

SAFETY DATA SHEET

Version 2

Based on Directive 2001/58/EC of the Commission of the European Communities

FULLCURE® 970 TANGOBBLACK

1. Identification of the substance/preparation and of the company/undertaking

1.1 Identification of the substance or preparation:

Synonyms: none
CAS No. : N.A.
EC index No. : N.A.
EINECS No. : N.A.
RTECS No. : N.A.
NFPA code : N.D.
Molecular weight : N.A.
Formula : N.A.

1.2 Use of the substance or the preparation:

Toner

1.3 Company/undertaking identification:

Objet Geometries Ltd - Europe
Leuvensesteenweg 388
B-1932 Sint-Stevens-Woluwe
Tel. : +32 2 717 65 02
Fax : +32 2 717 65 00
Email: info@2objet.com, www.2objet.com

1.4 Telephone number for emergency:

See 1.3

2. Composition/information on ingredients

Hazardous ingredients	CAS No. EINECS/ELINCS No.	Conc. in %	Hazard symbol	Risks (R-phrases)
Methacrylate, oligomer	Proprietary	<25	Xi	43 (1)
exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate	5888-33-5 227-561-6	<25	Xi	43 (1)
urethane acrylate oligomer	- -	<20	Xi	36/38 (1)
resin, polyurethane	- -	<25	Xi	36/37/38 (1)
acrylate oligomer	- -	<20	Xi	36/38 (1)
Photo initiator	Proprietary	<1	Xn;N	51/53-62 (1)

(1) For R-phrases in full: see heading 16

3. Hazards identification

- Classified dangerous in accordance with Directives 67/548/EEC and 1999/45/EC
- In normal conditions of use, the components cannot be released because of the form in which the article or preparation is placed on the market

Printing date : 09-2005
Compiled by : Objet Geometries Ltd

1/8

MSDS established : 23-08-2005
Reference number : Revision number
Reason for revision :
Revision date :
000

4. First aid measures

4.1 Eye contact:

- Consult a doctor/medical service if irritation persists
- Rinse immediately with plenty of water
- Do not apply neutralizing agents

4.2 Skin contact:

- Consult a doctor/medical service if irritation persists
- Wash immediately with lots of water
- Soap may be used

4.3 After inhalation:

- Consult a doctor/medical service if breathing problems develop
- Remove the victim into fresh air
- Unconscious: maintain adequate airway and respiration

4.4 After ingestion:

- Consult a doctor/medical service if you feel unwell
- Immediately give lots of water to drink
- Never give water to an unconscious person
- Do not induce vomiting

5. Fire-fighting measures

5.1 Suitable extinguishing media:

- Water spray
- AFFF foam
- BC powder
- Carbon dioxide

5.2 Unsuitable extinguishing media:

- No data available

5.3 Special exposure hazards:

- Combustible
- On burning: release of toxic and corrosive gases/vapours (nitrous vapours, carbon monoxide - carbon dioxide)

5.4 Instructions:

- If exposed to fire cool the closed containers by spraying with water
- Dilute toxic gases with water spray
- Take account of environmentally hazardous firefighting water

5.5 Special protective equipment for firefighters:

- Heat/fire exposure: compressed air/oxygen apparatus
- Protective clothing for exposure to chemicals

6. Accidental release measures

6.1 Personal protection/precautions:

See heading 8.2/8.3/13

6.2 Environmental precautions:

- Prevent soil and water pollution
- Prevent spreading in sewers
- Contain leaking substance
- Dam up the liquid spill

6.3 Methods for cleaning up:

- Take up liquid spill into absorbent material, e.g.: sand
- Scoop absorbed substance into closing containers
- Carefully collect the spill/leftovers
- Clean contaminated surfaces with an excess of water
- Wash clothing and equipment after handling

7. Handling and storage

7.1 Handling:

- Accidental release of the contents:
- Observe very strict hygiene - avoid contact
 - Do not discharge the waste into the drain
 - Remove contaminated clothing immediately
 - Clean contaminated clothing

7.2 Storage:

- Keep container tightly closed
- Store at room temperature
- Keep out of direct sunlight
- Store in a dry area
- Keep away from: heat sources

Storage temperature	: 15/25	°C
Quantity limits	: N.D.	kg
Storage life	: N.D.	days
Materials for packaging	:	
- suitable	: no data available	
- to avoid	: no data available	

7.3 Specific uses:

- Resin for use in Objet's family of Eden Rapid-Prototyping (RP) systems

8. Exposure controls/Personal protection

8.1 Exposure limit values:

TLV-TWA	: not listed
TLV-STEL	: not listed
TLV-Ceiling	: not listed
OES-LTEL	: not listed
OES-STEL	: not listed
MEL-LTEL	: not listed
MEL-STEL	: not listed
MAK	: not listed
TRK	: not listed
MAC-TGG 8 h	: not listed
MAC-TGG 15 min.	: not listed
MAC-Ceiling	: not listed
VME-8 h	: not listed
VLE-15 min.	: not listed
GWBB-8 h	: not listed
GWK-15 min.	: not listed
Momentary value	: not listed
EC	: not listed
EC-STEL	: not listed

Sampling methods:

- No data available

8.2 Exposure controls:

8.2.1 Occupational exposure controls:

- Accidental release of the contents:
- Work under local exhaust/ventilation

8.2.2 Environmental exposure controls: see heading 13

FULLCURE® 970 TANGOBBLACK

8.3 Personal protection:

8.3.1 respiratory protection:

- Not required for normal conditions of use

8.3.2 hand protection:

Accidental release of the contents: Gloves
Suitable materials: No data available

- Breakthrough time: N.D.

8.3.3 eye protection:

Accidental release of the contents: Face shield

8.3.4 skin protection:

Accidental release of the contents: Protective clothing
Suitable materials: No data available

9. Physical and chemical properties

9.1 General information:

Appearance (at 20°C) : Toner cartridge
Odour : The contents: mild odour
Colour : The contents: black

9.2 Important health, safety and environmental information:

pH value : N.D.
Boiling point/boiling range : N.D. °C
Flashpoint : > 100 °C
Explosion limits : N.D. vol% (°C)
Vapour pressure (at 20°C) : N.D. hPa
Vapour pressure (at 50°C) : N.D. hPa
Relative density (at 20°C) : N.D.
Water solubility : Insoluble in water
Soluble in : N.D.
Relative vapour density : N.D.
Viscosity : N.D. Pa.s
Partition coefficient n-octanol/water : N.D.
Evaporation rate : N.D.
ratio to butyl acetate : N.D.
ratio to ether : N.D.

9.3 Other information:

Melting point/melting range : N.D. °C
Auto-ignition point : N.D. °C
Saturation concentration : N.D. g/m³

10. Stability and reactivity

10.1 Conditions to avoid/reactivity:

- Unstable on exposure to heat
- Unstable on exposure to light

10.2 Materials to avoid:

- Keep away from: heat sources

10.3 Hazardous decomposition products:

- Polymerizes on exposure to light
- On burning: release of toxic and corrosive gases/vapours (nitrous vapours, carbon monoxide - carbon dioxide) and formation of small quantities of phosphorus oxides

11. Toxicological information**11.1 Acute toxicity:**

LD50 oral rat	: N.D.	mg/kg
LD50 dermal rat	: N.D.	mg/kg
LD50 dermal rabbit	: N.D.	mg/kg
LC50 inhalation rat	: N.D.	mg/l/4 h
LC50 inhalation rat	: N.D.	ppm/4 h

11.2 Chronic toxicity:

photo initiator

EC carc. cat. : not listed
EC muta. cat. : not listed
EC repr. cat. : 3

Carcinogenicity (TLV) : not listed
Carcinogenicity (MAC) : not listed
Carcinogenicity (VME) : not listed
Carcinogenicity (GWBB) : not listed

Carcinogenicity (MAK) : not listed
Mutagenicity (MAK) : not listed
Teratogenicity (MAK) : not listed

IARC classification : not listed

11.3 Routes of exposure:

- In normal conditions of use, the hazardous contents cannot be released

11.4 Acute effects/symptoms:

The following symptoms may appear when the components are released:

AFTER INHALATION

- Irritation of the respiratory tract
- Irritation of the nasal mucous membranes

AFTER SKIN CONTACT

- Tingling/irritation of the skin

AFTER EYE CONTACT

- Irritation of the eye tissue

11.5 Chronic effects:

- May produce an allergic reaction
- Contains traces of a (possible) fertility impairing subst. (photo initiator)

The following symptoms may appear when the components are released:

ON CONTINUOUS/REPEATED EXPOSURE/CONTACT:

- Skin rash/inflammation

12. Ecological information

12.1 Ecotoxicity:

- No data available

12.2 Mobility:

- Volatile organic compounds (VOC): N.D.%
- Insoluble in water

For other physicochemical properties see heading 9

12.3 Persistence and degradability:

- | | | | |
|-----------------------------------|---|---------------------|--------|
| - biodegradation BOD ₅ | : | N.D. | % ThOD |
| - water | : | - No data available | |
| - soil | : | T ½: N.D. | days |

12.4 Bioaccumulative potential:

- log P_{ow} : N.D.
- BCF : N.D.

12.5 Other adverse effects:

- WGK : N.A.
- Effect on the ozone layer : Not dangerous for the ozone layer (1999/45/EC)
- Greenhouse effect : no data available
- Effect on waste water purification : no data available

13. Disposal considerations

13.1 Provisions relating to waste:

- Waste material code (91/689/EEC, Council Decision 2001/118/EC, O.J. L47 of 16/2/2001): 08 03 17* (waste printing toner containing dangerous substances)
- Hazardous waste (91/689/EEC)

13.2 Disposal methods:

- Refer to manufacturer/supplier for information on recovery/recycling
- Remove to an authorized waste treatment plant

13.3 Packaging/Container:

- No available data

14. Transport information

- 14.1 Classification of the substance in compliance with UN Recommendations
 UN number : -
 CLASS :
 SUB RISKS :
 PACKING :
 PROPER SHIPPING NAME :
- 14.2 ADR (transport by road)
 CLASS : NOT SUBJECT
 PACKING :
 DANGER LABEL TANKS :
 DANGER LABEL PACKAGES :
- 14.3 RID (transport by rail)
 CLASS :
 PACKING :
 DANGER LABEL TANKS :
 DANGER LABEL PACKAGES :
- 14.4 ADNR (transport by inland waterways)
 CLASS : NOT SUBJECT
 PACKING :
 DANGER LABEL TANKS :
 DANGER LABEL PACKAGES :
- 14.5 IMDG (maritime transport)
 CLASS : NOT SUBJECT
 SUB RISKS :
 PACKING :
 MFAG :
 EMS :
 MARINE POLLUTANT :
- 14.6 ICAO (air transport)
 CLASS : NOT SUBJECT
 SUB RISKS :
 PACKING :
 PACKING INSTRUCTIONS PASSENGER AIRCRAFT :
 PACKING INSTRUCTIONS CARGO AIRCRAFT :
- 14.7 Special precautions in connection with transport : not restricted for any mode of international transport

15. Regulatory information

Classified dangerous in accordance with Directives 67/548/EEC and 1999/45/EC
 In normal conditions of use, the components cannot be released because of the form in which the article or preparation is placed on the market

contains: exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate; methacrylate, oligomer. May produce an allergic reaction.

16. Other information

The information provided on this MSDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

N.A. = NOT APPLICABLE
N.D. = NOT DETERMINED
(*) = INTERNAL CLASSIFICATION (NFPA)

Exposure limits:

TLV : Threshold Limit Value - ACGIH USA 2004
OES : Occupational Exposure Standards - United Kingdom 2003
MEL : Maximum Exposure Limits - United Kingdom 2003
MAK : Maximale Arbeitsplatzkonzentrationen - Germany 2002
TRK : Technische Richtkonzentrationen - Germany 2002
MAC : Maximale aanvaarde concentratie - The Netherlands 2004
VME : Valeurs limites de Moyenne d'Exposition - France 1999
VLE : Valeurs limites d'Exposition à court terme - France 1999
GWBB : Grenswaarde beroepsmatige blootstelling - Belgium 2002
GWK : Grenswaarde kortstondige blootstelling - Belgium 2002
EC : Indicative occupational exposure limit values - directive 2000/39/EC

I : Inhalable fraction = **T**: Total dust = **E**: Einatembarer Aerosolanteil
R : Respirable fraction = **A**: Alveolengängiger Aerosolanteil/Alveolar dust
C : Ceiling limit

Chronic toxicity:

K : List of the carcinogenic substances and processes - The Netherlands 2005

Full text of any R-phrases referred to under heading 2:

R36/37/38 : Irritating to eyes, respiratory system and skin
R36/38 : Irritating to eyes and skin
R43 : May cause sensitisation by skin contact
R51/53 : Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
R62 : Possible risk of impaired fertility