

*****Section 1 - IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING*******1.1 Product Identifier:****Material Name:** OBJET RGD531**Chemical Family**

acrylic compounds

Substance Registration Number(s)

The components are either registered, pre-registered or not subject to REACH.

Substance Registration Number(s) : 01-0000016491-73-XXXX (CAS#, 5117-12-4)

1.2 Relevant Identified Uses of the Substance or Mixture and Uses Advised Against Identified Uses

This product is a cartridge containing ink. Under normal conditions of use, the substance is released from a cartridge only inside an appropriate printing system, and therefore, exposure is limited.

Uses Advised Against

None known.

1.3 Details of the supplier of the safety data sheet

Stratasys GmbH

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D-77836 Rheinmünster, Germany

Phone: +49 722 97 77 20

Emergency # +49 722 97772280

Email Address

objet-info@stratasys.com; www.stratasys.com

1.4 Emergency Telephone Number

+49 722 97772280 : Europe (Multi-lingual Response)

+49 722 97772281 : Global (English language response)

+1 978 495 5580 : USA (Multi-lingual Response)

+85 2 975 70887 : Asia Pacific (Multi-lingual Response)

+61 2 8011 4763 : Australia (Multi-lingual Response)

+86 15626070595 : China (Chinese language response)

*****Section 2 - HAZARDS IDENTIFICATION*******2.1 Classification of the Substance or Mixture****Classification according to Regulation (EC) No 1272/2008**

Acute Toxicity (Oral), Category 4

Eye Damage / Irritation, Category 1

Skin Corrosion / Irritation, Category 2

Skin sensitizer, Category 1

Toxic to Reproduction, Category 2

Specific Target Organ Toxicity - Single Exposure, Category 3 (respiratory system)

Specific Target Organ Toxicity - Repeated Exposure, Category 2

Hazardous to the Aquatic Environment - Chronic Hazard, Category 3

Classification according to Directives 67/548/EEC and/or 1999/45/EC

R22 Harmful if swallowed.

R36/37/38 Irritating to eyes, respiratory system and skin.

R41 Risk of serious damage to eyes.

R43 May cause sensitization by skin contact.

R48/22 Harmful: danger of serious damage to health by prolonged exposure if swallowed.

R52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

R62 Possible risk of impaired fertility.

2.2 Label Elements**Labeling according to Regulation (EC) 1272/2008/EC:****Symbol(s)****Signal Word**

DANGER

Hazard Statement(s)

H302 Harmful if swallowed.

H318 Causes serious eye damage

H315 Causes skin irritation

H317 May cause an allergic skin reaction

H335 May cause respiratory irritation

H361 Suspected of damaging fertility or the unborn child.

H373 May cause damage to organs through prolonged or repeated exposure

H412 Harmful to aquatic life with long lasting effects

Precautionary Statement(s)**Prevention**

P271 Use only outdoors or in a well-ventilated area. **P280** Wear protective gloves/protective clothing/eye protection/face protection.

Response

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. **P310** Immediately call a POISON CENTER or doctor/physician.

Storage

P405 Store locked up.

Disposal

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Labeling according to Directive 67/548/EEC and/or 1999/45/EC
Symbols

Xn

- R22** Harmful if swallowed.
R36/37/38 Irritating to eyes, respiratory system and skin.
R41 Risk of serious damage to eyes.
R43 May cause sensitization by skin contact.
R48/22 Harmful: danger of serious damage to health by prolonged exposure if swallowed.
R52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R62 Possible risk of impaired fertility.

- S2** Keep out of the reach of children.
S24 Avoid contact with skin.
S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
S46 If swallowed, seek medical advice immediately and show this container or label.
S60 This material and its container must be disposed of as hazardous waste.
S61 Avoid release to the environment. Refer to special instructions/Safety data sheets.

2.3 Other Hazards

None known.

| |
|---|
| ***Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS*** |
|---|

| CAS EC No Registration No | Component Synonyms | 67/548 EEC (DSD) | 1272/2008 (CLP) | Percent |
|---------------------------------|--|------------------------|---|---------|
| -- -- | Acrylic monomer | Xn; R:22-41-43-48/22 | Acute Tox. 4 (Oral) Eye Dam. 1 Skin Sens. 1 STOT RE 2 | <30 |
| -- -- | Acrylic monomer | Xi; R:36/37/38 | Skin Irrit. 2 Eye Irrit. 2 STOT SE 3 | <15 |
| 5888-33-5 227-561-6 | 2-Propenoic acid, 1,7,7-trimethylbicyclo[2.2.1]hept-2-yl ester, exo- | Xi N; R:36/37/38-51/53 | Skin Irrit. 2 Eye Irrit. 2 STOT SE 3 Aquatic Chronic 2 | <15 |

| | | | | |
|-------------------------------|--------------------|-------------|------------------------------|------|
| -- -- | Photo initiator | Xn; R:62 | Repr. 2 | <3 |
| 13463-67-7 236-675-5 -- | Titanium dioxide | | | <0.8 |
| 52408-84-1 500-114-5 -- | Acrylic acid ester | Xi; R:36-43 | Eye Irrit. 2 Skin Sens. 1 | <0.3 |

Additional Information

Under normal conditions of use, the substance is released from a cartridge only inside an appropriate printing system, and therefore, exposure is limited. The liquid within the cartridges is considered hazardous, and the MSDS has been prepared in case of exposure to the liquid.

TITANIUM DIOXIDE is present in a low concentration, dispersed in a liquid

Section 4 - FIRST AID MEASURES

4.1 Description of First Aid Measures

Inhalation

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.

Skin

IF ON SKIN: Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice/attention. Take off contaminated clothing and wash before re-use.

Eyes

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.

Ingestion

IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. Rinse mouth.

4.2 Most Important Symptoms and Effects, both Acute and Delayed

Acute

respiratory tract irritation, eye damage, skin irritation, allergic skin reaction

Delayed

allergic reactions, reproductive effects

4.3 Indication of any Immediate Medical Attention and Special Treatment Needed

Note to Physicians

IF exposed or concerned: Get medical advice/attention.

Section 5 - FIRE FIGHTING MEASURES

5.1 Extinguishing Media

Use extinguishing agents appropriate for surrounding fire. Class B fires: Use carbon dioxide (CO₂), regular dry chemical (sodium bicarbonate), regular form (Aqueous Film Forming Foam-AFFF), or water spray to cool containers.

Unsuitable Extinguishing Media

None known.

5.2 Special Hazards Arising from the Substance or Mixture

Slight fire hazard.

Thermal Decomposition Products

Combustion: oxides of carbon

5.3 Advice for Firefighters**Fire Fighting Measures**

Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Keep unnecessary people away, isolate hazard area and deny entry. Keep out of water supplies and sewers. Avoid inhalation of material or combustion by-products.

Protective Equipment and Precautions for Firefighters

Wear full protective fire fighting gear including self contained breathing apparatus (SCBA) for protection against possible exposure. Avoid inhalation of material or combustion by-products.

*****Section 6 - ACCIDENTAL RELEASE MEASURES*******Occupational Spill / Release**

Intact cartridges do not pose a leak or spill hazard. Damaged cartridges may leak uncured ink. Stop leak if possible without personal risk. Reduce vapors with water spray. Absorb with sand or other non-combustible material. Collect spilled material in appropriate container for disposal. Keep out of water supplies and sewers.

6.1 Personal Precautions, Protective Equipment and Emergency Procedures

Wear personal protective clothing and equipment, see Section 8.

6.2 Environmental Precautions

Avoid release to the environment.

6.3 Methods and Material for Containment and Cleaning up

Collect spilled material with an inert absorbent such as sand or vermiculite. Place in properly labeled closed container. Flush area with water to remove trace residue.

6.4 Reference to Other Sections

See Section 7 for Handling Procedures. See Section 8 for Personal Protective Equipment recommendations. See Section 13 for Disposal Considerations.

*****Section 7 - HANDLING AND STORAGE*******7.1 Precautions for Safe Handling**

Do not breathe vapor or mist. Use only outdoors or in a well-ventilated area. Wear protective gloves and eye/face protection. Contaminated work clothing should not be allowed out of the workplace. Wash thoroughly after handling. Do not eat, drink, or smoke when using this product. Avoid release to the environment.

7.2 Conditions for Safe Storage, Including any Incompatibilities

Store in accordance with all current regulations and standards. Store locked up. Store in a well-ventilated place. Keep container tightly closed. Store between 15 °C and 25 °C. Shipment temperature (up to 5 weeks) is -20 °C to 50 °C. Store in a combustible storage area away from heat and open flame. Store in a cool, dry place. Avoid direct sunlight. Keep in the dark. Keep separated from incompatible substances.

*****Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION*******8.1 Control Parameters****Component Exposure Limits****Titanium dioxide (13463-67-7)**

| | |
|------------------------|---|
| Austria: | 5 mg/m ³ TWA (alveolar dust, respirable fraction) 10 mg/m ³ STEL (alveolar dust, respirable fraction, 2 X 60 min) |
| Belgium: | 10 mg/m ³ TWA |
| Bulgaria: | 10.0 mg/m ³ TWA (respirable dust) |
| Denmark: | 6 mg/m ³ TWA (as Ti) |
| Estonia: | 5 mg/m ³ TWA |
| France: | 10 mg/m ³ TWA (as Ti) |
| Greece: | 10 mg/m ³ TWA (inhalable fraction); 5 mg/m ³ TWA (respirable fraction) |
| Ireland: | 10 mg/m ³ TWA (total inhalable dust); 4 mg/m ³ TWA (respirable dust) |
| Latvia: | 10 mg/m ³ TWA |
| Lithuania: | 5 mg/m ³ TWA |
| Poland: | 10.0 mg/m ³ TWA (<2% free crystalline silica and containing no asbestos, total inhalable dust) |
| Portugal: | 10 mg/m ³ TWA [VLE-MP] |
| Romania: | 15 mg/m ³ STEL 10 mg/m ³ TWA |
| Spain: | 10 mg/m ³ TWA [VLA-ED] |
| Sweden: | 5 mg/m ³ LLV (total dust) |
| United Kingdom: | 10 mg/m ³ TWA (total inhalable); 4 mg/m ³ TWA (respirable) 30 mg/m ³ STEL (calculated, total inhalable); 12 mg/m ³ STEL (calculated, respirable) 10 mg/m ³ TWA |

Biological Limit Value**Component Analysis**

There are no biological limit values for any of this product's components.

Derived No Effect Levels (DNELs)

No DNELs available.

Predicted No Effect Concentrations (PNECs)

No PNECs available.

Ventilation

Provide local exhaust ventilation system. Ensure compliance with applicable exposure limits.

8.2 Exposure Controls**Appropriate Engineering Controls****Eye / Face Protection**

Eye protection not required under normal conditions. Chemical goggles or safety glasses with side shields should be worn when handling a damaged cartridge.

Skin Protection

Protective clothing is not required under normal conditions. Wear neoprene or nitrile impervious gloves when handling damaged cartridge. Wash contaminated clothing before reuse.

Glove Recommendations

Wear neoprene or nitrile impervious gloves when handling damaged cartridge.

Respiratory Protection

Respiratory protection is not generally needed when using this product.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on Basic Physical and Chemical Properties

| | | | |
|--------------------------|---------------------|--------------------------------------|---|
| Physical State: | Liquid | Appearance: | ink cartridge containing white liquid ink |
| Color: | white | Physical Form: | liquid |
| Odor: | characteristic odor | Odor Threshold: | Not available |
| pH: | Not applicable | Melting Point: | Not available |
| Boiling Point: | Not available | Decomposition: | Not available |
| Flash Point: | >100 °C | Evaporation Rate: | Not available |
| LEL: | Not available | UEL: | Not available |
| Vapor Pressure: | Not available | Vapor Density (air = 1): | Not available |
| Density: | Not available | Specific Gravity (water = 1): | Not available |
| Water Solubility: | Not available | Coeff. Water/Oil Dist: | Not available |
| Auto Ignition: | Not available | Viscosity: | Not available |
| Volatility: | Not available | | |

Section 10 - STABILITY AND REACTIVITY

10.1 Reactivity

Heating may cause a fire

10.2 Chemical Stability

Unstable on exposure to light. Unstable on exposure to heat.

10.3 Possibility of Hazardous Reactions

Uncured ink will polymerize on exposure to light.

10.4 Conditions to Avoid

Avoid exposure to heat or light.

10.5 Incompatible Materials

Not applicable under normal conditions of use and storage.

10.6 Hazardous Decomposition Products

Thermal Decomposition Products

Combustion: oxides of carbon

Section 11 - TOXICOLOGICAL INFORMATION

11.1 Information on Toxicological Effects

Acute and Chronic Toxicity

No hazard is expected from the normal use of this product. While unlikely, uncured ink may leak from damaged ink cartridges and cause skin and eye irritation. Contact with skin may cause tingling sensation or skin irritation. Contact with eyes may cause eye irritation, inflammation, or eye damage.

Component Analysis - LD50/LC50

The components of this material have been reviewed in various sources and the following selected endpoints are published:

Titanium dioxide (13463-67-7)

Oral LD50 Rat >10000 mg/kg

Irritation / Corrosivity

Contact with uncured ink may cause eye damage and skin irritation. Inhalation may cause respiratory tract irritation.

Respiratory Sensitization

No data available for the mixture.

Skin Sensitization

Component data indicate the substance is sensitizing. Uncured ink may cause an allergic response in sensitized individuals.

Germ Cell Mutagenicity

No data available for the mixture.

Carcinogenicity**Component Carcinogenicity****Titanium dioxide (13463-67-7)**

IARC: Monograph 93 [2010]; Monograph 47 [1989] (Group 2B (possibly carcinogenic to humans))

DFG: Category 3A (could be carcinogenic for man, inhalable fraction with the exception of ultra small particles)

Reproductive Toxicity

Available data characterizes components of this product as reproductive hazards.

Specific Target Organ Toxicity - Single Exposure

respiratory system

Specific Target Organ Toxicity - Repeated Exposure

May cause damage to organs through prolonged or repeated exposure

Aspiration Hazard

No data available for the mixture.

*****Section 12 - ECOLOGICAL INFORMATION*******12.1 Toxicity**

Harmful to aquatic life with long lasting effects.

12.2 Persistence and Degradability

No data available for the mixture.

12.3 Bioaccumulative Potential

No data available for the mixture.

12.4 Mobility in Soil

No data available for the mixture.

12.5 Results of PBT and vPvB Assessment

No information available.

EU - Interim Strategy for Management of PBT and vPvB Substances (PBT Assessments)

No components of this material are listed.

12.6 Other Adverse Effects

No information available.

*****Section 13 - DISPOSAL CONSIDERATIONS*******13.1 Waste Treatment Methods**

Dispose in accordance with all applicable regulations. Hazardous Waste Number(s): 08 03 12*
Refer to manufacturer/supplier for information on recovery/recycling. Do not landfill. Avoid discharge into drains or surface water. See Section 7 for Handling Procedures. See Section 8 for Personal Protective Equipment recommendations.

*****Section 14 - TRANSPORT INFORMATION*******Transportation**

Not regulated as a hazardous material.

International Bulk Chemical Code

This material contains one or more of the following chemicals required by the IBC Code to be identified as dangerous chemicals in bulk.

Titanium dioxide (13463-67-7)

IBC Code: Category Z (slurry)

*****Section 15 - REGULATORY INFORMATION*******15.1 Safety, Health and Environmental Regulations / Legislation Specific for the Substance or Mixture****EU - REACH (1907/2006) - Annex XIV List of Substances Subject to Authorisation**

No components of this material are listed.

EU - REACH (1907/2006) - Article 59(1) Candidate List of Substances for Eventual Inclusion in Annex XIV

No components of this material are listed.

EU - REACH (1907/2006) - Annex XVII Restrictions of Certain Dangerous Substances, Mixtures and Articles

No components of this material are listed.

Germany Regulations**Germany Water Classification****Acrylic monomer (5117-12-4)**

ID Number 6697, hazard class 2 - hazard to waters

2-Propenoic acid, 2-methyl-, 1,7,7-trimethylbicyclo[2.2.1]hept-2-yl ester, exo- (7534-94-3)

ID Number 2349, hazard class 2 - hazard to waters

2-Propenoic acid, 1,7,7-trimethylbicyclo[2.2.1]hept-2-yl ester, exo- (5888-33-5)

ID Number 2247, hazard class 2 - hazard to waters

Diphenyl-2,4,6-trimethylbenzoyl phosphine oxide (75980-60-8)

ID Number 6366, hazard class 2 - hazard to waters

Titanium dioxide (13463-67-7)

ID Number 1345, not considered hazardous to water

Denmark Regulations**Environmental Protection Agency List of Undesirable Substances**

No components of this material are listed.

EU Inventory**Substance Analysis - Inventory**

| Component | CAS | EEC |
|--|------------------------|-----|
| Acrylic monomer | -- | ELN |
| Acrylic monomer | -- | EIN |
| 2-Propenoic acid, 1,7,7-trimethylbicyclo[2.2.1]hept-2-yl ester, exo- | 5888-33-5 227-561-6 | EIN |
| Photo initiator | 75980-60-8 | EIN |
| Titanium dioxide | 13463-67-7 | EIN |
| Acrylic acid ester | 52408-84-1 | NLP |

15.2 Chemical Safety Assessment

No chemical safety assessment has been carried out for the substance/mixture.

*****Section 16 - OTHER INFORMATION*******16.1 Indication of changes**

New MSDS: 1/24/2013

16.2 Key / Legend

ADR - European Road Transport; EEC - European Economic Community; EIN (EINECS) - European Inventory of Existing Commercial Chemical Substances; ELN (ELINCS) - European List of Notified Chemical Substances; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IMDG - International Maritime Dangerous Goods; Kow - Octanol/water partition coefficient; LEL - Lower Explosive Limit; RID - European Rail Transport; STEL - Short-term Exposure Limit; TDG - Transportation of Dangerous Goods; TWA - Time Weighted Average; UEL - Upper Explosive Limit

16.3 Key literature references and sources for data

Available upon request

16.4 Methods used for classification of mixture according to Regulation (EC) No 1272/2008

Available upon request

16.5 Full Text of R Phrases in Section 3

R22 Harmful if swallowed.

R36/37/38 Irritating to eyes, respiratory system and skin.

R41 Risk of serious damage to eyes.

R43 May cause sensitization by skin contact.

R48/22 Harmful: danger of serious damage to health by prolonged exposure if swallowed.

R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

R53 May cause long-term adverse effects in the aquatic environment.

R62 Possible risk of impaired fertility.

16.6 Training Advice

Read the Safety Data Sheet before handling product.

16.7 Other Information

The information in this safety data sheet is based on data and samples provided to a third party SDS author. The sheet was written to the best of our ability and according to the state of knowledge at that time. The safety data sheet only constitutes a guideline for the safe handling, use, consumption, storage, transport and disposal of the substances/preparations/mixtures mentioned in this safety data sheet. New safety data sheets are written from time to time. Only the most recent versions may be used. Unless indicated otherwise word for word on the safety data sheet, the information does not apply to substances/preparations/mixtures in purer form, mixed with other substances or in processes. The safety data sheet offers no quality specification for the substances/preparations/mixtures in question.

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