MATERIAL SAFETY DATA SHEET

PUR 90A

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Product and Company Identification

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SECTION I - Chemical Product Identification

Product Name
90A Durometer Polyurethane

Product Code
PUR90A

Chemical Family
Aromatic thermoplastic polyurethane
Chemical Name
Polyurethane elastomer

SECTION II - Hazards Identification

Emergency Overview
CAUTION: Color: Natural **Form:** Solid **Odor:** Odorless
Melted product is flammable and produces intense heat and dense smoke during burning. May cause mechanical irritation (abrasion). Causes a slipping hazard if spilled. Toxic gases / fumes are given off during burning or thermal decomposition and may cause allergic respiratory reaction. Contact with hot material will cause thermal burns.

Potential Health Effects
Primary Routes of Entry
Inhalation, Skin contact, Eye contact
Medical conditions aggravated by exposure
Respiratory disorders

Human effects and symptoms of overexposure
Inhalation
Acute Inhalation
Thermoplastic polyurethane (TPU) is generally non-hazardous under ambient conditions. However, when the product is heated (i.e., during processing or thermal decomposition conditions), there is a potential for the release of 4,4'-diphenylmethane diisocyanate (MDI) vapors. Diisocyanate vapors or mist at concentrations above the TLV or PEL can irritate (burning sensation) the mucous membranes in the respiratory tract (nose, throat, lungs) causing runny nose, sore throat, coughing, chest discomfort, shortness of breath and reduced lung function

(breathing obstruction). Persons with a preexisting, nonspecific bronchial hyperreactivity can respond to concentrations below the TLV or PEL with similar symptoms as well as asthma attack or asthma-like symptoms. Exposure well above the TLV or PEL may lead to bronchitis, bronchial spasm and pulmonary edema (fluid in lungs). Chemical or hypersensitivity pneumonitis, with flu-like symptoms (e.g., fever, chills), has also been reported. These symptoms can be delayed up to several hours after exposure. These effects are usually reversible.

Chronic Inhalation

In the event of material decomposition due to exceeding the decomposition temperature of this product, release of MDI may occur. As a result of previous repeated overexposures or a single large does, certain individuals may develop sensitization to diisocyanates (asthma or asthma-like symptoms) that may cause them to react to a later exposure to diisocyanates at levels well below the TLV or PEL. These symptoms, which can include chest tightness, wheezing, cough, shortness of breath or asthmatic attack, could be immediate or delayed up to several hours after exposure. Extreme asthmatic reactions can be life threatening. Similar to many non-specific asthmatic responses, there are reports that once sensitized an individual can experience these symptoms upon exposure to dust, cold air or other irritants. This increased lung sensitivity can persist for weeks and in severe cases for several years. Sensitization can be permanent. Chronic overexposure to diisocyanates has also been reported to cause lung damage (including fibrosis, decrease in lung function) that may be permanent.

Skin

Acute Skin

Contact with heated material can cause thermal burns.

Eye

Acute Eye

Vapors released from thermal decomposition may cause irritation with symptoms of burning and tearing.

Carcinogenicity

No carcinogenic substances as defined by IARC, NTP and/or OSHA.

SECTION III – Composition / Information on Ingredients

Hazardous components

This material is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.

SECTION IV - First Aid Measures

Eye Contact

In case of contact, flush eyes with plenty of lukewarm water. Get medical attention if irritation develops.

Skin Contact

Get medical attention if thermal burn occurs.

Inhalation

If inhaled, remove to fresh air.

Ingestion

Get medical attention.

Notes to physician

In the event of possible diisocyanate exposure: Eyes: Stain for evidence of corneal injury. If cornea is burned, instill antibiotic / steroid preparation as needed. Workplace vapors could produce reversible corneal epithelial edema impairing vision. Skin: Treat symptomatically as for thermal burn. Ingestion: Treat symptomatically.

Inhalation: Treatment is essentially symptomatic. An individual having a pulmonary sensitization reaction to this material should be removed from further exposure to any diisocyanate.

SECTION V - Fire Fighting Measures

Suitable Extinguishing Media
Water foam, dry chemical
Special Fire Fighting Procedures
Firefighters should be equipped with self-contained breathing apparatus to protect against potentially toxic and irritating fumes.
Unusual Fire / Explosion Hazards
Toxic and irritating gases / fumes may be given off during burning or thermal decomposition. Dust may form explosive mixtures with air.

SECTION VI - Accidental Release Measures

Spill and Leak Procedures
If molten, allow material to cool and place into an appropriate marked container for disposal.

SECTION VII - Handling and Storage

Storage Temperature Maximum
30°C (86°F)
Storage Period
Not established.
Handling / Storage Precautions
Handle in accordance with good industrial hygiene and safety practices. Wash thoroughly after handling. Avoid breathing dust. Containers should be kept tightly closed to prevent contamination. Material is hygroscopic and may absorb small amounts of atmospheric moisture.
Further info on storage conditions.
Protect equipment (e.g. storage bins, conveyors, dust collectors) with explosion vents.

SECTION VIII – Exposure Controls / Personal Protection

The following exposure limits do not apply to the product in its supplied form; however, when the product is heated (i.e., during processing or thermal decomposition conditions), there is a potential for the release of 4,4'-diphenylmethane diisocyanate (MDI) vapors.
4,4'-Diphenylmethane Diisocyanate (MDI) (101-68-8)
US ACGIH Threshold Limit Values
Time Weighted Average (TWA): 0.005 ppm
US OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)
Ceiling Limit Value: 0.02 ppm, 0.2 mg/m3
Industrial Hygiene / Ventilation Measures
During normal processing, use general dilution and local exhaust as necessary to control airborne vapors, mists, dusts and thermal decomposition products below

appropriate airborne concentration standards / guidelines. Special ventilation and personal protective equipment (PPE) is required to control exposure to potentially harmful decomposition products whenever a TPU is heated to temperatures above its decomposition temperature. Examples would include hot knife cutting, grinding or sawing.

Respiratory protection

In the absence of sufficient general dilution or local exhaust ventilation a NIOSH approved air-supplied respirator may be needed during die cleaning, high temperature processing, purging or when thermal decomposition is suspected.

Hand protection

Wear heat resistant gloves when handling molten material.

Eye protection

Safety glasses with side-shields.

Skin and body protection

No special skin protection requirement during normal handling and use.

Additional Protective Measures

Employees should wash their hands and face before eating, drinking, or using tobacco products. Educate and train employees in the safe use and handling of this product. Purgings should be collected as small flat thin shapes or thin strands to allow for rapid cooling.

SECTION IX - Physical and Chemical Properties

Form	Solid
Appearance	Pellets
Color	Natural
Odor	Odorless
pH	Not applicable
Melting point	250°C (482°F)
Flash point	250°C (482°F)
Lower explosion limit	Not applicable
Upper explosion limit	Not applicable
Specific gravity	1.1
Solubility in water	Insoluble
Autoignition temperature	>210°C (>410°F)
Decomposition temperature	Decomposition begins at 230°C
Softening point	180°C (356°F)
Bulk density	500 – 700 kg/m3

SECTION X - Stability and Reactivity

Hazardous reactions

Hazardous polymerisation does not occur.

Stability

Stable

Materials to avoid

None known.

Conditions to avoid

None known.

Hazardous decomposition products

By Fire and Thermal Decomposition: Carbon Dioxide; hydrogen cyanide; 4,4”-Diphenylmethane Diisocyanate (MDI); Aldehydes, Carbon monoxide, Amines, Nitriles, nitrogen oxides (NOx), Hydrocarbons

SECTION XI - Toxicological Information

Toxicity Note
No data available for this product.

SECTION XII - Ecological Information

Additional Ecotoxicological Remarks
No data available for this product.

SECTION XIII - Disposal Considerations

Waste Disposal Method
Waste disposal should be in accordance with existing federal, state and local environmental control laws.

SECTION XIV - Transportation Information

Land Transport (DOT)
Non-regulated
Sea Transport (IMDG)
Non-regulated
Air Transport (ICAO / IATA)
Non-regulated

SECTION XV - Regulatory Information

United States Federal Regulations

OSHA Hazcom Standard Rating	Non Hazardous
US. Toxic Substances Control Act	Listed on the TSCA Inventory.
US. EPA CERCLA Hazardous Substances (40 CFR 302): Components	None
SARA Section 311 / 312 Hazard Categories	Non hazardous under Section 311 / 312
US. EPA Emergency Planning and Community Right-to-Know Act (EPCRA) SARA Title III Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A): Components	None

US. EPA Emergency Planning and Community Right-to-Know Act (EPCRA) SARA Title III Section 313 Toxic Chemicals (40 CFR 372.65) – Supplier Notification Required: Components	None
US. EPA Resource Conservation and Recovery Act (RCRA) Composite List of Hazardous Wastes and Appendix VIII Hazardous Constituents (40 CFR 261)	Under RCRA, it is the responsibility of the person who generates a solid waste, as defined in 40 CFR 261.2, to determine if that waste is a hazardous waste.

State Right-To-Know Information
The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections of the MSDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

Massachusetts, New Jersey or Pennsylvania Right to Know Substance Lists:

Weight percent	Components	CAS-No.
>=1%	Polyurethane Polyether Elastomer	9018-04-6

California Prop. 65:	To the best of our knowledge, this product does not contain any of the listed chemicals, which the state of California has found to cause cancer, birth defects or other reproductive harm.

Section XVI - Other Information

	Health	Flammability	Physical hazard
HMIS RATING	0	1	0

0=Minimal 1=Slight 2=Moderate 3=Serious 4=Severe
*=Chronic Health Hazard

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