

**GELEST RG® 04 OLEOPHOBIC REPROGRAPHIC SILICONE**

Safety Data Sheet PP2-RG04

Date of issue: 26/10/2015

Revision date: 03/03/2016

Version: 1.1

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1. Product identifier**

Product form	: Mixture
Physical state	: Liquid
Product name	: GELEST RG® 04 OLEOPHOBIC REPROGRAPHIC SILICONE
Product code	: PP2-RG04
Synonyms	: VINYL, METHYL MODIFIED SILICA in POLY(TRIFLUOROPROPYLMETHYLSILOXANE), VINYL TERMINATED with (part B) HYDRIDE FUNCTIONAL CROSSLINKER; GELEST RG® 04 OLEOPHOBIC REPROGRAPHIC SILICONE ELASTOMER
Chemical family	: ORGANOSILOXANE

**1.2. Relevant identified uses of the substance or mixture and uses advised against****1.2.1. Relevant identified uses**

Use of the substance/mixture : Chemical intermediate

**1.2.2. Uses advised against**

No additional information available

**1.3. Details of the supplier of the safety data sheet****GELEST, INC.**11 East Steel Road  
Morrisville, PA 19067**USA**

T 215-547-1015 - F 215-547-2484 - (M-F): 8:00 AM - 5:30 PM EST

[info@gelest.com](mailto:info@gelest.com) - [www.gelest.com](http://www.gelest.com)**GELEST INC.**Fritz-Klatte-Strasse 8  
65933 Frankfurt**Germany**

T +49 (0) 69 3535106-500 - F +49 (0) 69 3535106-501 - (M-F): 8:00 AM - 4:00 PM

[info@gelestde.com](mailto:info@gelestde.com) - [www.gelestde.com](http://www.gelestde.com)**1.4. Emergency telephone number**

Emergency number : CHEMTREC: 1-800-424-9300 (USA); +1 703-527-3887 (International)

**SECTION 2: Hazards identification****2.1. Classification of the substance or mixture****Classification according to Regulation (EC) No. 1272/2008 [CLP]**

Not classified

**Adverse physicochemical, human health and environmental effects**

No additional information available

**2.2. Label elements****Labelling according to Regulation (EC) No. 1272/2008 [CLP]**

EUH-statements : EUH210 - Safety data sheet available on request.

**2.3. Other hazards**

No additional information available

**SECTION 3: Composition/information on ingredients****3.1. Substances**

Not applicable

**3.2. Mixtures**

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Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Part A: Poly(trifluoropropylmethylsiloxane), vinyl terminated	(CAS-No.) 68037-88-7	50 - 75	Not classified
Part A: Vinyl, methyl modified silica	(CAS-No.) 68988-89-6	15 - 35	Not classified
Part A: Silanol terminated polytrifluoropropylmethylsiloxane	(CAS-No.) 68607-77-2 (EC-No.) 614-652-4	< 10	Not classified
Part B: Methylhydrosiloxane-dimethylsiloxane copolymer, trimethylsiloxane terminated	(CAS-No.) 68037-59-2	< 5	Not classified
Part B: Ceric hydroxide	(CAS-No.) 12014-56-1	< 5	Not classified

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

First-aid measures general	: Remove contaminated clothing and shoes. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). If possible show this sheet; if not available show packaging or label.
First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing. If you feel unwell, seek medical advice.
First-aid measures after skin contact	: Wash with plenty of water/.... Get medical advice/attention.
First-aid measures after eye contact	: Immediately flush eyes thoroughly with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice/attention.
First-aid measures after ingestion	: Never give anything by mouth to an unconscious person. Get medical advice/attention.

### 4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects after inhalation	: No information available.
Symptoms/effects after skin contact	: May cause skin irritation.
Symptoms/effects after eye contact	: Causes eye irritation.
Symptoms/effects after ingestion	: No information available.

### 4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

Suitable extinguishing media	: Water spray. Water fog. Foam. Carbon dioxide. Dry chemical.
Unsuitable extinguishing media	: None known.

### 5.2. Special hazards arising from the substance or mixture

Fire hazard	: Irritating fumes and organic acid vapors may develop when material is exposed to elevated temperatures or open flame.
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### 5.3. Advice for firefighters

Firefighting instructions	: Exercise caution when fighting any chemical fire. Use water spray or fog for cooling exposed containers.
Protection during firefighting	: Do not enter fire area without proper protective equipment, including respiratory protection. Avoid all eye and skin contact and do not breathe vapour and mist.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

#### 6.1.1. For non-emergency personnel

Protective equipment	: Wear protective equipment as described in Section 8.
Emergency procedures	: Evacuate unnecessary personnel.

#### 6.1.2. For emergency responders

Protective equipment	: Do not attempt to take action without suitable protective equipment. Equip cleanup crew with proper protection. For further information refer to section 8: "Exposure controls/personal protection".
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### 6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

### 6.3. Methods and material for containment and cleaning up

For containment	: Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.
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Methods for cleaning up : Clean up any spills as soon as possible, using an absorbent material to collect it. Sweep or shovel spills into appropriate container for disposal.

### 6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Precautions for safe handling : Avoid all eye and skin contact and do not breathe vapour and mist. Use only outdoors or in a well-ventilated area.

Hygiene measures : Wash contaminated clothing before reuse. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

### 7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep container tightly closed.

Incompatible materials : Alkalis. Metal salts. Oxidizing agent. Precious metals.

Storage area : Store in a well-ventilated place. Store away from heat.

### 7.3. Specific end use(s)

No additional information available

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

No additional information available

### 8.2. Exposure controls

#### Appropriate engineering controls:

Provide local exhaust or general room ventilation.

#### Personal protective equipment:

Avoid all unnecessary exposure. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

#### Hand protection:

Neoprene or nitrile rubber gloves

#### Eye protection:

Chemical goggles. Contact lenses should not be worn

#### Skin and body protection:

Wear suitable protective clothing

#### Respiratory protection:

Where exposure through inhalation may occur from use, respiratory protection equipment is recommended. NIOSH-certified organic vapor (black cartridge) respirator.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Physical state : Liquid

Appearance : Clear liquid. Viscous.

Molecular mass : (mixture)

Colour : Translucent.

Odour : No data available

Odour threshold : No data available

Refractive index : No additional information available

pH : No data available

Relative evaporation rate (butylacetate=1) : No data available

Melting point : < -60 °C

Freezing point : No data available

Boiling point : > 205 °C

Flash point : 121 °C

Auto-ignition temperature : No data available

Decomposition temperature : No data available

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Flammability (solid, gas)	: No data available
Vapour pressure	: < 1 mm Hg @ 20°C
Relative vapour density at 20 °C	: No data available
Relative density	: 1.36
% Volatiles	: < 3 %
Solubility	: Insoluble in water.
Log Pow	: No data available
Log Kow	: No data available
Viscosity, kinematic	: A: 60000-80000 cSt; B: 800-1200 cSt
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: No data available

### 9.2. Other information

No additional information available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

No additional information available

### 10.2. Chemical stability

Stable in sealed containers stored under a dry inert atmosphere.

### 10.3. Possibility of hazardous reactions

B-part is reactive with metal salts and precious metals. Trifluoropropionaldehyde vapors may evolve from product used in open systems at temperatures above 150°C.

### 10.4. Conditions to avoid

Heat. Open flame. Sparks.

### 10.5. Incompatible materials

Alkalis. Metal salts. Oxidizing agent. Precious metals.

### 10.6. Hazardous decomposition products

Hydrogen. Organic acid vapors. Silicon dioxide. Trifluoropropionaldehyde.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity	: Not classified
Skin corrosion/irritation	: Not classified
Serious eye damage/irritation	: Not classified
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
STOT-single exposure	: Not classified
STOT-repeated exposure	: Not classified
Aspiration hazard	: Not classified
Symptoms/effects after inhalation	: No information available.
Symptoms/effects after skin contact	: May cause skin irritation.
Symptoms/effects after eye contact	: Causes eye irritation.
Symptoms/effects after ingestion	: No information available.

## SECTION 12: Ecological information

### 12.1. Toxicity

Acute aquatic toxicity	: Not classified
Chronic aquatic toxicity	: Not classified

### 12.2. Persistence and degradability

No additional information available

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### 12.3. Bioaccumulative potential

No additional information available

### 12.4. Mobility in soil

No additional information available

### 12.5. Results of PBT and vPvB assessment

No additional information available

### 12.6. Other adverse effects

No additional information available

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Sewage disposal recommendations : Do not dispose of waste into sewer.  
Product/Packaging disposal recommendations : Incinerate. Dispose in a safe manner in accordance with local/national regulations.  
Ecology - waste materials : Avoid release to the environment.

## SECTION 14: Transport information

### 14.1. UN number

In accordance with ADR / RID / IMDG / IATA / ADN

### 14.1. UN number

UN-No. (ADR) : Not applicable  
UN-No. (IMDG) : Not applicable  
UN-No. (IATA) : Not applicable  
UN-No. (ADN) : Not applicable  
UN-No. (RID) : Not applicable

### 14.2. UN proper shipping name

Proper Shipping Name (ADR) : Not applicable  
Proper Shipping Name (IMDG) : Not applicable  
Proper Shipping Name (IATA) : Not applicable  
Proper Shipping Name (ADN) : Not applicable  
Proper Shipping Name (RID) : Not applicable

### 14.3. Transport hazard class(es)

#### ADR

Transport hazard class(es) (ADR) : Not applicable

#### IMDG

Transport hazard class(es) (IMDG) : Not applicable

#### IATA

Transport hazard class(es) (IATA) : Not applicable

#### ADN

Transport hazard class(es) (ADN) : Not applicable

#### RID

Transport hazard class(es) (RID) : Not applicable

### 14.4. Packing group

Packing group (ADR) : Not applicable  
Packing group (IMDG) : Not applicable  
Packing group (IATA) : Not applicable  
Packing group (ADN) : Not applicable  
Packing group (RID) : Not applicable

### 14.5. Environmental hazards

Dangerous for the environment : No  
Marine pollutant : No  
Other information : No supplementary information available

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### 14.6. Special precautions for user

#### - Overland transport

No data available

#### - Transport by sea

No data available

#### - Air transport

No data available

#### - Inland waterway transport

No data available

#### - Rail transport

No data available

### 14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

## SECTION 15: Regulatory information

### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

#### 15.1.1. EU-Regulations

Contains no REACH substances with Annex XVII restrictions

Contains no substance on the REACH candidate list

Contains no REACH Annex XIV substances

Contains no substance subject to REGULATION (EU) No 649/2012 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 4 July 2012 concerning the export and import of hazardous chemicals.

Substance(s) are not subject to Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC.

Contains no REACH Annex XIV substances

% Volatiles : < 3 %

#### 15.1.2. National regulations

##### Germany

Reference to AwSV : Water hazard class (WGK) 3, Highly hazardous to water (Classification according to AwSV, Annex 1)

12th Ordinance Implementing the Federal Immission Control Act - 12.BImSchV : Is not subject of the 12. BImSchV (Hazardous Incident Ordinance)

##### Netherlands

SZW-lijst van kankerverwekkende stoffen : None of the components are listed

SZW-lijst van mutagene stoffen : None of the components are listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Borstvoeding : None of the components are listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Vruchtbaarheid : None of the components are listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Ontwikkeling : None of the components are listed

### 15.2. Chemical safety assessment

No additional information available

## SECTION 16: Other information

Abbreviations and acronyms:

Abbreviations: ND: Not Determined, No Data; NA: Not Applicable; LD: Lethal Dose; LC: Lethal Concentration; ATE: Acute Toxicity Estimates; H: hour; °: °C unless otherwise stated; mm: millimeters Hg, torr; PEL: permissible exposure level; TWA: time weighted average; TLV: threshold limit value; TG: Test Guideline; NIOSH: National Institute for Occupational Safety and Health; IARC: International Agency for Research on Cancer; NTP: National Toxicology Program; HMIS: Hazardous Material Information System; CAS No.: Chemical Abstract Service Registration Number; EC No.: European Commission Registration Number; EC Index No.: European Commission Index Number; OECD: The Organisation for Economic Co-operation and Development; GHS: The Globally Harmonized System of Classification and Labelling; APF: Assigned Protection Factor

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Other information : Prepared by safety and environmental affairs.

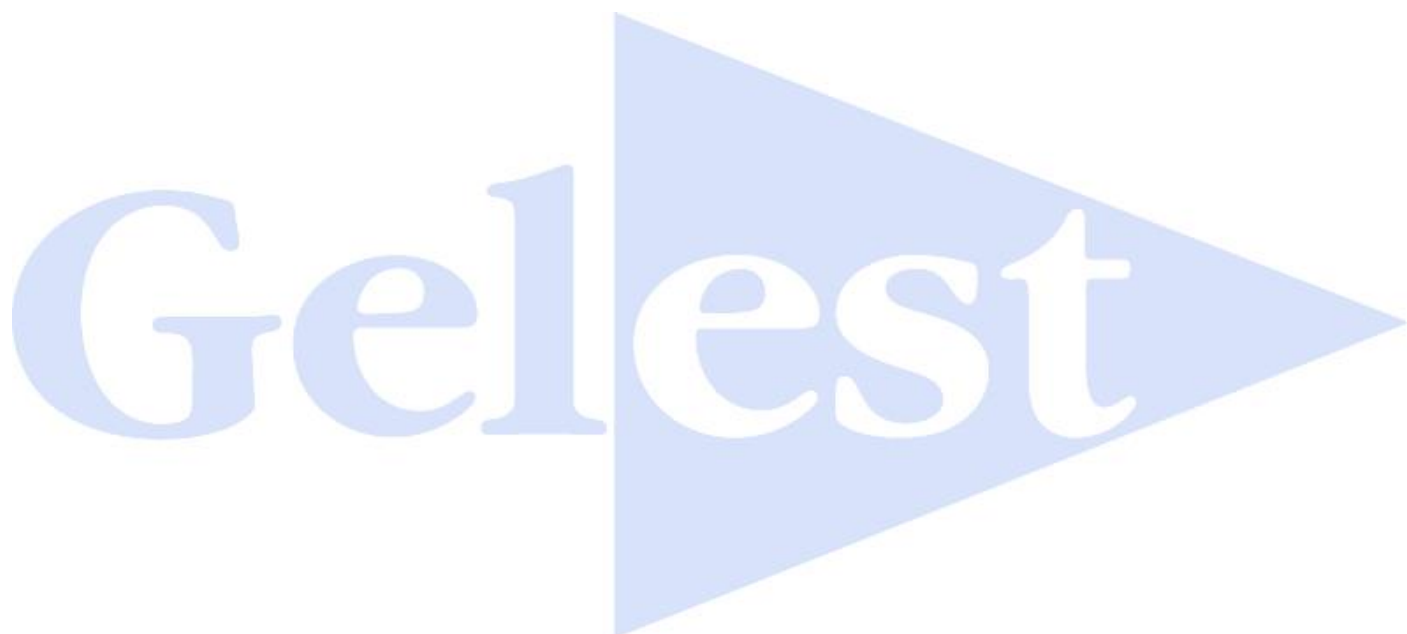
Full text of H- and EUH-statements:

EUH210	Safety data sheet available on request.
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SDS EU (REACH Annex II) - Custom

*The information contained in this document has been gathered from reference materials and/or Gelest, Inc. test data and is to the best knowledge and belief of Gelest, Inc. accurate and reliable. Such information is offered solely for your consideration, investigation and verification. It is not suggested or guaranteed that the hazard precautions or procedures described are the only ones which exist. Gelest, Inc. makes no warranties, express or implied, with respect to the use of such information and assumes no responsibility therefore. Information on this safety data sheet is not intended to constitute a basis for product specifications.*

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## Gelest® RG 04 2-Part Oleophobic Reprographic Silicone Elastomer (10:1 kit)

Capsular  
Description:

Thickness



thick

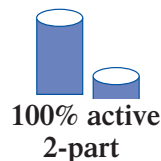
Cure **Pt**  
catalyst

Hardness



medium

Type



100% active  
2-part

### Description

Gelest® RG 04 is a clear to translucent molding and encapsulation compound with greater resistance to swelling by hydrocarbons than conventional silicones, allowing for use of a wider range of solvents for microfluidic applications.

### Cured Properties

Tensile Strength	1.5-2.0 MPa
Elongation	150-200%
Durometer, Shore A	25-30
Refractive Index (25°C)	1.39
Specific Gravity	1.36
Contact Angle, water	110°
Contact Angle, hexadecane	45°

#### Swell (wt%)

<b>Toluene</b>	<b>7%</b>
<b>Heptane</b>	<b>2%</b>

#### Standard Reprographic PDMS Swell (wt%)

Toluene	90%
Heptane	83%

### Uncured Properties of Gelest® RG 04

Viscosity	(10:1) catalyzed: 30,000-35,000 cSt
	Part A (base): 65,000-70,000 cSt
	Part B (crosslinker): 800-1200 cSt

### Application Methods

Thoroughly mix Part A with Part B in a 10:1 ratio. (Due to the high viscosity of this system, the mixing step is not as facile as standard PDMS elastomers.) De-air mix under vacuum for about 30 minutes. The pot-life is 6 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 or at room temperature for 72 hours.

### Standard Packaging

PP2-RG04	Gelest® RG 04
100 g	SpeedMixer™ kit
220 g	kit (200g RG04-A, 20g RG04-B)
1.1 kg	kit (1000g RG04-A, 100g RG04-B)