

SAFETY DATA SHEET

LaserForm CoCrF75 (A)

1. Product and company identification

- Product name** : LaserForm CoCrF75 (A)
- Supplier's details** : 3D Systems, Inc.
333 Three D Systems Circle
Rock Hill, South Carolina, USA
- Phone: +1 803 326 3900 or
Toll-free Phone: +1 800 793 3669
- 3D Systems Japan K.K.
Ebisu Garden Place Tower 27F
4-20-3, Ebisu, Shibuya-ku,
Tokyo 50-6027, Japan
- Phone No. +81-3-5798-2500
- e-mail address of person responsible for this SDS** : moreinfo@3dsystems.com
- Emergency telephone number (with hours of operation)** : +81 345 209 637 (Chemtrec)
- Product use** : For use with 3D Systems' Direct Metal Printing equipment.

2. Hazards identification

- GHS Classification** : ACUTE TOXICITY (oral) - Category 4
ACUTE TOXICITY (inhalation) - Category 4
EYE IRRITATION - Category 2A
RESPIRATORY SENSITIZATION - Category 1
SKIN SENSITIZATION - Category 1
GERM CELL MUTAGENICITY - Category 2
CARCINOGENICITY - Category 1B
TOXIC TO REPRODUCTION - Category 1B
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1
HAZARDOUS TO THE AQUATIC ENVIRONMENT - ACUTE HAZARD - Category 1
HAZARDOUS TO THE AQUATIC ENVIRONMENT - CHRONIC HAZARD - Category 1

GHS label elements

Hazard pictograms :**Signal word** : Danger

2. Hazards identification

Hazard statements : Harmful if swallowed or if inhaled.
 May cause an allergic skin reaction.
 Causes serious eye irritation.
 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
 May cause respiratory irritation.
 Suspected of causing genetic defects.
 May cause cancer.
 May damage fertility or the unborn child.
 Causes damage to organs through prolonged or repeated exposure. (cardiovascular system, haematopoietic system, respiratory system, thyroid)
 Very toxic to aquatic life with long lasting effects.

Precautionary statements

General : Not applicable.

Prevention : P201 - Obtain special instructions before use.
 P202 - Do not handle until all safety precautions have been read and understood.
 P280 - Wear protective gloves, protective clothing and eye or face protection.
 P284 - Wear respiratory protection.
 P271 - Use only outdoors or in a well-ventilated area.
 P273 - Avoid release to the environment.
 P260 - Do not breathe dust.
 P270 - Do not eat, drink or smoke when using this product.
 P264 - Wash hands thoroughly after handling.
 P272 - Contaminated work clothing should not be allowed out of the workplace.

Response : P391 - Collect spillage.
 P308 + P313 - IF exposed or concerned: Get medical advice or attention.
 P304 + P340 + P312 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor if you feel unwell.
 P342 + P311 - If experiencing respiratory symptoms: Call a POISON CENTER or doctor.
 P301 + P312 + P330 - IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell. Rinse mouth.
 P362 + P364 - Take off contaminated clothing and wash it before reuse.
 P302 + P352 - IF ON SKIN: Wash with plenty of water.
 P333 + P313 - If skin irritation or rash occurs: Get medical advice or attention.
 P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P337 + P313 - If eye irritation persists: Get medical advice or attention.

Storage : P405 - Store locked up.
 P403 + P233 - Store in a well-ventilated place. Keep container tightly closed.

Disposal : P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

Supplemental label elements : None known.

Other hazards which do not result in classification : May form explosible dust-air mixture if dispersed.

3. Composition/information on ingredients

Substance/mixture : Mixture

3. Composition/information on ingredients

Ingredient name	%	CAS number	Official Gazette notice reference number	
			CSCL	ISHL
Cobalt	≥50 - ≤75	7440-48-4	Not available.	Not available.
Chromium	≥25 - ≤50	7440-47-3	Not available.	Not available.
Molybdenum	≤10	7439-98-7	Not available.	Not available.
Manganese	≤1	7439-96-5	Not available.	Not available.
Silicon powder, amorphous shape	≤1	7440-21-3	Not available.	Not available.
Nickel	<0.1	7440-02-0	Not available.	Not available.
Aluminium	<0.1	7429-90-5	Not available.	Not available.

4. First aid measures

- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In the event of any complaints or symptoms, avoid further exposure.
- Skin contact** : Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
- Ingestion** : Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. If necessary, call a poison center or physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

- Inhalation** : Harmful if inhaled. May cause respiratory irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- Skin contact** : May cause an allergic skin reaction.
- Eye contact** : Causes serious eye irritation.
- Ingestion** : Harmful if swallowed.

Over-exposure signs/symptoms

- Inhalation** : Adverse symptoms may include the following:
 respiratory tract irritation
 coughing
 wheezing and breathing difficulties
 asthma
 reduced fetal weight
 increase in fetal deaths
 skeletal malformations

4. First aid measures

- Skin contact** : Adverse symptoms may include the following:
irritation
redness
reduced fetal weight
increase in fetal deaths
skeletal malformations
- Eye contact** : Adverse symptoms may include the following:
pain or irritation
watering
redness
- Ingestion** : Adverse symptoms may include the following:
reduced fetal weight
increase in fetal deaths
skeletal malformations
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.
- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

5. Fire-fighting measures

- Suitable extinguishing media** : Use approved Class D extinguisher or smother with dry sand, dry clay or dry ground limestone. Use an extinguishing agent suitable for the surrounding fire.
- Unsuitable extinguishing media** : CO₂, water, ABC powder and foam.
- Specific hazards arising from the chemical** : This material is very toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing dust. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

6. Accidental release measures

Methods and materials for containment and cleaning up

- Small spill** : Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Avoid dust generation. Do not dry sweep. Use only vacuum cleaners equipped with a wet separator system and a grounding cable (ATEX, Hazardous locations certified / Suitable for use with Group E (IIIC) Conductive Dusts / Suitable for use in Class 2, Division II (Zone 22) locations or better). Place spilled material in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Avoid dust generation. Do not dry sweep. Use only vacuum cleaners equipped with a wet separator system and a grounding cable (ATEX, Hazardous locations certified / Suitable for use with Group E (IIIC) Conductive Dusts / Suitable for use in Class 2, Division II (Zone 22) locations or better). Avoid creating dusty conditions and prevent wind dispersal. Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

7. Handling and storage

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems or asthma, allergies or chronic or recurrent respiratory disease should not be employed in any process in which this product is used. Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe dust. Do not ingest. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Storage

- Conditions for safe storage** : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

8. Exposure controls/personal protection

- Appropriate engineering controls** : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Occupational exposure limits

8. Exposure controls/personal protection

Ingredient name	Exposure limits
cobalt	Japan Society for Occupational Health (Japan, 5/2020). Skin sensitizer. Inhalation sensitizer. OEL-M: 0.05 mg/m ³ , (as Co) 8 hours. ISHL (Japan, 6/2020). TWA: 0.02 mg/m ³ , (as Cobalt) 8 hours.
Chromium	Japan Society for Occupational Health (Japan, 5/2020). Skin sensitizer. Inhalation sensitizer. OEL-M: 0.5 mg/m ³ 8 hours.
Manganese	Japan Society for Occupational Health (Japan, 5/2020). OEL-M: 0.2 mg/m ³ , (measured as Mn) 8 hours. ISHL (Japan, 6/2020). TWA: 0.05 mg/m ³ , (as manganese) 8 hours.
Nickel	Japan Society for Occupational Health (Japan, 5/2020). Skin sensitizer. Inhalation sensitizer. OEL-M: 1 mg/m ³ 8 hours.

Individual protection measures

Respiratory protection

: Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Hand protection

: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Eye protection

: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles. If operating conditions cause high dust concentrations to be produced, use dust goggles.

Skin protection

: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
 For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.

Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

9. Physical and chemical properties

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

Appearance

Physical state	: Solid. [Powder. particle size: 100% <100 µm]
Color	: Dark grey.
Odor	: Odorless.
pH	: Not applicable.
Melting point/freezing point	: 1315 to 1540°C (2399 to 2804°F)
Softening point	: Not available.
Boiling point, initial boiling point, and boiling range	: Not available.
Flash point	: Not applicable.
Flammability	: Non-flammable.
Lower and upper explosion limit/flammability limit	: <input checked="" type="checkbox"/> Not applicable.
Vapor pressure	: Not available.
Vapor density	: <input checked="" type="checkbox"/> Not applicable.
Relative vapor density	: <input checked="" type="checkbox"/> Not applicable.
Relative density	: Not available.
Density	: 8.4 g/cm ³
Solubility	: Not available.
Solubility in water	: Insoluble.
Partition coefficient: n-octanol/water	: Not applicable.
Auto-ignition temperature	: Not self-ignitable.
Decomposition temperature	: Not applicable.
Viscosity	: Not applicable.
Explosive properties	: May form explosive dust-air mixture if dispersed.
Particle characteristics	
Median particle size	: <input checked="" type="checkbox"/> Not available.

10. Stability and reactivity

Reactivity	: Under normal conditions of storage and use, hazardous reactions will not occur.
Chemical stability	: The product is stable.
Possibility of hazardous reactions	: May form explosive dust-air mixture if dispersed.
Conditions to avoid	: Keep away from heat, sparks and flame. Avoid dust generation. Avoid static electrical charge.
Incompatible materials	: Reactive or incompatible with the following materials: alkalis, acids, oxidizing materials, halogenated hydrocarbons, combustible materials.
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11. Toxicological information

Acute toxicity

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (mg/l)	Inhalation (dusts and mists) (mg/l)
LaserForm CoCrF75 (A)	533.3	N/A	N/A	N/A	1.8
cobalt	500	N/A	N/A	N/A	1.5

Conclusion/Summary : Harmful if swallowed or if inhaled.

Irritation/Corrosion

Conclusion/Summary

Eyes : Causes serious eye irritation.

Respiratory : May cause respiratory irritation.

Respiratory sensitization/Skin sensitization

Conclusion/Summary

Skin : May cause an allergic skin reaction.

Respiratory : May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Germ Cell Mutagenicity

Conclusion/Summary : Suspected of causing genetic defects.

Carcinogenicity

Product/ingredient name	Result	Species	Dose	Exposure
nickel powder	Positive - Inhalation	Rat - Male, Female	0.4 mg/m ³ NOAEL	24 months; 6 hours per day

Conclusion/Summary : May cause cancer.

Reproductive toxicity

Conclusion/Summary : May damage fertility.

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
cobalt	Category 3	-	Respiratory tract irritation
chromium	Category 3	-	Respiratory tract irritation
molybdenum	Category 3	-	Respiratory tract irritation
manganese	Category 1	-	respiratory system
nickel powder	Category 1	-	kidneys, respiratory system

Specific target organ toxicity (repeated exposure)

11. Toxicological information

Name	Category	Route of exposure	Target organs
cobalt	Category 1	-	cardiovascular system, haematopoietic system, respiratory system, thyroid
manganese	Category 1	-	nervous system, respiratory system
nickel powder	Category 1	-	respiratory system

Aspiration hazard

Not available.

12. Ecological information

Ecotoxicity

Conclusion/Summary : Very toxic to aquatic life with long lasting effects.

Persistence/degradability

Conclusion/Summary : The methods for determining the biological degradability are not applicable to inorganic substances.

Bioaccumulative potential

Not available.

Mobility in soil

: Not available.

Hazardous to the ozone layer

: Not applicable.

Other adverse effects







: No known significant effects or critical hazards.

13. Disposal considerations

Disposal methods

: The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

14. Transport information

	UN	IMDG	IATA
UN number	UN3077	<input checked="" type="checkbox"/> UN3077	<input checked="" type="checkbox"/> UN3077
UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (cobalt)	<input checked="" type="checkbox"/> ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (cobalt)	<input checked="" type="checkbox"/> Environmentally hazardous substance, solid, n.o.s. (cobalt)
Transport hazard class(es)	9	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Label	 	 	 
Packing group	III	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Environmental hazards	Yes.	Marine Pollutant: Yes	<input checked="" type="checkbox"/> Yes.

Additional information

- UN** : This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8.
Special provisions 274, 331, 335, 375
- IMDG** : This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8.
Emergency schedules F-A, S-F
Special provisions 274, 335, 966, 967, 969
- IATA** : This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 5.0.2.4.1, 5.0.2.6.1.1 and 5.0.2.8.
Quantity limitation Passenger and Cargo Aircraft: 400 kg. Packaging instructions: 956. Cargo Aircraft Only: 400 kg. Packaging instructions: 956. Limited Quantities - Passenger Aircraft: 30 kg. Packaging instructions: Y956.
Special provisions A97, A158, A179, A197, A215

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to IMO instruments : Not applicable.

15. Regulatory information

Fire Service Law

Category	Substance name/Type	Danger category	Signal word	Designated quantity
non-hazardous substances	Material that contains: Metal powder.	Not available.	Not available.	Not available.

ISHL

Ordinance on the prevention of the hazard due to specified chemical substances

15. Regulatory information

Ingredient name	%	Status	Reference number
Cobalt and its inorganic compounds	≥60 - ≤70	Group-2 Substances under Supervision	13-2

Substances requiring labelling

Ingredient name	%	Status	Reference number
Cobalt and its compounds	≥60 - ≤70	Listed	172
Chromium and its compounds	≥30 - ≤40	Listed	142
Molybdenum and its compounds	≤10	Listed	603

Chemicals requiring notification

Ingredient name	%	Status	Reference number
Cobalt and its compounds	≥60 - ≤70	Listed	172
Chromium and its compounds	≥30 - ≤40	Listed	142
Molybdenum and its compounds	≤10	Listed	603
Manganese and its inorganic compounds	≤10	Listed	550

Guideline for Preventing Health Hazard by chemical substances (Carcinogenicity)

None of the components are listed.

Mutagen

None of the components are listed.

Dangerous Substances : Combustible

Chemical Substances Control Law (CSCL)

None of the components are listed.

Poisonous and Deleterious Substances

None of the components are listed.

Pollutant Release and Transfer Registers (PRTR)

Ingredient name	%	Status	Reference number
Cobalt and its compounds	≥50 - ≤75	Class 1	132
Chromium and chromium(III) compounds	≥25 - ≤50	Class 1	87
Molybdenum and its compounds	≤10	Class 1	453

JSOH Carcinogen : Group 1

High Pressure Gas Control Law : Not applicable.

Law concerning prevention of pollution of the ocean : Marine pollutant: P

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

15. Regulatory information

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia	: All components are listed or exempted.
Canada	: All components are listed or exempted.
China	: All components are listed or exempted.
Europe	: All components are listed or exempted.
New Zealand	: All components are listed or exempted.
Philippines	: All components are listed or exempted.
Republic of Korea	: All components are listed or exempted.
Taiwan	: All components are listed or exempted.
Thailand	: <input checked="" type="checkbox"/> All components are listed or exempted.
United States	: All components are active or exempted.
Viet Nam	: All components are listed or exempted.

16. Other information

History

Date of printing : 09/12/2021

Date of issue/Date of revision : 09/12/2021

Date of previous issue : 04/08/2021

Version : 2.1

Key to abbreviations

ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
N/A = Not available
SGG = Segregation Group
UN = United Nations

Procedure used to derive the classification

Classification	Justification
ACUTE TOXICITY (oral) - Category 4	Calculation method
ACUTE TOXICITY (inhalation) - Category 4	Calculation method
EYE IRRITATION - Category 2A	Calculation method
RESPIRATORY SENSITIZATION - Category 1	Calculation method
SKIN SENSITIZATION - Category 1	Calculation method
GERM CELL MUTAGENICITY - Category 2	Calculation method
CARCINOGENICITY - Category 1B	Calculation method
TOXIC TO REPRODUCTION - Category 1B	Calculation method
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3	Calculation method

16. Other information

SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1 HAZARDOUS TO THE AQUATIC ENVIRONMENT - ACUTE HAZARD - Category 1 HAZARDOUS TO THE AQUATIC ENVIRONMENT - CHRONIC HAZARD - Category 1	Calculation method Calculation method Calculation method
--	--

References : Not available.

✔ Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

DISCLAIMER OF LIABILITY: The following supersedes any related provision in your company's forms, letters, and agreements from, by or with 3D Systems Corporation. **3D SYSTEMS, INC. MAKES NO WARRANTY WHETHER EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE FOR THIS PRODUCT.** No statements or recommendations contained in the product literature are to be construed as inducements to infringe any relevant patent now or hereafter in existence. Under no circumstances shall 3D Systems, Inc. be liable for incidental, consequential, or other damages from alleged negligence, breach of warranty, strict liability or any other theory, arising out of the use or handling of this product. The sole liability of 3D Systems, Inc. for any claims arising out of the manufacture, use or sale of its products shall be for the buyer's purchase price.

The contents of this safety data sheet are subject to change without notice. 3D Systems, Inc. recommends that you periodically check www.3dsystems.com to make sure you are using the most current safety data sheet.

© Copyright 2020 by 3D Systems, Inc. All rights reserved. The 3D logo, LaserForm and ProX are registered trademarks of 3D Systems, Inc.