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Revision Date 08-Nov-2017

Revision F

Section 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING**1.1. Product identifier**

Product Code(s)	SDS-06108 EN E
Product Name	Digital ABS, RGD515
Denmark PR No	N/A
Chemical name	Acrylic formulation
Pure substance/mixture	Mixture

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

Recommended Use	Printing inks
Uses advised against	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

1.3. Details of the supplier of the safety data sheet**Importer**

Stratasys EMEA Regional Office
Airport Boulevard B 120
77836 Rheinmünster, Germany
Phone: +49-7229-7772-0

For further information, please contact

E-mail address info@Stratasys.com

1.4. Emergency telephone number

Emergency Telephone	<ul style="list-style-type: none">• +44 1865 407333 - Global – English Language response• +44 1235 239670 - Europe - Multi lingual response• +1 215 207 0061 - USA – Multi-lingual response• +65 3158 1074 - Asia Pacific - Multi lingual response• +61 2 8014 4558 - Australia - English Language response• +86 512 8090 3042 - China - Chinese response
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Austria	Poison Information Centre (AT): +43-(0)1-406 43 43
Belgium	Poison Centre (BE): +32 70 245 245
Croatia	Poison Control (CR): +385 1 2348 342
Czech Republic	Poison Control (CS): +420 224 919 293, +420 224 915 402
Denmark	Poison Control Hotline (DK): +45 82 12 12 12
Estonia	Poison Control (ET): 16662, (+372) 626 93 90
Finland	Poison Information Centre (FI): +358 9 471 977
France	ORFILA (FR): + 01 45 42 59 59
Germany	Poison Centre Berlin (DE): +49 030 30686 790 (24 h service, Advice in German and

	English)
Greece	Poison Information Center (EL): (0030) 2107793777
Hungary	Poison Information Service (HU): (+ 36-80) 201-199
Iceland	Poison Information Center: 543 2222
Italy	Poison Centre, Milan (IT): +39 02 6610 1029
Latvia	Poison Information Center (LV): +371 67042473
Lithuania	Poison Information Office (LT): +370 5236 20 52 or +370 687 53 378
Luxembourg	Belgian Poison Center: (+352) 8002-5500
Netherlands	National Poisons Information Center (NVIC): 030-274 8888
Norway	Poison Center: 22 59 13 00
Portugal	Poison Information Centre (PT): +351 21 330 3284
Spain	Poison Information Service (ES): +34 91 562 04 20
Sweden	112 – ask for Poisons Information

Section 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Regulation (EC) No 1272/2008

Serious eye damage/eye irritation	Category 1 - (H318)
Skin sensitisation	Category 1 - (H317)
Specific target organ toxicity (single exposure)	Category 3 - (H335)
Specific target organ toxicity (repeated exposure)	Category 2 - (H373)
Acute aquatic toxicity	Category 1 - (H400)
Chronic aquatic toxicity	Category 1 - (H410)

2.2. Label elements

Contains 4-(1-Oxo-2-propenyl)-morpholine, Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate, 4,4'-isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, esters with acrylic acid



Signal word

Danger

Hazard statements

H317 - May cause an allergic skin reaction
 H318 - Causes serious eye damage
 H335 - May cause respiratory irritation
 H373 - May cause damage to organs through prolonged or repeated exposure
 H410 - Very toxic to aquatic life with long lasting effects

Precautionary Statements - EU (§28, 1272/2008)

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
 P280 - Wear eye protection/ face protection
 P405 - Store locked up
 P271 - Use only outdoors or in a well-ventilated area
 P101 - If medical advice is needed, have product container or label at hand
 P102 - Keep out of reach of children
 P260 - Do not breathe dust/fume/gas/mist/vapours/spray
 P314 - Get medical advice/attention if you feel unwell
 P501 - Dispose of contents/container to industrial incineration plant

Additional information

This product requires tactile warnings if supplied to the general public

2.3. Other hazards

May be harmful if swallowed.

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Chemical name	EC No	CAS No	Weight-%	Classification according to Regulation (EC) No. 1272/2008 [CLP]	REACH Registration Number
Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate	227-561-6	5888-33-5	30 - 50	Skin Sens. 1 (H317) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410) STOT SE 3 (H335)	17-2120129664-54 -0000
4-(1-Oxo-2-propenyl)-morpholine	418-140-1	5117-12-4	10 - 30	Acute Tox. 4 (H302) Eye Dam. 1 (H318) Skin Sens. 1 (H317) STOT RE 2 (H373)	17-2120129668-46 -0000
Proprietary	Not Listed	-	10 - 30	Skin Sens. 1 (H317) Aquatic Chronic 2 (H411)	No data available
Proprietary	Listed	-	0.3-1	Skin Sens. 1 (H317) Aquatic Chronic 4 (H413)	No data available
Glycerol, propoxylated, esters with acrylic acid	-	52408-84-1	0.1 - 0.3	Skin Sens. 1 (H317) Eye Irrit. 2 (H319)	No data available
camphene	201-234-8	79-92-5	0.1 - 0.3	Flam. Sol. 1 (H228) Eye Irrit. 2 (H319) Aquatic Acute 1 (H400) Aquatic Chronic 2 (H411)	No data available

Full text of H- and EUH-phrases: see section 16

Additional information

This product requires tactile warnings if supplied to the general public

Section 4: FIRST AID MEASURES

4.1. Description of first aid measures

General advice	Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.
Inhalation	Remove to fresh air. Get medical attention immediately if symptoms occur. IF exposed or concerned: Get medical advice/attention.
Eye contact	Get immediate medical advice/attention. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area.
Skin contact	Wash off immediately with soap and plenty of water for at least 15 minutes. May cause an allergic skin reaction. In the case of skin irritation or allergic reactions see a doctor.
Ingestion	Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Call a doctor.
Self-protection of the first aider	Avoid contact with skin, eyes or clothing. Wear personal protective clothing (see section 8).

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

Symptoms Burning sensation. Itching. Rashes. Hives.

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

Note to doctors May cause sensitisation in susceptible persons. Treat symptomatically.

Section 5: FIRE-FIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media Use extinguishing agent suitable for type of surrounding fire
Class B fires: Use carbon dioxide (CO₂), regular dry chemical (sodium bicarbonate), regular foam (Aqueous Film Forming Foam-AFFF), or water spray to cool containers

Unsuitable extinguishing media No information available.

5.2. Special hazards arising from the substance or mixture

Specific hazards arising from the chemical No information available.

5.3. Advice for firefighters

Special protective equipment for fire-fighters Move containers from fire area if you can do it without risk. Cool containers with flooding quantities of water until well after fire is out. Isolate the hazard area and deny entry to unnecessary and unprotected personnel. Keep out of drains, sewers, ditches and waterways. Inhalation is a health risk. Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

Section 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. Ensure adequate ventilation. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

Occupational Spill Release Intact cartridges do not pose a leak or spill hazard. Damaged cartridges may leak uncured ink. Stop leak if you can do it without risk Use water spray to reduce vapours or divert vapour cloud drift Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container Keep out of drains, sewers, ditches and waterways

Other Information Refer to protective measures listed in Sections 7 and 8.

For emergency responders Use personal protection recommended in Section 8.

6.2. Environmental precautions

Environmental precautions See Section 12 for additional Ecological Information.

6.3. Methods and material for containment and cleaning up

Methods for containment Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Following product recovery, flush area with water.

Methods for cleaning up Take up mechanically, placing in appropriate containers for disposal.

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

6.4. Reference to other sections

Reference to other sections See section 8 for more information. See section 13 for more information.

Section 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Advice on safe handling Ensure adequate ventilation.

General hygiene considerations Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product.

7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions Store in a cool, dry area away from potential sources of heat, open flames, sunlight or other chemicals. Store in a cool, well ventilated area. Store in accordance with local regulations. Keep container tightly closed. Store between 15 °C and 27 °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.

Hints on joint storage

Storage class LGK10 - Combustible liquids unless storage class 3

7.3. Specific end use(s)

Risk Management Methods (RMM) The information required is contained in this Material Safety Data Sheet.

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure disclaimer Personal protection measures are only needed if cartridge is damaged punctured causing spillage of material.

8.1. Control parameters

Exposure Limits

Chemical name	European Union	United Kingdom	France	Spain	Germany
camphene 79-92-5	-	-	TWA: 1000 mg/m ³ STEL: 1500 mg/m ³	-	-

Derived No Effect Level (DNEL) No information available.

Predicted No Effect Concentration (PNEC) No information available.

8.2. Exposure controls

Personal protective equipment

Eye/face protection Tight sealing safety goggles.

Hand Protection Wear suitable gloves.

Skin and body protection Wear suitable protective clothing.

Respiratory protection No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

General hygiene considerations	Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product.
Environmental exposure controls	No information available.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical state	liquid
Appearance	Ink cartridge
Odour	Characteristic
Colour	yellow
Odour threshold	No information available

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	N/A	
Melting point / freezing point	No data available	None known
Boiling point / boiling range	No data available	None known
Flash point	>= 100 - < 250 °C	
Evaporation rate	No data available	None known
Flammability (solid, gas)	No data available	None known
Flammability Limit in Air		None known
Upper flammability limit:	No data available	
Lower flammability limit	No data available	
Vapour pressure	No data available	None known
Vapour density	No data available	None known
Relative density	No data available	None known
Water solubility	Insoluble in water	
Solubility(ies)	No data available	None known
Partition coefficient	No data available	None known
Autoignition temperature	No data available	None known
Decomposition temperature	No data available	None known
Kinematic viscosity	No data available	None known
Dynamic viscosity	No data available	None known
Explosive properties	No information available	
Oxidising properties	No information available	

9.2. Other information

Softening point	No information available
Molecular weight	No information available
VOC Content (%)	No information available
Liquid Density	No information available
Bulk density	No information available
Particle Size	No information available
Particle Size Distribution	No information available

Section 10: STABILITY AND REACTIVITY

10.1. Reactivity

Reactivity	Heating may cause a fire.
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10.2. Chemical stability

Stability	Decomposes on exposure to light. Unstable if heated.
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Explosion data

Sensitivity to Mechanical Impact None.
Sensitivity to Static Discharge None.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions Uncured ink will polymerize on exposure to light.

10.4. Conditions to avoid

Conditions to avoid None known based on information supplied.

10.5. Incompatible materials

Incompatible materials None known based on information supplied.

10.6. Hazardous decomposition products

Hazardous decomposition products Thermal Decomposition Products. Combustion: oxides of carbon.

Section 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Information on likely routes of exposure

Product Information

Inhalation	Specific test data for the substance or mixture is not available.
Eye contact	Specific test data for the substance or mixture is not available.
Skin contact	Specific test data for the substance or mixture is not available.
Ingestion	Specific test data for the substance or mixture is not available. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea.

Information on toxicological effects

Symptoms Redness. Burning. May cause blindness. Itching. Rashes. Hives.

Numerical measures of toxicity

Acute toxicity

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral)	2,074.00 mg/kg
ATEmix (dermal)	5,595.00 mg/kg mg/l

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate	= 4890 mg/kg (Rat)	> 3000 mg/kg (Rabbit)	
4-(1-Oxo-2-propenyl)-morpholine	= 588 mg/kg (rat)	> 2000 mg/kg (rat)	= 5.28 mg/l (rat)
Proprietary	>2000 mg/kg (Rat)	>2000 mg/kg	
camphene	> 5 g/kg (Rat)	> 2500 mg/kg (Rabbit)	= 17100 mg/m ³ (Rat) 1 h

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation	No information available.
Serious eye damage/eye irritation	No information available.
Respiratory or skin sensitisation	No information available.
Germ cell mutagenicity	No information available.
Carcinogenicity	No information available.
Reproductive toxicity	No information available.
STOT - single exposure	No information available.
STOT - repeated exposure	No information available.
Aspiration hazard	No information available.

Section 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Ecotoxicity	Very toxic to aquatic life with long lasting effects
Unknown aquatic toxicity	Contains 0 % of components with unknown hazards to the aquatic environment.

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate	1.98 mg/l Fresh water	0.704 mg/l Fresh water	-	0.524 mg/l Fresh water
4-(1-Oxo-2-propenyl)-morpholine	120 mg/l (algae)	-	-	120 mg/kg (daphnia)
camphene	1000: 72 h Desmodesmus subspicatus mg/L EC50	0.72: 96 h Brachydanio rerio mg/L LC50 flow-through 150: 96 h Brachydanio rerio mg/L LC50 static	-	22: 48 h Daphnia magna mg/L EC50

12.2. Persistence and degradability

Persistence and degradability	No information available.
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12.3. Bioaccumulative potential

Bioaccumulation	No information available.
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12.4. Mobility in soil

Mobility in soil	No information available.
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12.5. Results of PBT and vPvB assessment

PBT and vPvB assessment	No information available.
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12.6. Other adverse effects

Other adverse effects	No information available.
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Section 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste from residues/unused products	Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.
Contaminated packaging	Do not reuse empty containers.
Waste codes / waste designations according to EWC / AVV	08 03 12* Waste ink containing dangerous substances.
Other Information	Waste codes should be assigned by the user based on the application for which the product was used.

Section 14: TRANSPORT INFORMATION

<u>Additional information</u>	The environmentally hazardous substance mark is not required when transported in sizes of ≤5L or ≤5kg The marine pollutant mark is not required when transported in sizes of ≤5L or ≤5kg
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IMDG

14.1 UN Number	UN3082
14.2 UN proper shipping name	OTHER REGULATED SUBSTANCES, LIQUID, N.O.S. , (Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate)
14.3 Transport hazard class(es)	9
14.4 Packing group Description	III UN3082, OTHER REGULATED SUBSTANCES, LIQUID, N.O.S. (EXO-1,7,7-TRIMETHYLBICYCLO[2.2.1]HEPT-2-YL ACRYLATE), 9, III, Marine pollutant
14.5 Marine pollutant Environmental Hazard	Not applicable Yes
14.6 Special Provisions EmS-No	274, 335, 969 F-A, S-F
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	No information available

RID

14.1 UN Number	UN3082
14.2 UN proper shipping name	OTHER REGULATED SUBSTANCES, LIQUID, N.O.S. , (Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate)
14.3 Transport hazard class(es) Labels	9 9
14.4 Packing group Description	III UN3082, OTHER REGULATED SUBSTANCES, LIQUID, N.O.S., 9, III (EXO-1,7,7-TRIMETHYLBICYCLO[2.2.1]HEPT-2-YL ACRYLATE, STABILIZER)
14.5 Environmental Hazard	Yes
14.6 Special Provisions Classification code	None M6

ADR

14.1 UN Number	UN3082
14.2 UN proper shipping name	OTHER REGULATED SUBSTANCES, LIQUID, N.O.S. , (Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate)
14.3 Transport hazard class(es) Labels	9 9
14.4 Packing group Description	III UN3082, OTHER REGULATED SUBSTANCES, LIQUID, N.O.S., 9, III (EXO-1,7,7-TRIMETHYLBICYCLO[2.2.1]HEPT-2-YL ACRYLATE, STABILIZER)
14.5 Environmental Hazard	Yes
14.6 Special Provisions	274, 335, 601, 375

Classification code M6
Tunnel restriction code (E)

IATA

14.1 UN Number UN3082
14.2 UN proper shipping name Other regulated substances, liquid, n.o.s. , (Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate)
14.3 Transport hazard class(es) 9
14.4 Packing group III
Description UN3082, Other regulated substances, liquid, n.o.s., 9, III
14.5 Environmental Hazard Yes
14.6 Special Provisions A197
ERG Code 9L



Section 15: REGULATORY INFORMATION

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

National regulations

Germany

Water hazard class (WGK) hazardous to water (WGK 2)

European Union

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work

Authorisations and/or restrictions on use:

This product does not contain substances subject to authorisation (Regulation (EC) No. 1907/2006 (REACH), Annex XIV) This product does not contain substances subject to restriction (Regulation (EC) No. 1907/2006 (REACH), Annex XVII)

Persistent Organic Pollutants

Not applicable

Dangerous substance category per Seveso Directive (2012/18/EU)

E1 - Hazardous to the Aquatic Environment in Category Acute 1 or Chronic 1

Ozone-depleting substances (ODS) regulation (EC) 1005/2009 Not applicable

15.2. Chemical safety assessment

Chemical Safety Report No information available

Section 16: OTHER INFORMATION

Key or legend to abbreviations and acronyms used in the safety data sheet

Full text of H-Statements referred to under section 3

H317 - May cause an allergic skin reaction
 H413 - May cause long lasting harmful effects to aquatic life
 H302 - Harmful if swallowed
 H318 - Causes serious eye damage
 H373 - May cause damage to organs through prolonged or repeated exposure if inhaled
 H319 - Causes serious eye irritation
 H411 - Toxic to aquatic life with long lasting effects
 H400 - Very toxic to aquatic life
 H410 - Very toxic to aquatic life with long lasting effects
 H335 - May cause respiratory irritation
 H228 - Flammable solid

Legend

SVHC: Substances of Very High Concern for Authorisation:

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA TWA (time-weighted average) STEL STEL (Short Term Exposure Limit)
 Ceiling Maximum limit value * Skin designation

Classification procedure	
Classification according to Regulation (EC) No. 1272/2008 [CLP]	Method Used
Acute oral toxicity	Calculation method
Acute dermal toxicity	Calculation method
Acute inhalation toxicity - gas	Calculation method
Acute inhalation toxicity - Vapor	Calculation method
Acute inhalation toxicity - dust/mist	Calculation method
Skin corrosion/irritation	Calculation method
Serious eye damage/eye irritation	Calculation method
Respiratory sensitisation	Calculation method
Mutagenicity	Calculation method
Carcinogenicity	Calculation method
Reproductive toxicity	Calculation method
Acute aquatic toxicity	Calculation method
Chronic aquatic toxicity	Calculation method
Aspiration toxicity	Calculation method

Revision Date 08-Nov-2017

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

Disclaimer

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End of Safety Data Sheet