtenSil® Dissolution Agent D1 solution at room temperature. Dissolution time depends on the type of silicone, thickness and surface area. A typical silicone with a 5 mm section thickness will dissolve in 4-8 hours. Dissolution can be accelerated by warming to 35-50°C. Spot dissolution can be achieved by deposition of Dissolution Agent D1 with a pipette and removing the dissolved material with a pipette, followed by a brief acetone and water rinse.

Standard Packaging

PP1-USD1 UtenSil® Dissolution Agent D1
100g/$41.00
1kg/$270.00

UtenSil® Cure Retarder R1

Cure Moderator Solution for Reprographic Grade Silicones

Description

UtenSil® Cure Retarder R1 moderates the cure rate of vinyl-addition (platinum) cure silicones.

Solution Properties

Form	clear, colorless
Flashpoint	112°C
Specific Gravity	0.98
Viscosity	300-500 cSt

Shelf life

12 months when stored below 25°C in sealed containers. Keep container sealed after dispensing product.

Application Methods

UtenSil® Cure Retarder R1 is mixed with Part A of a 2-Part silicone RTV encapsulant formulation prior to throughly mixing with Part B. Increased concentrations of UtenSil® Cure Retarder R1 solution in Part A will increase the pot-life of the formulation at room temperature and slow the rate of the vinyl-addition (platinum) cure at elevated temperatures. In an exemplary procedure, mixing 1wt% UtenSil® Cure Retarder R1 solution with Part A of PP2-OE41 will increase the pot-life of the catalyzed mixture from 18 hours to 48 hours at room temperature. Performance of UtenSil® Cure Retarder R1 may differ between RTV formulations depending on platinum concentration.

Standard Packaging

PP1-USR1 UtenSil® Cure Retarder R1
100g/$63.00
1kg/$434.00

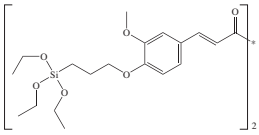
Gelest

Silicone Fluids for Optical Applications

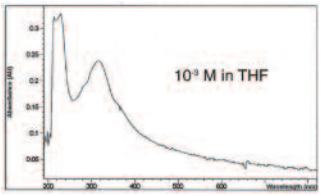
Gelest offers pure silicone fluids (not blends) with a wide range of refractive indices. Listed below are fluids with refractive indices and viscosities. Fluids with the same product code prefix can be blended to exact refractive index requirements.

Product Code	Refractive Index@25° 589.3nm	Viscosity (cSt)@25°	Price/10g	Price/25g	Price/100g
SIB1120.0	1.335	7-10	$262.00	-	-
SIB1816.0	1.336	6-7		$142.00	$462.00
SIB1709.0	1.340	3-4		$99.00	-
FMS-411	1.365	8-12		$66.00	$215.00
FMS-736	1.375	6000		$80.00	$256.00
FMS-121	1.382	80-120		$55.00	$180.00
FMS-221	1.387	80-120		$36.00	$118.00
DMS-T12	1.400	20		-	$16.00
DMS-T21	1.402	100		-	$16.00
DMS-T22	1.403	200		-	$16.00
SIO6711.5	1.413	3		-	$94.00
PDM-0421	1.422	100		-	$21.00
PDM-0431	1.428	1000		-	$28.00
PTT-1117	1.428	70-75		-	$104.00
DBE-224	1.430	400		-	$26.00
PDM-0821	1.436	100-125		-	$19.00
DES-T12	1.439	15-20		-	$97.00
ALT-143	1.445	600-1000		-	$21.00
DBE-814	1.452	40-50		-	$36.00
APT-213	1.462	1200-1600		-	$30.00
PMM-0011	1.470	10-20		$39.00	$137.00
APT-133	1.480	1000		-	$30.00
PTT-1022	1.481	150-300		-	$30.00
PDM-1922	1.490	160-230		-	$33.00
APT-233	1.493	1500-2000		-	$26.00
PMM-5021	1.500	125		-	$32.00
SIT8662.0	1.501	15		$114.00	-
PMM-6025	1.506	500-550		-	$31.00
PMM-0021	1.520	100-200		-	$119.00
PMM-0025	1.533	500		-	$32.00
PMP-5025	1.543	400-500		-	$170.00
PDM-7040	1.556	35-40		-	$59.00
PDM-7050	1.588	170-175		-	$80.00

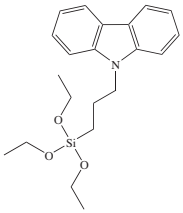
UV Active and Fluorescent Molecular Coatings



SIB1824.8
1,7-BIS(4-TRIETHOXYSILYLPROPOXY-3-METHOXYPHENYL)-1,6-HEPTADIENE-3,5-DIONE, tech-90
$C_{39}H_{60}O_{12}Si_2$ 777.07
UV max: 220, 232(vs), 354(broad)
Metal chelating chromophore



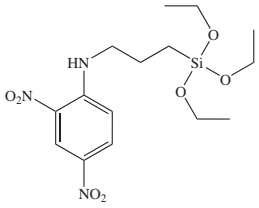
[947329-82-0] HMIS: 2-1-1-X 0.5g $248.00

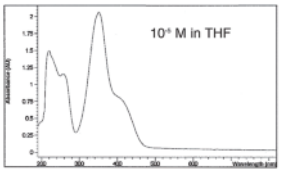


SIC2058.2
3-CARBAZOLYLPROPYLTRIETHOXYSILANE
$C_{21}H_{29}NO_3Si$ 371.55 185-195° / 0.3 1.072 1.5527^{25}
For non-linear optic materials
Employed in OLED fabrication.[1]
1. DeMais, T. et al. *SPIE Proc.* **1998**, *3476*, 338
[221105-38-0] HMIS: 2-2-1-X 2.5g $345.00

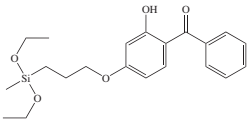
NEW

SID4352.0
3-(2,4-DINITROPHENYLAMINO)PROPYLTRIETHOXYSILANE, 95%
N-[3-(TRIETHOXYSILYL)PROPYL]-2,4-DINITROPHENYLAMINE
$C_{15}H_{25}N_3O_7Si$ 387.46 (27-30°) 1.5665
Viscous liquid or solid Flashpoint: >110°C (>230°F)
UV max: 222, 258, 350(s), 410
Forms χ2 non-linear optical sol-gel materials by corona poling.[1,2]



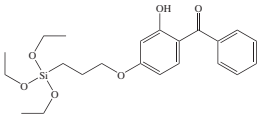


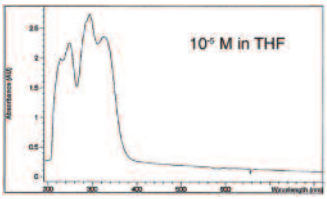
1. Toussaere, E. et al. *Non-Linear Optics* **1992,** *2*, 37.
2. Lebeau, J. et al. *J. Mater. Chem.* **1994,** *4*, 1855.
[71783-41-0] HMIS: 2-1-0-X 25g $108.00



SIH6198.0
2-HYDROXY-4-(3-METHYLDIETHOXYSILYLPROPOXY)DIPHENYLKETONE, tech-90
$C_{21}H_{28}O_5Si$ 388.54 1.116^{25} 1.5601^{25}
Amber liquid
Viscosity: 100-125 cSt
HMIS: 2-1-1-X 25g $130.00

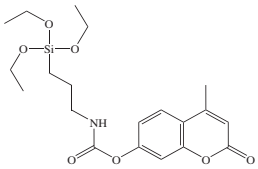
SIH6200.0
2-HYDROXY-4-(3-TRIETHOXYSILYLPROPOXY)DIPHENYLKETONE, tech-90
$C_{22}H_{30}O_6Si$ 418.56 1.120^{25} 1.545^{25}
Amber liquid
Viscosity, 25˚: 125-150 cSt
UV max: 230, 248, 296(s), 336
Strong UV blocking agent for optically clear coatings, absorbs from 210-420 nm
UV blocking agent.[1]

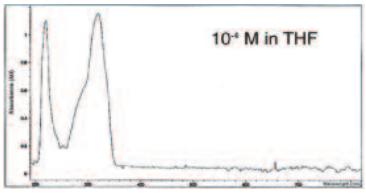




1. Anthony, B. U.S. Patent 4,495,360, 1985.
[79876-59-8] TSCA HMIS: 2-1-1-X 25g $88.00 100g $286.00 2kg $2,340.00

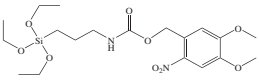
SIM6502.0
O-4-METHYLCOUMARINYL-N-[3-(TRIETHOXYSILYL)PROPYL]CARBAMATE
$C_{20}H_{29}NO_7Si$ 423.54 (88-90°)
UV max: 223, 281, 319.5 (vs)
Soluble: THF
Immobilizeable fluorescent compound.[1]





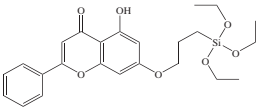
1. Arkles, B. U.S. Patent 4,918,200, 1990.
[129119-78-4] HMIS: 2-2-1-X 10g $165.00

SIN6597.25 *NEW*
NITROVERATRYLOXYCARBONYLAMIDOPROPYLTRIETHOXYSILANE, 10% in tetrahydrofuran
N-TRIETHOXYSILYLPROPYL-O-4,5-DIMETHOXY-2-NITROBENZYLCARBAMATE



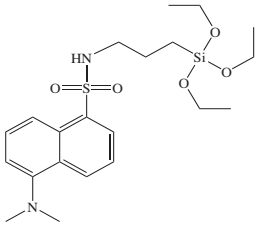
$C_{19}H_{32}N_2O_9Si$ 460.56
UV max: 365 nm Flashpoint: -14°C (7°F)
Photosensitive silane for lithography.[1]
1. del Campo, A. et al. *Angew. Chem.* **2005**, *44*, 4707
[188541-09-5] HMIS: 3-4-1-X 1.0g $385.00

SIT8186.2
7-TRIETHOXYSILYLPROPOXY-5-HYDROXYFLAVONE, 50% in xylene

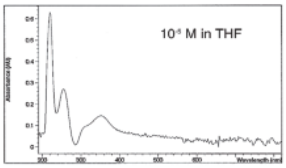


$C_{24}H_{30}O_7Si$ 458.58
Contains non-reactive dyestuffs Flashpoint: 30°C (86°F)
UV max: 350 nm
[945761-08-0] HMIS: 2-3-1-X 1.0g $66.00 5g $264.00

SIT8187.0
N-(TRIETHOXYSILYLPROPYL)DANSYLAMIDE
5-DIMETHYLAMINO-N-(3-TRIETHOXYSILYLPROPYL)NAPTHALENE-1-SULFONAMIDE

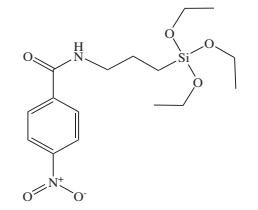


$C_{21}H_{34}N_2O_5SSi$ 454.66 115-9° / 0.1 1.12 1.5421
Viscous liquid
UV max: 222(s), 256, 354
Fluorescent - employed as a tracer in UV cure composites
Soluble in toluene, tetrahydrofuran
Fluorescence probe for crosslinking in silicones.[1]
Employed in a chemically modified logic gate.[2]

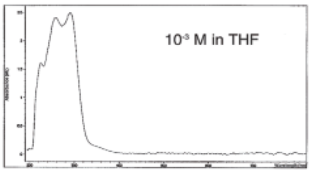


1. Leezenberg, P. et al. *Chem. Mater.* **1995,** *7*, 1784.
2. Mu, L. et al. *Angew. Chem., Int. Ed. Engl.* **2009**, *48*, 3469.
[70880-05-6] TSCA EC 274-980-5 HMIS: 2-1-1-X 1.0g $209.00

SIT8191.0
3-(TRIETHOXYSILYLPROPYL)-p-NITROBENZAMIDE

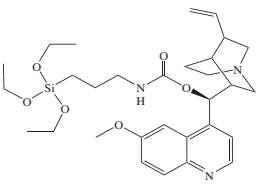


$C_{16}H_{26}N_2O_6Si$ 370.48 (54-5°) 1.5127
UV max: 224, 260, 292(s)
Used to prepare diazotizable supports for enzyme immobilization.[1]

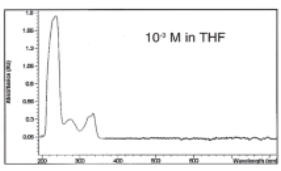


1. Weetall, H. U.S. Patent 3,652,761, 1972.
[60871-86-5] TSCA EC 262-508-0 HMIS: 2-1-1-X 25g $108.00

SIT8192.4
(R)-N-TRIETHOXYSILYLPROPYL-O-QUININEURETHANE, 95%

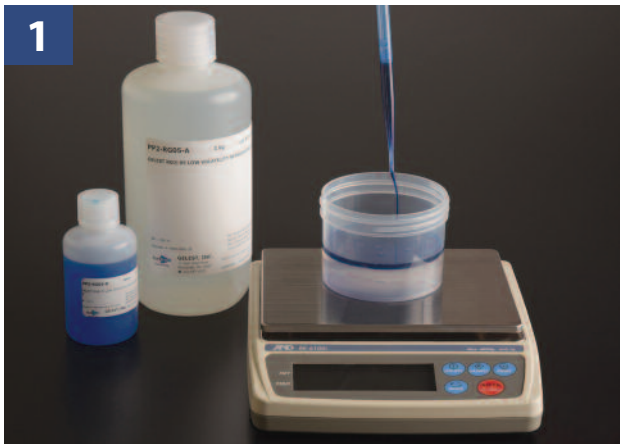


$C_{30}H_{45}N_3O_6Si$ 571.79 (82-4°)
UV max: 236(s), 274, 324, 334
Fluorescent, optically active silane
Soluble: warm toluene



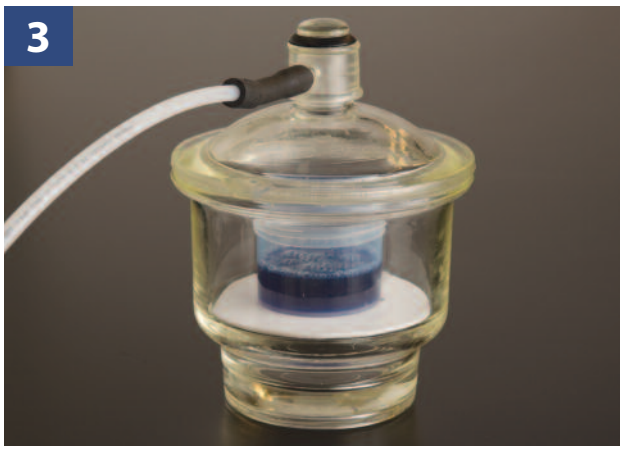
[200946-85-6] HMIS: 2-1-1-X 5g $174.00

How To Use Gelest Silicones

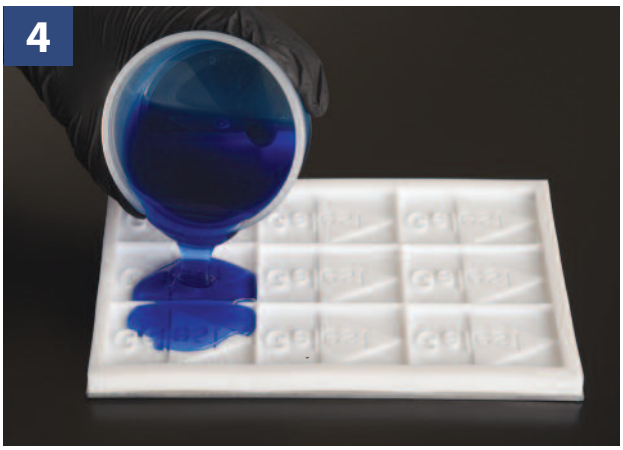


WEIGHING: Weigh A and B in the recommended ratios. Fill container only 1/3 full to allow for foaming during Step 3.

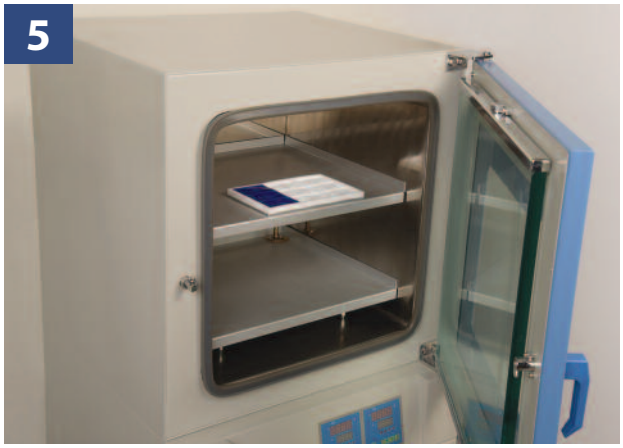
MIXING: Use a spatula to make a homogeneous mixture of A and B.



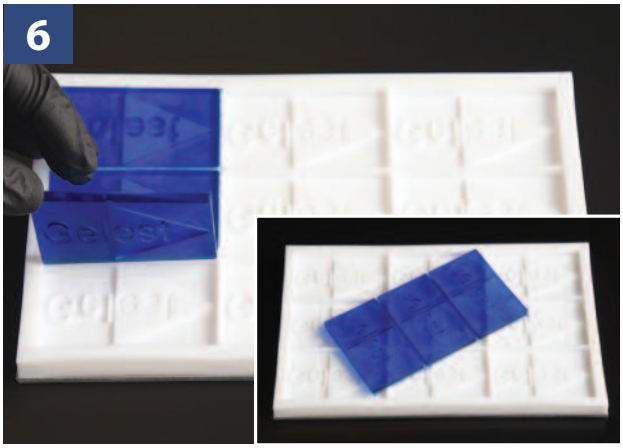
DEAIRING: Place the mixed silicone in a vacuum chamber (desiccator) and apply vacuum until foam collapes.



POURING: Pour mix into mold or form, avoid entrapment of air.



CURING: Follow the recommended cure schedule.



DEMOLDING THE FINISHED PART.

**Use of polyethylene disposable gloves recommended. Latex gloves can retard cure.*

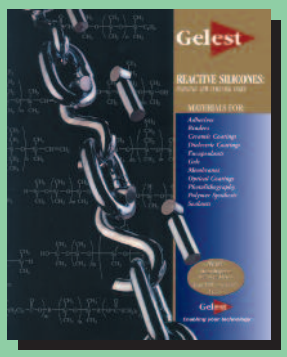
Gelest

Silicon Compounds: Silanes and Silicones

Detailed chemical properties and reference articles for over 3,000 compounds. The 600 page handbook of silane and silicone chemistry includes scholarly reviews as well as detailed application information.

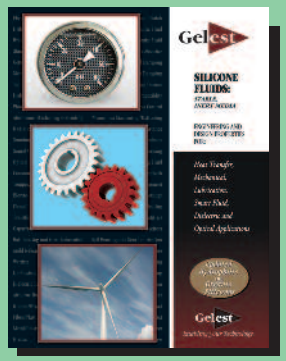
Silicone Materials for Microfluidics

This brochure showcases a wide range of Reprographic and Optical grade PDMS-based elastomers that are used in the fabrication of microfluidic devices. Each PDMS elastomer has been designed to overcome specific problems of traditional PDMSmaterials. Reprographic Grade Silicones with increased hydrophilicity, oleophilicity, and oleophobicity and Optical Grade Silicones with refractive indices from 1.41 to 1.50 have been formulated.



Reactive Silicones: Forging New Polymer Links

The 64 page brochure describes reactive silicones that can be formulated into coatings, membranes, cured rubbers and adhesives for mechanical, optical, electronic and ceramic applications. Information on reactions and cures of silicones as well as physical properties shortens product development time for chemists and engineers.



Silicone Fluids: Stable Inert Media

Design and Engineering properties for conventional silicone fluids as well as thermal, fluorosilicone, hydrophilic and low temperature grades are presented in a 24 page selection guide. The brochure provides data on thermal, rheological, electrical, mechanical and optical properties for silicones. Silicone fluids are available in viscosities ranging from 0.65 to 2,500,000 cSt.

Hydrophobicity, Hydrophilicity and Silane Surface Modification

Organosilanes are used extensively for modification of surface properties. This 80-page brochure describes silane surface modification with an emphasis on making surfaces hydrophobic or hydrophilic

Gelest

Gelest, Inc.
11 East Steel Rd.
Morrisville, PA 19067
Phone: (215) 547-1015
FAX: (215) 547-2484
www.gelest.com