Material Safety Data Sheet

SOMOS® Nanoform 15120 Gray

DSM

1. Chemical Product and Company Identification

Trade name : SOMOS®
Chemical Family : Epoxy , Acrylate(s)
CAS Number : Ingredients not precisely identified are proprietary.

Manufacturer : DSM Desotech Inc.
1122 St. Charles Street
Elgin IL 60120
Tel: 847-697-0400

Emergency telephone number

DSM Desotech : (847)697-0401 (During normal business hours)
CHEMTREC (within the U.S.A.) : (800)424-9300 (24 hour)
CHEMTREC (International) : (01)(703)527-3887 [USA] (24 hour)

Hazardous Material Information System (U.S.A.)

Health	*	3
Fire Hazard		1
Reactivity		1
Personal Protection		XH

The PPE (Personal Protection Equipment) designation in the HMIS is provided for use by employees at DSM Desotech sites only. Other users of this product are encouraged to evaluate the hazards of the product and assign PPE that is applicable to their specific situations.

2. Composition/Information on Ingredients

Name	CAS #	% by Weight
Epoxy(s)		30-70
Amorphous nanosilica	7631-86-9	30
Acrylate(s)		1-30
Photoinitiator(s)		1-10
Additive(s)		0.01-5
Antimony Compounds	7440-36-0	<1.5

3. Hazards Identification

Physical State and Appearance : Liquid. (Viscous liquid.)

Potential Acute Health Effects

Routes of Entry : Skin, eyes and respiratory tract

- **Skin Contact** : Avoid prolonged or repeated contact with skin. MAY CAUSE SEVERE SKIN IRRITATION. May cause skin sensitization. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.
- **Eye Contact** : May cause eye irritation. Inflammation of the eye is characterized by redness, watering, and itching.
- **Inhalation** : May cause irritation of respiratory tract, coughing, shortness of breath. Vapors and aerosol can produce mucous membrane, nose and throat irritation.
- **Ingestion** : May cause mild gastric irritation, abdonimal spasms, nausea and faintness.

See Toxicological Information (section 11)

4. First-Aid Measures

- **Skin Contact** : After contact with skin, wash immediately with plenty of water. Wash gently and thoroughly the contaminated skin with running water and non-abrasive soap.
- **Eye Contact** : Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.
- **Inhalation** : Remove victim from area of exposure if possible. Allow the victim to rest in a well-ventilated area. Seek immediate medical attention.

- **Ingestion** : Do not induce vomiting unless directed by a physician. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband. If vomiting occurs, keep head lower than hips to help prevent aspiration.

5. Fire Fighting Measures

Flammability : Flammable in presence of open flames and sparks

Flash Points : CLOSED CUP: Higher than 93.3°C (200°F).(Pensky-Martens.)

Extinguishing Media : SMALL FIRE: Use DRY chemical powder.
LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

Special fire-fighting procedures : Fire fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.

Unusual fire/explosion hazards : In case of fire toxic fumes might be formed. In case of fire and/or explosion do not breathe fumes. Containers may rupture from pressure build-up.

Hazardous thermal (de)composition products : POSSIBLE Products of Combustion: carbon oxides (CO, CO2) sulfur oxides (SO2, SO3...) silicon oxides (Si02) antimony oxides Aldehyde. Acid.

Protection of fire-fighters : Be sure to use an approved/certified respirator or equivalent.

Auto-ignition Temperature : Not determined.

Lower explosion limit : Not determined.

6. Accidental Release Measures

Small spill and leak : Wear appropriate protective clothing to prevent skin contact. Wear appropriate respirator when ventilation is inadequate. Avoid breathing vapors of this product. Avoid contact with skin and eyes. Avoid all possible sources of ignition (spark or flame). Keep unnecessary people away from spill area. Clean up spills immediately. Absorb with liquid-binding material (sand, diatomite, universal binders, or spill kit). Place in suitable clean, dry containers for disposal by approved methods.

Large spill and leak : Do not clean-up or dispose except under supervision of a specialist. Eliminate all ignition sources. For large spills dike spilled material or otherwise contain material to ensure runoff does not reach a waterway. Keep unnecessary people away from spill area. Follow company spill response procedures. Clean up spills immediately. Wear protective eyeglasses or chemical safety goggles and face protection. Contact lenses are not protection devices. Appropriate eye protection must be worn instead of, or in conjuction with contact lenses. Wear MSHA/NIOSH approved self-contained breathing apparatus or equivalent and full protective gear. Wear appropriate protective clothing to prevent skin contact. Place spilled material in an appropriate container for disposal. Dispose of according to all federal, state and local applicable regulations.

7. Handling and Storage

Handling : Open containers and handle under yellow light only. Keep away from heat. Keep away from sources of ignition. Eating, drinking and smoking should be prohibited in area where this material is handled, stored and processed. Keep away from incompatibles such as oxidizing agents. May react or be incompatible with acids. Do not breathe gas/fumes/vapor/spray. Use only with adequate ventilation. Avoid contact with eyes, skin and clothing. Wear appropriate protective clothing to prevent skin contact. After handling, always wash hands thoroughly with soap and water. Avoid contact with spilled materials and runoff with soil and surface waterways.

Storage : Keep container tightly closed in a cool, well-ventilated place. Store between 15-30ºC. Keep away from sources of ignition. Empty containers retain product residue and can be hazardous.

8. Exposure Controls/Personal Protection

Occupational Exposure Limits

Amorphous nanosilica	**OSHA PEL (United States).** TWA: 5 mg/m^3 Form: Respirable **OSHA PEL (United States).** TWA: 6 mg/m^3 Form: Total **ACGIH TLV (United States).** TWA: 10 mg/m^3 Form: Total
Multifunctional acrylate	**AIHA WEEL (United States, 2001). Skin** TWA: 1 mg/m^3
Antimony Compounds	**ACGIH TLV (United States, 2001).** TWA: 0.5 mg/m^3 **NIOSH REL (United States, 2001). Notes: Note: The REL and PEL also apply to other Antimony compounds (as Sb).** TWA: 0.5 mg/m^3 Period: 10 hour(s). **OSHA PEL 1989 (United States, 1989).** TWA: 0.5 mg/m^3

Based upon the physical state in which the filler is supplied and the manner in which the filler is handled, airborne exposure to the filler is considered unlikely to occur.

Engineering Controls : Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection

Ventilation : Good general ventilation should be sufficient to control airborne levels.

Respiratory system : Wear appropriate respirator when ventilation is inadequate.

Skin Contact : Use chemical resistant, impervious gloves. (Nitrile.) Work uniform or laboratory coat.

Eyes : Safety glasses with side shields or chemical splash goggles.

Other information : Wear nitrile or other chemical resistant gloves to avoid skin contact when handling partially cured fabricated objects in the "green" state of cure (after initial laser cure). The fabricated objects may be handled without gloves after the object has been thoroughly washed with solvent (ex. triproylene glycol monomethyl ether, isopropyl alcohol) followed by post exposure to UV light and/or an oven bake at temperatures aboves 130°C. When sanding fully cured surfaces, suitable respirator protection for dust should be used. Good general ventilation is required when tooling or sanding to avoid inhalation of particulate matter or airborne particles. Avoid sanding or finishing parts that are not fully cured, as uncured material may cause skin sensitization an respiratory irritation.

9. Physical and Chemical Properties

Physical State and Appearance : Liquid. (Viscous liquid.)

Color : Grey.

Odor : Characteristic.

Boiling Point : Not determined.

Vapor Density : >1 (Air = 1)

Evaporation rate (butyl acetate = 1) : <1 compared to Butyl acetate.

Specific Gravity : 1.32 (Water = 1)

10. Stability and Reactivity

Stability : The product is stable.

Hazardous Polymerization : Not likely under normal conditions.

Incompatibility, Conditions to avoid, Materials to avoid : Keep away from direct sunlight or strong incandescent light. Keep away from heat. Incompatible with peroxides, oxidizing agents.

Hazardous Decomposition Products : Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

11. Toxicological Information

Routes of Entry

Skin, eyes and respiratory tract.

Toxicological Information

Acute oral toxicity (LD50): 1200 mg/kg [Rat]. (Epoxy)
Acute dermal toxicity (LD50): 1100 mg/kg [Rabbit]. (Epoxy)
Acute toxicity of the vapor (LC50): >13100 mg/m^3 4 hour(s) [Rat]. (Epoxy).

Remarks: Any information in this section is for component(s) contained in this product.

Epoxy: Chronic health effects information:
In the Ames salmonella assay, the component was found to be mutagenic in several strains. Positive responses in several strains occurred with and without activation. In vivo and in vitro genetic toxicity studies have been positive, however a skin painting study in mice provided no evidence of carcinogenicity.
Multifunctional acrylate Chronic Health Effects Information:
This component has been reported to be mutagenic in the mouse lymphoma (in vitro) assay, but negative in the Ames test. A dermal carcinogenicity study was also negative.

WEEL = 1mg/m3, skin 8 hours
Photoinitiator: This material was mutagenic in the Ames bacterial assay. It is inactive, however, in the in vivo mouse micronucleus test.

Chronic effects on humans

CARCINOGENIC EFFECTS: Classified None. by IARC, None. by NTP, None. by OSHA [SOMOS® Nanoform 15120 Gray].

Remarks: Any information contained in this section is for component(s) contained in this product.

Not available.

Acute effects on humans May cause respiratrory tract irritation. Skin or eye contact may cause severe burns, irritation and damage.

Remarks: Any information in this section is for component(s) contained in this product.

Not available.

12. Ecological Information

Not available.

13. Disposal Considerations

Waste Disposal : This material and its container must be disposed of in a safe and environmentally responsible way. Waste must be disposed of in accordance with federal state and local environmental control regulations. Do not allow product to reach sewage system /surface or ground water.

14. Transport Information

Not available.

15. Regulatory Information

Federal and State Regulations

U.S. Federal Regulations : All the ingredients are on the TSCA list.

SARA 313 toxic chemical notification and release reporting: Antimony Compounds <1.5%

State Regulations : California prop. 65

This product contains or may contain trace quantities of a substance(s) known to the state of California to cause cancer, birth defects or other reproductive harm.

Pennsylvania RTK , Massachusetts RTK , New Jersey RTK

Pennsylvania RTK:: (generic environmental hazard); Antimony Compounds: (environmental hazard, generic environmental hazard); Amorphous Silica (generic environmental hazard)
Massachusetts RTK:; Antimony Compounds; Amorphous Silica
New Jersey: Antimony Compounds; Amorphous Silica

See section 2 for additional composition information

16. Other Information

Other Special Considerations : Not available.

MSDS# : 015490

Date of issue : **3/3/2008.**

Notice to Reader

To the best of our knowledge, the information contained herein is accurate. However, neither DSM Desotech nor any of its affiliates assumes any liability whatsoever for the accuracy or completeness of the information contained herein. While this information has been prepared in good faith by technical experts within the Desotech organization, the final determination of suitability of any material is the sole responsibility of the end user, after proper consultation with the end users' engineering, technical, health and safety professionals. All materials may present unknown hazards and should be used with caution considering the specific material, other materials that it may or may not be combined with, and any engineering controls and/or process implementation(s) designed for the use of the material in any specific system process. Although certain hazards are described within, these cannot be guaranteed as the only hazards that exist. This Material Safety Data Sheet (MSDS) has been prepared in accordance with the requirements of the OSHA Hazard Communication Standard (29 CFR 1910.1200).