



NANOSAN®-Flex MSDS

Material Safety Data Sheet

1. Product and Company Identification

Product Identity/ Trade Name: Polyurethane nanofibers / NANOSAN®-Flex

Product Use: Multiple; specific intended uses will be cleared by the applicable regulatory agency

Manufacturer: SNS Nano Fiber Technology LLC
5633 Hudson Industrial Parkway, Hudson, OH 44236

Internet: www.snsnano.com

Information phone: 330-655-0030

MSDS Date of Preparation: August 2008, Revised March 2011

2. Composition/ Information on Ingredients

This material has no known hazards under applicable laws.

3. Hazards Identification [EMERGENCY OVERVIEW]

This material has no known health hazards.

See Section 11 for complete health hazard information

4. First Aid Measures

EYE CONTACT

Treat as any foreign particulate matter. If hot melted material should splash into the eyes, flush eyes immediately with water for 15 minutes while holding the eyelids open. See a physician for treatment. Wash with soap and water. Get medical attention if irritation develops. Launder contaminated clothing before reuse. For contact with molten product, do not remove contaminated clothing. Flush skin immediately with large amounts of cold water. If possible submerge area in cold water. Pack with ice. DO NOT attempt to peel polymer from skin. Seek medical attention immediately.

SKIN CONTACT

INHALATION

Remove exposed person to fresh air if adverse effects are observed.

INGESTION

DO NOT INDUCE VOMITING. Get immediate medical attention.

ADDITIONAL INFORMATION

Note to physician: Treat symptomatically.

5. Fire Fighting Measures

FLASH POINT

Not Available

EXTINGUISHING MEDIA

Water spray, dry chemical, foam. CO₂ may be ineffective on large fires.

SPECIFIC HAZARDS WITH REGARD TO FIRE-
FIGHTING MEASURE/PROTECTION
UNUSUAL FIRE/EXPLOSION HAZARDS

Recommend wearing self-contained breathing apparatus. Water may cause splattering. Solid does not readily release flammable vapors. Thermoplastic polymers can burn. Protect product from flames; maintain proper clearance when using heat devices, etc. Irritating or toxic substances will be emitted upon burning, combustion or decomposition. Large masses of molten polymer held at elevated temperatures for extended periods of time may auto-ignite

6. Accidental Release Measures

Spill procedures	Pick up free solid for recycle and/or disposal.
Clean-up techniques	Sweep up carefully and place into container for reuse or disposal. Do not sweep or flush product into sewers or waterways.

7. Handling and Storage

Pumping Temperature	Not applicable.
Maximum Handling Temperature	Not determined .
Handling Procedures	Loading and unloading operations may cause nuisance dust to form. Conduct any operations emitting fumes or vapors (including clean up) under well-ventilated conditions. Avoid breathing process vapors. Do not hold product for extended periods of time at elevated decompose emitting hazardous gasses. Do not taste, swallow, or chew products. Wash thoroughly after processing. Do not store or consume food in processing areas. Fume condensates may include hazardous contaminants from additives. Condensate may be combustible and should be periodically removed from exhaust hoods, ductwork, and other surfaces. Impervious gloves should be worn during cleanup operations to prevent skin contact. Post thermal processing activities necessary to produce molded articles (such as cutting, sanding, sawing, grinding, drilling, or regrinding) may create dust or "fines." Powders, dust, and/or fines may pose a dust explosion hazard. Electrostatic buildup may occur when pouring or transferring this product from its container. The spark produced may be sufficient to ignite vapors of flammable liquids. Always transfer product by means which avoid static buildup. Avoid pouring product directly from its container into combustible or flammable solvent. The major off-gasses from normal melt processing are expected to be water vapor and carbon dioxide. Other trace volatile organic components may also be emitted. Wash thoroughly after handling.
Maximum Storage Temperature	Not determined.
Storage Procedures	Use good housekeeping measures to prevent dust accumulations. Store in well ventilated place.
Loading temperature	Not determined.

8. Exposure Controls/Personal Protection

Exposure Limits	None established
Other Exposure Limits	None known.
Engineering Controls	Use with adequate ventilation.
Gloves Procedures	Use good industrial hygiene practices to avoid skin contact. If contact with the material may occur wear chemically protective gloves.
Eye Protection	Safety Glasses.
Respiratory Protection	Under normal use conditions, respirator is not usually required. Use appropriate NIOSH/MSHA respiratory protection if the recommended exposure limit is exceeded, or if exposure to vapors is likely. Cutting operations may create small particles from this product. If inhalation of particulates cannot be avoided, wear a dust respirator. A respiratory protection program compliant with all applicable regulations must be followed whenever workplace conditions require the use of a respirator.
Clothing Recommendation	Long sleeve shirt is recommended.

9. Physical and Chemical Properties

Flash Point	Not applicable.	Volatile Organic Compound	Not determined.
Upper Flammable Limit	Not determined.	Vapor Density	Not determined.
Lower Flammable Limit	Not determined.	Evaporation Rate	Not determined.
Autoignition Point	Not determined.	Odor	Slight
Explosion Data	Material does not have explosive properties.	Appearance	White
Vapor Pressure	Not determined.	Viscosity	Not determined.
pH	Not determined.	Odor Threshold	Not determined.
Specific Gravity	Not determined.	Boiling Point	Not determined.
Bulk Density	1.05 (20 °C)	Pour Point Temperature	Not determined.
Water Solubility	Not determined.	Melting / Freezing Point	Not determined.
Percent Solid	Insoluble.		
Percent Volatile	Not determined.		

*The above data are typical values and do not constitute a specification.
Vapor pressure data are calculated unless otherwise noted.*

10. Stability and Reactivity

STABILITY	This product is stable at moderately elevated temperatures and pressures
-----------	--

DECOMPOSITION TEMPERATURE	Not determined.
INCOMPATIBILITY	None known, avoid contact with reactive chemicals.
POLIMERIZATION	Will not occur.
THERMAL DECOMPOSITION	Smoke, carbon monoxide, carbon dioxide, aldehydes and other products of incomplete combustion.
CONDITIONS TO AVOID	Not determined.

11. Toxicological Information

-- ACUTE EXPOSURE --

EYE IRRITATION	Not expected to cause eye irritation. Based on data from components or similar materials. Particulates may cause mechanical irritation. At processing or combustion temperatures this product may emit fumes and vapors that cause irritation, possibly severe, to the eyes.
SKIN IRRITATION	Not expected to be a primary skin irritant. Based on data from components or similar materials. Contact with heated polymer may cause thermal burns and adhesion of solidified product to the skin.
RESPIRATORY IRRITATION	At processing or combustion temperatures this product may emit fumes and vapors that cause irritation, possibly severe, to the respiratory tract, eyes, or skin. Breathing of dust may cause coughing, mucous production, and shortness of breath.
DERMAL TOXICITY	The LD50 in rabbits is > 2000 mg/Kg. Based on data from components or similar materials.
INHALATION TOXICITY	Overexposure to vapors or mist may cause dizziness, headache, nausea, and/or flu-like symptoms. Avoid inhalation of mists or vapors.
ORAL TOXICITY	The LD50 in rats is > 5000 mg/kg. Based on data from components or similar materials.
DERMAL SENSITIZATION	No data available to indicate product or components may be a skin sensitizer.
INHALATION SENSITIZATION	No data available to indicate product or components may be respiratory sensitizers.

-- CHRONIC EXPOSURE --

CHRONIC TOXICITY	No data available to indicate product or components present at greater than 1% are chronic health hazards.
CARCINOGENITY	No data available to indicate any components present at greater than 0.1% may present a carcinogenic hazard.
MUTAGENICITY	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
REPRODUCTIVE TOXICITY	No data available to indicate either product or components present at greater than 0.1% that may cause reproductive toxicity.
TETROGENICITY	No data available to indicate product or any components contained at greater than 0.1% may cause birth defects.

-- ADDITIONAL INFORMATION --

OTHER	Under decomposition conditions, isocyanates may be generated from this product. Isocyanates can cause skin sensitization and/or respiratory sensitization. Pre-existing skin conditions may be aggravated by prolonged or repeated exposure. Persons with sensitive airways (e.g., asthmatics) may react to vapors.
-------	---

12. Ecological Information

-- ENVIRONMENTAL TOXICITY --

Freshwater Fish Toxicity	Not determined.
Freshwater Invertebrates Toxicity	Not determined.
Algal Inhibition	Not determined.
Saltwater Fish Toxicity	Not determined.
Saltwater Invertebrates Toxicity	Not determined.
Bacteria Toxicity	Not determined.
Miscellaneous Toxicity	Not determined.

-- ENVIRONMENTAL FATE --

BIODEGRADATION	Adequate data is not available to estimate the biodegradation potential of this material.
BIOACCUMULATION	There is no data available to evaluate this material for bioconcentration.
SOIL MOBILITY	Not determined.

13. Disposal Considerations

This material, if discarded, is not a hazardous waste under RCRA Regulation 40 CFR 261. Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, State/Provincial, and Local regulations.

WASTE DISPOSAL

ICAO/IATA I
ICAO/IATA II
IMDG
IMDG EMS Fire
IMDG EMS Spill
IMDG MFAG
MARPOL Annex II
USCG Compatibility
U.S. DOT Bulk
U.S. DOT Non-Bulk
DOT NAERG
TDG Bulk
TDG Non-Bulk
Mexico
Mexico Non-Bulk
Bulk Quantity
Non-Bulk Quantity

14. Transport Information

Not regulated.
Not regulated.
Not regulated.
Not applicable.
Not applicable.
Not applicable.
Not determined.
Not determined.
Not regulated.
Not regulated.
Not applicable.
Not regulated.
Not regulated.
Not regulated.
Not regulated.
Not regulated.
85000 KG, 187391 lbs.
207.8 KG, 458 lbs.

15. Regulatory Information

-- Global Chemical Inventories --

USA All components of this material are on the US TSCA Inventory or are exempt.

OTHER TSCA REG. None known.

EU All components are in compliance with the EC Seventh amendment Directive 92 /32/EEC.

JAPAN All components are in compliance with the Chemical Substances Control Law of Japan.

AUSTRALIA All components are in compliance with chemical notification requirements in Australia.

NEW ZEALAND All components are in compliance with chemical notification requirements in New Zealand. This material contains one or more components that are on the Non-Domestic Substances list (NDSL). This material or products containing this material may be exported to Canada in limited quantities.

CANADA All components are in compliance with the Environmentally Hazardous Substances Ordinance in Switzerland.

SWITZERLAND All components are in compliance in Korea.

KOREA All components are in compliance with the Philippines Toxic Substances and Hazardous and Nuclear Wastes Control Act of 1990 (R.A. 6969).

PHILIPPINES

CHINA All components of this product are listed on the Inventory of Existing Chemical Substances in China.

-- Other U.S. Federal Regulations --

SARA Ext. Haz. Subst. This product does not contain greater than 1.0% of any chemical substance on the SARA Extremely Hazardous Substances list.

SARA Section 313 This product does not contain greater than 1.0% (greater than 0.1% for carcinogenic substance) of any chemical substances listed under SARA Section 313.

SARA 311 Classifications

Acute Hazard	No
Chronic Hazard	No
Fire Hazard	No
Reactivity Hazard	No

CERCLA Hazardous Substances None known.

FDA Approval Not applicable.

-- State Regulations --

Cal. Prop. 65 This product does not intentionally contain any chemicals known by the State of California to cause cancer and/or birth defects. Moreover, we do not routinely analyze its products for impurities which may be such chemicals.

-- Product Registrations --

U.S. Fuel Registration Not applicable.

U.S. Dept of Agriculture This product has not been filed with the USDA to support H2 approvals.

NSF Nonfood Compounds Registration This product has not been filed with the NSF to support H1 or H2 approvals.

Finnish Registration Number Not Registered
Swedish Registration Number Not Registered
Norwegian Registration Number Not Registered
Danish Registration Number Not Registered
Swiss Registration Number Not Registered
Italian Registration Number Not Registered
Korean Registration Number Not Registered

-- Other / International --

TDG Regulated Limit. None known.

16. Other Information

US NFPA Codes

Health: 2 Flammability: 1 Reactivity: 0 Special: None established

HMS Codes

Health: 0 Flammability: 1 Reactivity: 0

Precautionary Labels

This material has no known health hazards.

Users responsibility/disclaimer of liability

The above information is accurate to the best of our knowledge. However, SNS Nano Fiber Technology, LLC makes no warranty expressed or implied with respect to this information and disclaims all liability for reliance thereon. The information and recommendations are offered for the user's consideration and examination; it is the user's responsibility to satisfy themselves that they are suitable and complete for a particular use.