



MATERIAL SAFETY DATA SHEET

Products: NidaFusion STO/SXO

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Section I

Product Identification

Product Name: NidaFusion STO/SXO
Emergency Phone #: (800)998-9796
Information Phone #: (772)343-7300
Last Revision: 02/15/08

Section II

Ingredients

Components:

PU Foam PolyUrethane (Polyisocyanurate) Foam
Nominal 2.0 Lb/ ft³ Density to Stated Thickness
Fiberglass Woven or Mat Products applied to surface
Continuous Fiber Yarns combine above components

Section III

Physical and Chemical Characteristics

Boiling Point N/A
Vapor Pressure N/A
Vapor Density Solid, not applicable
Specific Gravity .04 to .20
Evaporation Rate N/A
Percent Volatile by Volume N/A
Solubility in Water by Weight N/A
Appearance Description White Glass Fibers and Light Brown Foam, No Odor

Section IV

Fire and Explosion Hazard Data

Self-Ignition (ASTM D1929)	Greater than 960F
Heat of Combustion	10,200 btu/lb or 20,400 btu/ft ³ for (PU at 2.0 Lb/ ft ³)
Flame Spread (ASTM E84)	<25 For <1.5" Thickness 20-25 For >1.5" Thickness
Smoke Generation (ASTM E84)	<50 For <1.5" Thickness 50-90 For >1.5" Thickness

Hazardous Decomposition Products:

As an organic polymer, the PU Foam can burn, generating primarily CO₂, H₂O, and some CO. These gases, along with smoke and oxygen depletion, represent the greatest fire concern. The widely recognized Boeing Specification Standard (BSS 7239) was used to measure the concentration of some toxic combustion gases of the PU Foam by itself. As the table below shows, the concentrations of toxic gases in a sample were quite low, particularly in comparison to the examples given of an Airbus airplane and a passenger railcar specification requirements.

Combustion Product	Level from Burning PU Foam (ppm)	Maximum Allowable Levels in an Airbus Specification (ppm)	Maximum Allowable Levels in A Passenger Railcar Spec. (ppm)
HCN	5	150	150
HCl	trace	500	500
NOx	10	100	100
SO ₂	none	100	100
CO	100	3500	3500
HF	none	50	200

The presence of HCFC blowing agent in the PU Foam allows the potential for small quantities of chlorinated and fluorinated materials to be evolved during combustion.

Toxicity of Combustion Products:

Several scientific studies have characterized the combustion products of a variety of materials (see references below). The referenced reports discuss relative toxicity of the combustion products of various materials, including rigid polyisocyanurate insulations. While the tests were performed on a generic polyisocyanurate formulation, it is generally recognized that combustion toxicity does not vary significantly within a product class. Therefore, this is the category that would include the type of Polyurethane Foam used with NidaFusion STO/SXO-PU.

The report entitled "Relative Toxicity of Materials in Fire Situations" concludes "...polyisocyanurate rigid foam... appeared to exhibit the longest times to observed incapacitation of all materials tested."

Other test reports have found that the combustion properties of polyisocyanurate insulations are similar to those of wood. Generally speaking, carbon monoxide and carbon dioxide are the primary hazards in a fire situation; hydrogen cyanide is a distant secondary concern. During the burning of the type of PU Foam used with NidaFusion STO/SXO-PU, in order to receive a dangerous exposure to HCN gas, a victim would have to inhale quantities of smoke, CO, and CO₂ which would be lethal many times over. Note that HCN is given off during the combustion of any nitrogen containing polymer, including such materials as nylons, ABS, and even the natural polymer, wool.

References:

1. "Relative Toxicity of Materials in Fire Situations", C. Hilado, H. Cumming, C. Casey, Modern Plastics, April, 1978.
2. "The Toxicity of the Airborne combustion Products of Polyurethane Foams", III (International Isocyanate Institute), Bulletin 4.

Extinguishing Media	Water, water-fog, CO2, dry chemical
Special Fire Fighting Procedures	Self-contained breathing apparatus and protective clothing should be worn in a sustained fire
Unusual Fire and Explosion Hazards	None Known

Section V

Reactivity Data

Hazardous Polymerization	Will not occur
Stability	Stable
Incompatibility (Avoid Contact With)	None Known
Conditions to Avoid	Exposure to open flame or excessive heat

Section VI

Health Hazard Data

Effects of Overexposure	Eyes - Dust and Fibers may cause temporary mechanical irritation, redness, or tearing. Skin - Fibers can cause temporary mechanical irritation. Inhalation - Dust and Fibers can cause mechanical irritation of nose, throat, and respiratory tract. Ingestion - Swallowing may cause gastrointestinal irritation and disturbances.
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Emergency/First Aid Procedures	Eyes – flush with large quantities of water including upper and lower eyelids. Seek medical attention if irritation persists. Skin – Do not blow off dust or fiber with compressed air, wash with soap and cold water. Do not use warm water as this will open pores and permit further penetration of fibers. If fibers are seen penetrating the skin, the masking tape may be used to adhere to the fibers for removal. Do not rub or scratch affected areas. Seek medical attention if irritation persists. Inhalation - if asphyxia is apparent, remove individual to fresh air. If breathing is difficult, administer oxygen. If breathing has stopped, administer artificial respiration. Keep person warm, quiet, and get medical attention. Ingestion – if large quantities have been swallowed, get prompt medical attention.
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Effects of Chronic Exposure	No adverse chronic health effects are known for long term use of this product, but enhanced allergic conditions may occur for certain people. Chronic Respiratory or Skin Conditions may temporarily worsen from exposure to this product.
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Section VII

Precaution for Safe Handling and Use

Protective Equipment to be Used

Respiratory Protection

Where use results in generation of dust from product, use of dust/mist respiration is recommended.

Ventilation

Where use results in generation of dust from product, provide sufficient mechanical (general and/or local) exhaust, ventilation, or vacuum assisted dust collection to prevent concentrations of airborne dust.

Protective Clothing

Use Gloves. Normal work clothes covering arms and legs are recommended. Skin irritation from fibers occurs at pressure points; around neck, wrists, waist, and between fingers.

Eye Protection

Goggles are recommended in those cases where use results in generation of dust

Handling Procedures

Keep product in protective packaging as long as possible to minimize dust generation. Avoid unnecessary handling of scrap material. Use Personal Protective Equipment as described above.

Storage Procedures

No Special Procedures.
Keep Dry and out of UV Exposure (Sunlight) to maintain qualities for use.

Section VIII

Waste Disposal

Dust collection equipment should be used when machining large quantities of material. Floor dust may be collected with normal shop vacuum or by sweeping.

Waste Disposal Methods:

Nida-Core suggests that all local, state and federal regulations concerning health and pollution be reviewed to determine approved disposal procedures. Contact Nida-Core if there are any disposal questions.

The information contained herein is based on data considered to be accurate. While the information is believed to be reliable, no warranty is expressed or implied regarding the accuracy of this data or the results to be obtained from the use thereof. Since the use of this information and the conditions and use of this product are controlled by the user. It is the user's obligation to determine the conditions for safe use of the product.

Material Safety Data Sheets may be used to comply with OSHA's Hazard Communication Standard 29 CFR1910.1200. standard must be consulted for specific requirements.