11/14/03

Design Engineering
36960 Detroit Rd
Avon, OH 44011
440-934-0800

Interior of Part #'s 010406/010407/010414&010415
Cool Tube

Material Safety Data Sheet

Polyamide Resin, Nylon 6 Resin, Chemlon 27 0H BK001, 275H BK001

Product Identification

Synonyms: Polyamide resin, nylon 6 resin
Chemical Name: Polycaprolactam resin
CAS No.: 25038-54-4 (base polymer)
DOT Proper Shipping Name: Not Applicable
DOT Hazard Class/ID No.: Not Applicable
DOT Label: Not Applicable
U S Surface Freight Classification:
Truck – Plastic granules
Rail – Plastic, synthetic, other than liquid
Reportable Quantity (RQ) Under DOT (49 CFR) and CERCLA Regulations: Not Applicable
Hazard Categories Under Criteria of SARA Title III rules (40 CFR Part 370): Not Applicable

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Precautionary Measures and First Aid

Handle in accordance with good industrial hygiene and safety practices. These practices include avoiding unnecessary exposure and removal of the material from eyes, skin and clothing.

Occupational Control Procedures

Eye Protection: Polyamide resin, nylon 6 does not cause significant eye irritation or eye toxicity requiring special protection, except as noted in the "Additional Comments" section of this document. Use good industrial practice to avoid contact with the eye.

Skin Protection: Polyamide resin, nylon 6 resin does not present a significant skin concern requiring special protection, except as noted in the "Additional Comments" section of this document.

Respiratory Protection: Avoid breathing dust. Use NIOSH/MSHA approved respiratory protection equipment when airborne exposure is excessive. Consult respirator manufacturer to determine appropriate type equipment for given application. Observe respirator use limitations specified by NIOSH/MSHA or the manufacturer. Respiratory protection programs must comply with 29 CFR 1920.134.

Ventilation: Provide natural or mechanical ventilation to minimize exposure. If practical, use local mechanical exhaust ventilation at sources of air contamination such as open process equipment.

Airborne Exposure Limits: OSHA PEL: None established ACGIH TLV: None established

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Fire Protection Information

Flash Ignition Temperature: N/A Method: N/A
Auto Ignition Temperature: N/A Method: N/A
Extinguishing Media: Water spray or any Class A extinguishing agent.

Special Fire Fighting Procedures: Polyamide resin, nylon 6 resin is a combustible thermoplastic material which will melt and drip when ignited and give off combustion products (see "Hazardous Decomposition Products" below) which are toxic. Fire fighters and others exposed to products of combustion should wear full protective clothing including self-contained breathing apparatus. Fire fighting equipment should be thoroughly decontaminated after use.

Usual Fire and Explosion Hazards: Dust generated during handling and/or storage can form explosive mixtures with air.

Reactivity Data

Materials to Avoid: None

Hazardous Decomposition Products: At temperatures above 530°F/277°C, heavy fuming, carbon monoxide, carbon dioxide, nitrogen oxides and hydrogen cyanide (at temperatures above 660°F/439°C) will occur.

Hazardous Polymerization: Does not occur.

Health Effects Summary

The following information summarizes human experience and results of scientific investigations reviewed by health professionals for hazard evaluation of polyamide resin, nylon 6 resin and development of "Precautionary Measures & Occupational Control Procedures" recommended in this document.

Effects of Exposure: Skin contact is expected to be the primary route of occupational exposure to polyamide resin, nylon 6 resin. Occupational exposure to this material has not been reported to cause significant adverse health effects. As a finished product, polyamide resin, nylon 6 resin does not appear to possess any toxicological properties which would require special handling other than the good industrial hygiene and safety practices employed with any industrial material of this type.

Toxicological Data: Toxicity studies not conducted. Based on single exposure animal studies conducted on representative nylon resins, these materials are considered to be practically nontoxic orally (rats) and after skin application (rabbits). They are slightly irritating to rabbit eyes and nonirritating to rabbit skin.

Components: Nylon 6 based resins may contain other copolymers, color additives, heat stabilizers, flame retardants and/or other performance additives. Under normal use conditions, these additives are contained within the polymer and occupational exposure is not anticipated.

Additional Information: Thermal decomposition products of nylon (polyamide resin), which may be produced at temperatures in excess of the recommended processing temperature, have been reported to be irritating to the mucous membranes and respiratory tract.

Physical Data

Appearance: Pellets
Odor: Essentially odorless
Melting Point: 410-430°F
Specific Gravity (H20=1): 1.12

Percent Volatile: <1%
Solubility: Soluble in formic acid and phenol, slightly soluble in boiling water.

Note: These physical data are typical values based on material tested but may vary from sample to sample. Typical values should not be construed as a guaranteed analysis of any specific lot or as specifications for the product.

Spill, Leak & Disposal Information

Waste Disposal: Polyamide resin, nylon 6 resin is not a "hazardous waste" as that term is defined in 40 CFR 261, "Identification and Listing of Hazardous Waste". Dispose of waste by incineration, sanitary landfill or other method in accordance with all applicable local, state and federal laws and regulations. Consult your attorney or appropriate regulatory officials for information on such disposal.

Spill or Leakage Procedures: Remove solid particles from floors to prevent falls. Resin pellets contribute to hazardous footing. Sweep up any "inert" organic pellets.

Additional Comments:
The greatest potential for injury occurs when working with molten nylon such as during a purge of a molding machine, extruder and the like. During this type of operation, it is essential that all workers in the immediate area wear eye protection and skin protection (sleeves, gloves, etc). Any machine used to process molten nylon should always be completely flushed with a material such as polystyrene before shutdown.

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Hazardous Ingredients/Identity Information

Product Ingredients (Components) CAS Number
Aluminum Foil 7429-90-5
Polymeric Adhesive
Fiberglass Fabric

*Hazardous Ingredients: Respirable Fiberglass Dust
CAS Number: Not Assigned
OSHA PEL: 5mg/M3
ACGIH TLV: 5mg/M3
*Substances listed in the hazardous ingredients section are those that have been determined to be health hazards and are present at a concentration of 1.0% or greater, or 0.1% if the substance is on the list of potential carcinogens cited in the OSHA Hazard Communication Standard.

Physical/Chemical Characteristics

Boiling Point: N/A
Melting Point: N/A
Vapor Pressure: N/A
Vapor Density: N/A
Percent Volatile by Weight: N/A
Solubility (In Water): Insoluble in water
Appearance: Aluminum Foil/Fiberglass Fabric Lamination
Odor: None
Specific Gravity: Not Determined

Fire & Explosion Hazard Data

Flash Point: N/A
Method Used: N/A
Flammability Limits: LEL – N/A UEL – NA
Auto-Ignition Temperature: N/A
Extinguishing Media: Foam, Dry Chemical, Fog, Water
Special Fire Fighting Instructions: Fires involving this product should be fought while wearing self-contained breathing apparatus
Unusual Fire & Explosion Hazards: None

Reactivity Data

Stability: Stable

Hazardous Decomposition Products: Under fire conditions products will decompose and produce carbon dioxide, carbon monoxide, water, and other organic vapors.
Hazardous Polymerization: Should not occur under normal use.

Health Hazard Data

Eye Contact:	Acute: Mechanical Irritation	Chronic: None Known
Skin Contact:	Acute: Mechanical Irritation	Chronic: None Known
Skin Absorbtion:	Acute: None Known	Chronic: None Known
Ingestion:	Acute: Not Likely to Occur	Chronic: Not Likely to Occur
Inhalation:	Acute: Mechanical Irritation – Mouth, Nose, Throat	Chronic: None Known

Signs & Symptoms of Overexposure:

Direct skin contact with fibrous glass or its dust may cause mechanical irritation and transitory dermatitis. Breathing of fibers may cause mechanical irritation of the mouth, nose, and throat.

Medical Conditions Generally Aggravated by Exposure: Dermatitis

First Aid:
Eyes: Flush with flowing water for 15 minutes
Skin: Flush with ample cool water followed by washing with mild soap to remove accumulated fiberglass fibers
Inhalation: Move to fresh air area
Ingestion: Not likely to occur through normal use

Carcinogen: Not listed as a carcinogen

Precautions for Safe Handling & Use

Spill Procedures: N/A

Disposal Method: In accordance where applicable, local, state, and federal regulations.

Control Measures

Ventilation: Not required for normal use

Respiratory Protection: Not required for normal use. If abnormal use creates dust use a OSHA/NIOSH approved respirator.

Skin Protection: Not normally required. Workers with sensitive skin may be required to use gloves.

Eye Protection: Not required for normal use.

Special Precautions/Additional Information

DOT Information: Not regulated by the DOT Hazard Class: Not hazardous

While the information and recommendations set forth herein are believed to be accurate, Design Engineering makes no warranty with respect thereto and disclaims all liability from reliance thereon.