

Material Safety Data Sheet (Component A)
TrueCast 40

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Product Identification

Chemical family: Polyurethane
 Product name: Preliminary Formulation Vibrathane EP 823/5 clone 1
 Formula: The specific chemical formula for this material is a trade secret of Industrial Polymers, Inc.
 Chemical name: Reaction product of a Polyether with toluene diisocyanate (TDI).

Composition Information / Ingredients

Ingredient Name / CAS Number	Exposure Limits	Concentration
Synthetic Urethane polymer CAS number 64814-10-4	Not Established	99%
TDI CAS number 584-84-9	.005 ppm, TWA 0.02 ppm, STEL (OSHA, ACGIH)	Less than 1%

Hazard assessment based on available data.
 Transportation: n/a
 OSHA 1910.1200 – irritant, sensitizer, Carcinogen (NTP, IARC, 2b)
 EEC* - Irritant, sensitizer, irreversible effects

Physical data

Appearance and odor: viscous liquid; slight odor
 Solubility: reacts in water, soluble in THF, DMF, or methylene chloride
 Melting point: not determined
 Boiling point: not determined
 Specific gravity (H₂O=1): 1.02 – 1.11
 Vapor Pressure @ 20° C: not determined
 Vapor density (air=1): not determined
 Volatility @ 70° F: low
 Other data: solidification point: <60° F (16° C). Reactive Isocyanate (NCO): 2.8 – 12.45

Fire and explosion hazard data

Flash point: >400° F (204° C) CC
 Extinguishing media: water spray, dry chemical
 Autoignition temperature: not determined
 Flammable limits: not determined
 Special fire fighting procedures: protect against inhalation of cyanate vapors and other decomposition/combustion products.
 Unusual hazards: none identified.

Reactivity data

Stability: stable at ambient temperatures and pressures.
 Incompatibility: avoid contamination with water, solvents and any foreign matter.
 Decomposition products: high temperatures will release cyanates and hydrocarbons. Oxides of carbon, nitrogen and small amount of HCN under burning conditions.

Special protection information

Engineering controls: local exhaust ventilation strongly recommended.
 Personal protection equipment: chemical resistant gloves and goggles should be worn. Avoid breathing vapors. In the absence of good ventilation, under emergency situations or for high concentrations, self-contained or air-supplied respiratory protection is recommended.

Storage, spills and disposal information

Storage: store away from sources of direct heat and moisture. Seal containers with a dry nitrogen blanket and keep closed when not in use. Moisture contamination will evolve CO₂ and create pressure in closed systems.
 Spills: absorb on inert carrier. Transfer to open containers outside or in well-ventilated area. Soak with dilute ammonia hydroxide or water alcohol mixture. Allow time for reaction to be complete before disposal.
 Reportable quantity: 100 lbs. (TDI)
 Disposal: in accordance with any applicable local, state or federal regulation regarding polymeric waste.
 Environmental information: environmental effects have not been determined.

Health related data

Specific hazard(s): contact with eyes and skin may cause irritation. Repeated, minimal contact with skin may cause sensitization. Exposure to vapor can cause irritation to eyes, lungs and mucous membranes. Repeated inhalation of minimal amounts of vapor can cause respiratory sensitization and asthma.
 Primary route(s) of entry: inhalation, skin absorption
 First aid procedures:
 Eye contact: flush with water for 15 minutes. Get medical attention.
 Skin contact: wipe excess. Wash with rubbing alcohol, if available, followed by soap and water. Discard shoes if contaminated.
 Inhalation: remove to fresh air.
 Physician: treat for potential respiratory irritation.
 Toxicology information: there are no acute toxicology data on this material; however, residual TDI (0.02 – 4.0%) does possess irritancy and sensitization potential.
 Chronic: oral gavage administration of TDI in corn oil to rats and mice for 2 years resulted in an increased incidence of tumors. Six hour daily inhalation exposures to rats and mice of 0.05 and 0.15 ppm TDI for 2 years did not produce tumors. Since inhalation is the usual route of human exposure, the carcinogenic potential of TDI to humans has not been established.

SARA Title III (40CFR 372) – Section 313 Toxic Chemicals Notification		
Toxic Chemical	CAS Number	% (by weight)
2,4-toluene diisocyanate	584-84-9	0.87
2,6-toluene diisocyanate	91-08-7	0.13

Carcinogenic per NTP X IARC 2b OSHA _____ None _____ (TDI)

NFPA ratings: not established.

HMIS ratings: Health 2 Flammability 1 Reactivity 1 Personal Protection B

California Proposition 65: This product contains Toluenediisocyanate (TDI) that is known to the state of California to cause cancer.

Material Safety Data Sheet (Component B)

Product Identification

Chemical family: Hydroxy Terminated Poly (Oxyalkylene) Polyol.
Product name: Preliminary Formulation Vibrathane EP 823/5 clone 1
Formula: The specific chemical formula for this material is a trade secret of Industrial Polymers, Inc.
Chemical name: Blend of Polyol and Aromatic Diamine.
Synonyms: Polyether Triol.
C.A.S. number: 9082-00-2.

Composition Information / Ingredients

Ingredient Name / CAS Number	Exposure Limits	Concentration
Blend of Polyol and Aromatic Diamine CAS number 9082-00-2		85-95%
Proprietary Aryl Mercury Compound	OSHA: PEL 0.1 mg/m3 (ceiling) ACGIH: TLV 0.1 mg/m3 TWA	0.083%
Aromatic Diamine	OSHA: not established ACGIH: not established	5-15%

Hazardous Material Identification

Warning! Do not take internally.
Routes of absorption: this product will not exert a significant adverse effect to health from any route of exposure.
Acute inhalation: no significant adverse effects to health will occur from dermal contact.
Chronic inhalation: there is no known or reported effects from chronic exposure, except for effects similar to those experienced from single exposure.
Odor threshold: there is no data for odor threshold.
Irritation threshold: there is no data for irritation threshold.
Immediate danger to life or health: the IDLH concentration has not been established for this product.
Medical conditions aggravated by exposure: there is no medical conditions known to be aggravated by exposure.
Interactions with other chemicals, which enhance toxicity: there is no chemical known to enhance the toxicity of the product.

Emergency and first aid procedure

Inhalation: this product is not toxic by inhalation. Remove individual to fresh air.
Skin: not a skin irritant. Washing any substance off the skin with water is a good safety practice.
Eyes: not an eye irritant.
Ingestion: immediately drink water to dilute. Consult a physician if symptoms develop.

Fire and explosion hazard data

Flammable: no.
Combustible: no.
Pyrophoric: no.
Flash point: Greater than 500 F test method: Cleveland Open Cup
Auto ignition temperature: no data.
Flammable limits at normal atmospheric temperature and pressure (percent volume in air) LEL: no data, UEL: no data.
Extinguishing media: carbon dioxide, dry chemical and water spray.
Fire fighting procedures: use water to cool containers exposed to fire, use normal fire fighting equipment. Additional respiratory protection is necessary when a spill or fire involving this product occurs. You are recommended to use a cartridge type NIOSH/OSHA approved respirator with dust/mist cartridges. Additional protective clothing must be worn to prevent personal contact with this material. Those items include but are not limited to boots, impervious gloves, hardhat, splash-proof goggles, impervious clothing (chemically impermeable suit).

Accidental release measures

For all transportation accidents, call Chemtrec.
Reportable quantity: N/A (per 40 CFR 300.4).
Spill mitigation procedures: stop source of spill as soon as possible and notify appropriate personnel.
Air release: N/A.
Water release: this material is slightly soluble in water and may be subject to emulsification. Divert flow of water and contain that which is contaminated. Remove as a liquid utilizing a vacuum or pumping system as possible.
Land spill: dike spill area and begin to remove as a liquid. If unable to do so, then absorb in clay, sand or a commercial absorbent and containerize for disposal. Compatible absorbents – sand, clay soil.
Spill residues: (see Disposal considerations)

Personal protection

Eye protection: safety glasses with side shields.

Skin protection: gloves, apron and safety glasses.

Ventilation: local exhaust is recommended if vapors, mists or aerosols are generated. Otherwise, use general exhaust.

Respirator: not normally required at room temperature. In the absence of good ventilation, if vapor or mist is generated through heating or spray applications use supplied air respirator or respirator with organic vapor cartridges.

Physical properties

Appearance: white, pink, green, blue, clear, beige, gray and black.

Freezing point: no data.

Boiling point: no data.

Decomposition temperature: no data.

Specific gravity: 0.9-1.1.

Bulk density: N/A.

pH @ 25° C: 4-8 in. 10/6 isopropanol/water.

Vapor pressure @ 25° C: 0.01-3.5 mm Hg.

Solubility in water: soluble to slightly soluble.

Volatiles, percent by volume: 0.

Evaporation rate: N/A.

Vapor density: no data.

Molecular weight: N/A – mixture.

Odor: slightly musty to odorless.

Coefficient of oil/water distribution: no data.

Stability and reactivity

Conditions under which this product may be unstable:

Temperatures above: no data.

Mechanical shock or impact: no.

Electrical (static) discharge: no.

Other: no.

Hazardous polymerization: will not occur.

Incompatible materials: strong oxidizers.

Hazardous decomposition products: carbon monoxide, carbon dioxide and other fragments, which have not been identified.

Summary of reactivity:

Oxidizer: no.

Pyrophoric: no.

Organic peroxide: no.

Water reactive: no.

Toxicological information

Acute toxicity:

Inhalation LC50: greater than a nominal concentration of 200 mg/1 for 1-hour (rat).

Dermal LD50: >g/kg (rabbit).

Oral LD50: > 5g/kg (rat).

Irritation: not a skin and eye irritant.

Chronic target organ toxicity: there are no known or reported effects from repeated exposure.

Reproductive and developmental toxicity: there are no known or reported effects on reproductive function pre-fetal development.

Carcinogenicity: this product is not known or reported to be carcinogenic by any reference source including LARC, OSHA, NTP, or EPA.

Mutagenicity: this product is not known or reported to be mutagenic.

Ecological information

Aquatic toxicity: none known or reported.

Disposal considerations

Waste disposal method: waste must be disposed of in accordance with local, state and federal environmental control regulations. Incineration is the preferred method.

If this product becomes a waste, it does not meet the criteria of a hazardous waste as defined under 40 CFR 261, in that it does not exhibit the characteristics of hazardous waste of Subpart C, nor is it listed as a hazardous waste under Subpart D.

Care must be taken to prevent environmental contamination from the use of this material. The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and non-hazardous wastes.

Shipping information

This material is not regulated as a DOT hazardous material.

Technical shipping name: Propylene Glycol – DOT (domestic surface).

Proper shipping name: Liquid Resin (non-regulated).

DOT hazard classification: none.

UN/NA number: none.

Packaging group: none.

DOT labels required: none.

DOT placards required: none.

Freight class: 55.

Regulatory information

Toxic substances control act: this substance is listed on the Toxic Substance Control Act inventory.
Superfund Amendments and Reauthorization Act Title III:
Hazard categories: per 40 CFR 370.2: health – none physical – none.
Emergency planning and community right to know, per 40 CFR App. A:
Extremely hazardous substance – threshold-planning quantity: none established.
Supplier notification requirements per 40 CFR 372.45: none established.
California Proposition 65:
Component B for this product contains a Aryl Mercury Compound that is listed under California Proposition 65 to cause Reproductive Toxicity.

Other information

NFPA ratings: not established.

HMIS ratings:	Health	Flammability	Reactivity	Personal Protection
	1	1	0	B

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