# MATERIAL SAFETY DATA SHEET
# NOMACO, INC.

**NOTE: Safety Handling Guidelines pages 7-9**

## *1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION*

Product Name .....: SOF®ROD, HBR®, HBR® XL, DUAL ROD®, GREEN ROD®
Product Codes .....: All polyolefin products
Chemical Family.....: Polyolefin Thermoplastics
Formula.....: Not Applicable
Prepared Date.....: November 1, 1996
Revised Date.....: December 19, 2005

| MANUFACTURER: | EMERGENCY TELEPHONE NUMBERS: | |
|---|---|---|
| Nomaco, Inc. | Transportation: | |
| 501 NMC Drive | CHEMTREC: | 800-424-9300 |
| Zebulon, NC 27597 | Non-Transport: | 919 269-6500 |

## *2. COMPOSITION/INFORMATION ON INGREDIENTS*

Polyethylene CAS # 009002-8804 75-100%

HAZARDOUS INGREDIENTS:

| INGREDIENT NAME AND CAS NUMBER | EXPOSURE LIMITS |
|---|---|
| Isobutane 000075-28-5 | 800 ppm TWA (ACGIH) |

## *3. HAZARDS IDENTIFICATION*

EMERGENCY OVERVIEW

White or colored solid. Poses little or no immediate hazard. Flammable vapors are produced in unventilated storage. Toxic fumes are released in fire situations. Appearance: Flexible plastic foam. Odor: No odor.

POTENTIAL HEALTH EFFECTS:

EYE..... : Dust may cause irritation or eye injury due to mechanical action. Fumes/vapors emitted during hot-wire cutting may cause eye irritation.

SKIN..... : Non-irritating to skin. Skin absorption is unlikely.

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|---|---|---|
| INHALATION | : | Dust may cause irritation to the nose, throat and lungs. Fumes/vapors generated during hot-wire cutting may cause respiratory irritation. Concentrations of the isobutane blowing agent incidental to proper handling of the product are expected to be well below the ACGIH recommended exposure limit of 800 ppm. |
| INGESTION | : | None determined |
| SYSTEMIC EFFECTS (OTHER TARGET ORGANS) | : | None determined |

CARCINOGENICITY:

| | | |
|---|---|---|
| NTP | : | Not listed |
| IARC | : | Not listed |
| OSHA | : | Not regulated |
| MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE | : | None determined |

## *4. FIRST AID MEASURES*

| | | |
|---|---|---|
| EYE | : | Flush eyes with clean, lukewarm water (low pressure) occasionally lifting eyelids. |
| SKIN | : | Wash with soap and water. |
| INHALATION | : | Remove to fresh air. If not breathing, give artificial respiration. Oxygen may be given by qualified personnel if breathing is difficult. Get medical attention. |
| INGESTION | : | Consult physician |

## *5. FIRE FIGHTING MEASURES*

| | | |
|---|---|---|
| FLASHPOINT | : | -117°F (isobutane) |
| METHOD USED | : | TOC |
| FLAMMABILITY LIMITS | : | LFL 1.8% by volume<br>UFL 8.4% by volume<br>(isobutane) |
| EXTINGUISHING MEDIA | : | Water |

SPECIAL FIRE FIGHTING PROCEDURES ..... : Full emergency equipment with pressure demand self-contained breathing apparatus and full protective clothing should be worn by firefighters. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

## *6. ACCIDENTAL RELEASE MEASURES*

SPILL OR LEAK PROCEDURES ..... : No special precautions are necessary.

*This product is a non-hazardous waste when spilled or disposed of, as defined in Resource Conservation and Recovery Act (RCRA) regulations (40 CFR 261).*

## *7. HANDLING AND STORAGE*

SPECIAL PRECAUTIONS ..... : Flammable vapors of isobutane may be generated during unventilated storage of large amounts of this product (for example, in storage trailers).

WARNING: To prevent the build-up of flammable vapors, do not store large quantities of this product in unventilated spaces including trailers. Transport bulk shipments of the product in ventilated trailers only.

WARNING: To prevent potential fire or explosion, do not weld or apply intense heat to closed containers which contain this product. Open closed containers in a well-ventilated area away from sparks or open flames.

WARNING: This product is combustible and should not be exposed to sparks or open flames. Large quantities of this product can burn rapidly and release toxic gases, including carbon monoxide.

WARNING: Fabrication methods involving cutting of this product may release isobutane remaining in the foam cell structure. Provide adequate ventilation to ensure that isobutane concentrations remain below the ACGIH Threshold Limit Value (TLV) of 800 ppm and the Lower Flammable Limit of 1.8% in air by volume to protect workers and eliminate the possibility of developing flammable or hazardous concentrations.

## *8. EXPOSURE CONTROLS/PERSONAL PROTECTION*

ENGINEERING CONTROLS ..... : Provide general and/or local exhaust ventilation to control airborne isobutane levels below the ACGIH TLV of 800 ppm.

EYE PROTECTION REQUIREMENTS..... : Wear tight-fitting safety goggles if there is a potential for exposure to flying particles.

SKIN PROTECTION REQUIREMENTS ..... : No special precautions.

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| RESPIRATORY PROTECTION REQUIREMENTS . : | No protection is required if isobutane levels are maintained below the ACGIH TLV of 800 ppm. For exposures above the TLV, take into consideration the type of application, environmental concentrations and materials being used concurrently when selecting a respirator. Observe OSHA regulations for respirator use (29 CFR 1910.134). |
| EXPOSURE LIMITS..... : | Not established for products as a whole. Refer to Section 2. |

## *9. PHYSICAL AND CHEMICAL PROPERTIES*

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|---|---|
| PHYSICAL FORM..... : | Flexible solid |
| ODOR ..... : | No odor. Residual isobutane is colorless, with a gasoline-like or natural gas odor. Butane is reported to be detectable by odor at a range of 1262-5048 ppm (AIHA, 1989). |
| VAPOR PRESSURE..... : | Not applicable |
| VAPOR DENSITY ..... : | Not applicable |
| BOILING POINT..... : | Not applicable |
| SOLUBILITY IN WATER..... : | Insoluble |
| DENSITY..... : | 0-35 $lb/ft^3$ |

## *10. STABILITY AND REACTIVITY*

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|---|---|
| STABILITY ..... : | This is a stable material. |
| HAZARDOUS POLYMERIZATION..... : | Will not occur. |
| INCOMPATIBILITIES..... : | Strong oxidizing agents. |
| DECOMPOSITION PRODUCTS..... : | Carbon monoxide and other toxic gases are generated under combustion conditions. |

## *11. TOXICOLOGICAL INFORMATION*

See Section 3 for potential health effects.

## *12. ECOLOGICAL INFORMATION*

This product is inert to the environment and is not expected to exhibit any significant biodegradation.

## *13. DISPOSAL CONSIDERATIONS*

Waste may be reused, recycled or buried in an approved landfill. Follow all regulatory requirements for disposal.

## *14. TRANSPORTATION INFORMATION*

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|---|---|
| DOT SHIPPING REQUIREMENTS..... : | Not regulated |
| TECHNICAL SHIPPING NAME ..... : | Polyethylene plastic foam |

## *15. REGULATORY INFORMATION*

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| OSHA STATUS..... : | This product is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200. However, thermal processing and decomposition fumes/vapors from this product may be hazardous as noted in Sections 2 and 3. |
| CERCLA RQ ..... : | None |

SARA TITLE III:

| | |
|---|---|
| SECTION 302<br>EXTREMELY HAZARDOUS SUBSTANCES..... : | None |
| SECTION 311/312<br>HAZARD CATEGORIES..... : | Non-hazardous |
| SECTION 313<br>HAZARD CATEGORIES..... : | None |
| RCRA STATUS..... : | If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether the product should be classified as a hazardous waste (40 CFR 261.20-24). |
| STATE RIGHT-TO-KNOW..... : | The following product components are listed by certain states as hazardous substances noted below. |

| | | |
|---|---|---|
| Isobutane ..... : | NJ1, NJ3, PA1 | |
| NJ1..... : | New Jersey Special Health Hazard Substance | |
| NJ3..... : | New Jersey Workplace Hazard Substand | |
| PA1 ..... : | Pennsylvania Hazardous Substance | |
| NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) RATINGS ..... : | Health<br>Flammability<br>Reactivity | 0<br>1<br>0 |
| CANADIAN REGULATIONS..... : | This product is not a “Controlled Product” under WHMIS. | |

## *16. OTHER INFORMATION*

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|---|---|
| PREPARED BY..... : | Health & Hygiene |
| MSDS NUMBER ..... : | 001 |

# Safety Tips for Handling Extruded Polyethylene Foam

## Policy Statement

Nomaco is dedicated to quality and safety and we take product stewardship and safe handling of our products seriously. Nomaco produces polyethylene foam products with customer satisfaction as a primary objective. Our products are designed to provide you with consistently high quality to meet your business demands. Our foam products use a blowing agent as part of the manufacturing process to convert polyethylene plastic into foam products for your application. Without proper precautions, it is possible to create and ignite flammable concentrations of blowing agent in air. The following recommendations are designed to inform you of precautions that need to be followed to insure the highest possible level of safety while using our products.

## General Handling

Nomaco is listing precautions and recommendations to help you maintain the highest possible level of safety when receiving, unloading, storing, handling, fabricating and shipping our polyethylene foam products. Always refer to the Material Safety Data Sheet (MSDS) for additional safety instructions.

## Shipping Considerations

Nomaco transports foam using ventilated truck trailers, railcars and other transport vehicles to assure that a flammable concentration of blowing agent released from the foam does not develop inside the vehicle.

Nomaco will not load solid-sided truck trailers unless they are equipped with appropriate vents. The minimum vent requirement for truck trailers are:

1. Minimum vent size is 15 square inches per 1000 cubic feet of transport vehicle space, both front and rear of vehicle.
2. One vent should be placed low at one end of the trailer in the rear (tail) of the trailer.
3. A second vent should be placed high at the other end of the front (nose) of the trailer.
4. Vents must be unobstructed a minimum of 6 inches front and rear of the transport vehicle.
5. Vents must be permanently open, or must be capable of being locked or sealed in the open position by the shipping crew.

Nomaco will not accept foam shipments, including returned goods, which have been shipped in unventilated transport vehicles.

## Opening of Vehicles Containing Foam

Although shipment in properly ventilated trailers and other vehicles should prevent the accumulation of a flammable concentration of blowing agent during transport, the following additional precautions should be taken when opening shipments of foam or other vehicles being used to store foam:

1. Extinguish all smoking or other ignition sources.
2. Verify that vehicle vents are open.
   a. If vehicle vents are not open, open the vents and allow air circulation in the vehicle for at least 10 minutes.
3. Always allow air circulation in the vehicle for at least 10 minutes after opening the vehicle doors before entering vehicles or moving foam.

## Foam Packaging, Storage and Shipping

Foam should be stored only in ventilated areas. Foam should NOT be stored in closed, unventilated area. Foam should not be stored in trailers. Smoking and all other ignition sources should NOT be allowed in foam storage areas.

Foam parts being packaged for shipment should be placed in containers which will allow blowing agent to escape. Plastic bags should be adequately ventilated.

## Foam Remnants (Scrap)

Foam remnants and scrap pieces should be stored in ventilated areas. Smoking and all other ignition sources should NOT be allowed in areas where parts or scrap are being stored or loaded into vehicles. Foam remnants and scrap parts being packaged for disposal or recycling should be placed in containers which will allow blowing agent to escape. Plastic bags should be adequately ventilated.

## Foam Fabrication

Fabricated parts may initially release blowing agent at higher rates than the same piece of foam prior to fabrication because interior surfaces have been exposed. The blowing agent release rate then decreases significantly in the days following fabrication. The release rate varies considerably with the foam product fabricated, the size and shape of the part, the age of the foam, and the storage temperature of the fabricated part. Operations which cut or destroy cells (such as skiving, die cutting, routing and grinding) release blowing agent. Flammable concentration of blowing agent in air may develop in localized areas where large numbers of cells are being cut. Blowing agent release should be diluted with air to dissipate blowing agent in these localized areas. Never smoke or use other ignition sources while handling or working with foam.

### Thermal Fabrication and Lamination

To prevent buildup of blowing agent, air flow should be provided in areas of thermal fabrication and lamination. To minimize potential ignition hazards, foam and heat/flame sources should be kept moving in relation to each other.

### Skiving

Flammable concentrations of blowing agent are possible between the two split layers of foam as they emerge from the skiver. Air flow should be directed into the space behind the blade guide, between the two split foam layers. Airflow should also be provided in any areas where foam is stacked or stored after skiving operations.

### Die Cutting/Band Sawing

To prevent buildup of blowing agent, air flow should be provided in the die press and band saw areas. Airflow should also be provided in any areas where foam is stacked or stored after cutting operations.

### Grinding/Routing/Shaping

Equipment should be purged with a sufficient volume of air to assure released blowing agent does not reach a flammable concentration. Positive air purge should be provided in any bins or hoppers which receive the shreddings from these operations. Collection systems should be monitored to ensure that high blowing agent concentrations will not occur when operations sit idle as a result of temporary shut down or malfunction.

## Reprocessing Foam Scrap

Grinding and/or densifying operations release residual blowing agent while reprocessing polyethylene foam parts and foam scrap. Because of the potential to achieve flammable concentrations of blowing agent in these operations, DO NOT REPROCESS FOAM PARTS OR FOAM SCRAP UNLESS USING A REPROCESSING SYSTEM WHICH IS APPROPRIATELY DESIGNED AND OPERATED IN A FAIL-SAFE MANNER TO PREVENT THE CREATION OF A FLAMMABLE CONCENTRATION OF BLOWING AGENT IN AIR.

While you need to independently judge and analyze your operation, we believe the minimum air supply for a reprocessing system is at least 50 cubic feet per minute of adequately mixed positive air flow for every cubic foot per minute of foam fed into these reprocessing systems.

Adequate air must be supplied throughout the entire reprocessing system, including any storage bins or hoppers receiving output from the reprocessing system Reprocessing and collections systems must be monitored to ensure that high blowing agent concentrations do not occur during normal operations, temporary shutdown or malfunction.

Each reprocessor should also use his own independent judgment regarding the safety of reprocessing foam parts or scrap in his facility. We strongly recommend that you consult with your equipment manufacturer or contact a qualified party to obtain specific equipment recommendations for your facility if you plan to reprocess, grind, or densify foam parts or scrap.

Although the blowing agent release rate decreases significantly in the days following foam fabrication, we recommend that you ship fabricated parts and foam scrap in ventilated truck trailers or other ventilated transport vehicles. These vehicles should be ventilated in the same way as vehicles used for shipping unfabricated foam. Our products can be safely used in your operations as long as you keep foam away from ignitions sources and provide adequate air circulation and ventilation in all areas where foam is shipped, unloaded, stored, handled and fabricated.

## Summary

Government entities may mandate adequate ventilation of the general workplace and storage areas to assure proper industrial hygiene. Where adequate ventilation is provided to satisfy industrial hygiene requirements, flammable concentrations of blowing agent should not develop. Always refer to the Material Safety Data Sheet (MSDS) for additional safety instructions. Please contact us with any questions you may have regarding the safe handling of our products.