AV-200 Primer

MATERIAL SAFETY DATA SHEET

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1. PRODUCT AND COMPANY INFORMATION

PRODUCT NAME: AV-200 Primer
CLASSIFICATION: Elastomeric Grout Primer

MANUFACTURER
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2. COMPOSITION/INGREDIENT INFORMATION

Part A

Ingredient / CAS Number	Exposure Limits	Concentration
4,4'-Diphenylmethane Diisocyanate (MDI) CAS #101-68-8	OSHA: .02 ppm or .20 mg/m3 ceiling ACGIH TWA: .005 ppm or .951 mg/m3	Trade Secret
Higher Oligomers of MDI CAS #9016-87-9	OHSA: Not established ACGIH: Not established	Trade Secret
Diphenylmethane Diisocyanate (MDI) CAS #26447-40-5	OSHA: Not established ACGIH: Not established	Trade Secret

Part B

Ingredient / CAS Number	Exposure Limits	Concentration
Polyol and Aromatic Diamine Blend CAS #9082-00-2	OHSA: Not established ACGIH: Not established	Trade Secret

3. HAZARDS IDENTIFICATION

Part A

Warning! May cause eye, skin, and respiratory tract irritation. Harmful if inhaled; may cause allergic respiratory reaction, may cause allergic skin reaction, and may cause lung damage. Toxic gases/fumes are given off during burning or thermal decomposition.

SKIN CONTACT: Contact from liquid and aerosols (spray application). Acute: Isocyanates react with skin protein and moisture and can cause irritation, which may include the following symptoms: reddening, swelling, rash, scaling, or blistering. Cured material is difficult to remove. Chronic: Prolonged contact can cause redness, swelling, rash, scaling, blistering, and in some cases skin sensitization. Individuals who have skin sensitization can develop these symptoms from contact with liquid vapors. Animal test have indicated that respiratory sensitization can result from skin contact with MDI. This data reinforces the need to prevent skin contact with MDI.

INHALATION: Although MDI is low volatility, an inhalation hazard can exist from MDI aerosols or vapors formed during heating, foaming or spraying. Individuals that are sensitized, exposure may result in allergic respiratory reactions. Acute: MDI/TDI vapors or mist at concentrations above the TLV can irritate (burning sensation) the mucous membranes in the respiratory tract (nose, throat, and lungs) causing runny nose, sore throat, coughing, chest discomfort, shortness of breath and reduced lung function (breathing obstruction). Persons with a preexisting, nonspecific bronchial hyperactivity can respond to concentrations below the TLV with similar symptoms as well as asthma attack. Exposure well above the TLV may lead to bronchitis, bronchial spasm and pulmonary edema (fluid in the lungs). These effects are usually reversible. Chemical or hypersensitive pneumonitis, with flu-like symptoms (e.g., fever, and chills) has also been reported. These symptoms can be delayed up to several hours after exposure. Chronic: As a result of previous repeated overexposures, or single large dose, certain individuals develop symptoms to isocyanates at levels way below TLV. These symptoms, which can include chest tightness, wheezing, coughing, shortness of breath, or asthma attack could be immediate or delayed up to several hours after exposure, 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. Overexposure to isocyanates has also been reported to cause lung damage, including decrease in lung function, which may be permanent. Sensitization can either be temporary or permanent.

EYE CONTACT: Liquid, aerosols or vapors are irritating and can cause tearing, reddening and swelling. If left untreated, corneal damage can occur and injury is slow heal. However, damage is usually reversible.

INGESTION: Can result in irritation and corrosive action in the mouth, stomach tissue, and digestive tract. Symptoms can include sore throat, abdominal pain, nausea, vomiting and diarrhea.

Part B

EYE CONTACT: Eye irritant.

SKIN CONTACT: Skin irritant.

INGESTION: Can result in irritation and corrosive action in the mouth, stomach tissue, and digestive tract. Symptoms can include sore throat, abdominal pain, nausea, vomiting and diarrhea.

INHALATION: This product is not an inhalation hazard at room temperature. Vapors or aerosol can be generated from heating or spraying and may cause respiratory irritation.

4. FIRST AID MEASURES

Part A

EYE CONTACT: Flush with plenty of water for at least 15 minutes. Consult a physician.

SKIN CONTACT: Remove contaminated clothing. Wash affected skin thoroughly with soap and water. Wash contaminated clothing before reusing. For severe exposure, get under safety shower after removing clothing, and then get medical attention. For lesser exposures, seek medical attention if irritation develops or persist after the area is washed.

INHALATION: Move to an area free from risk of further exposure. Administer oxygen or artificial respiration if needed. Obtain medical attention. Asthmatic-type symptoms may develop and may be immediate or delayed up to several hours. Consult a physician if this should occur.

INGESTION: **Do not** induce vomiting. Give 1-2 cups of milk or water to drink. Do not give anything by mouth to an unconscious person. Consult a physician.

NOTE TO PHYSICIAN:

EYE CONTACT: Stain for evidence of corneal injury. If cornea is burned, install antibiotic steroid preparation frequently. Work place vapors have produced reversible corneal epithelial edema impairing vision.

SKIN CONTACT: This compound is known as a skin sensitizer. Treat symptomatically as for contact dermatitis or thermal burns. If burned, treat as thermal burn.

INGESTION: Treat symptomatically. There is no specific antidote. Inducing vomiting is contraindicated because of the irritating nature of this compound.

RESPIRATORY: This compound is a known pulmonary sensitizer. Treatment is essentially symptomatic. An individual having skin or pulmonary sensitization reaction to this material should be removed from exposure to any isocyanate.

Part B

EYE CONTACT: Flush eyes gently with water. Seek medical attention if irritation persists.
SKIN CONTACT: Wash affected skin with soap and water. Seek medical attention if irritation persists.
INGESTION: Immediately drink water to dilute. Induce vomiting. Consult a physician. Do not give anything by mouth to an unconscious person.
INHALATION: In case of exposure to vapors or aerosol, move to fresh air. If breathing is difficult, seek medical attention.

5. FIRE AND EXPLOSION HAZARDS

Part A

FLASH POINT: 390°F (198.8°C) Pensky-Martens closed
EXTINGUISHING MEDIA: Dry chemical, carbon dioxide, foam and water spray for large fires.
PROTECTIVE EQUIPMENT: Wear self-contained breathing apparatus and full protective clothing.
SPECIAL FIRE FIGHTING PRECAUTIONS: During a fire, MDI vapors and other irritating, highly toxic gases may be generated by thermal decomposition or combustion. At temperatures greater than 400°F (204°C) polymeric MDI can polymerize and decompose, which can cause pressure build up in closed containers. Explosive rupture is possible. Therefore, use water to cool fire-exposed containers.

Part B

FLASH POINT: 150-260°C (300-500°F) COC
FLAMMABLE LIMITS: Not determined
AUTOIGNITION TEMPERATURE: Not determined
EXTINGUISHING MEDIA: Carbon dioxide, dry chemical or water spray.
PROTECTIVE EQUIPMENT: Wear self-contained breathing apparatus and full protective clothing.
OTHER: Use water to cool containers exposed to fire. Water may cause frothing below the surface of the liquid, which turns to steam. Water fog gently applied to the surface may cause frothing, which may extinguish the fire.

6. ACCIDENTAL RELEASE MEASURES

Part A

GENERAL PROCEDURES: Evacuate and ventilate spill area. Prevent entry into water system. Wear appropriate protective equipment during clean up.
LARGE SPILL: If temporary control of isocyanate vapor is required, a blanket of protective foam (available at most fire fighting departments) may be placed over the spill. Large quantities may be pumped into closed, but not sealed container for disposal.
MINOR SPILL: Absorb isocyanates with sawdust or other absorbents. Shovel into suitable unsealed containers. Transport to well-ventilated area (outside) and treat with neutralizing solution: mixture of water (90%), concentrated ammonia (3-8%) and detergent (2%). Allow to stand uncovered for 48 hours to let CO_2 escape.
CLEAN UP: Decontaminate floor with decontaminating solution letting stand for at least 15 minutes.

Part B

GENERAL PROCEDURES: Stop source of spill and notify appropriate personnel. Wear appropriate PPE.
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, absorb in clay, sand or a commercial absorbent and containerize for disposal. Compatible absorbents sand, clay soil.

7. HANDLING AND STORAGE

Part A

HANDLING: Wear protective clothing and respiratory protection. Warning properties (irritation of eyes, nose, and throat or odor) are not adequate to prevent chronic overexposure from inhalation. This material can produce asthmatic sensitization upon either single inhalation exposure to a relatively high concentration or upon repeated inhalation exposure to lower concentrations. Exposure to vapors of heated MDI can be extremely dangerous. Empty containers contain residue; observe all precautions and warnings listed for the product. Clean up the work area if contaminated. Employee education and training in the safe use and handling of this compound are required under the OSHA Hazard Communication Standard.

STORAGE: Store at temperatures above 64°F (18°C) and below 86°F (30°C). Store in tightly closed containers to prevent moisture contamination. Do not reseal if contamination is suspected. If container is exposed to high heat, 400°F (204°C) it can be pressurized and possibly rupture. MDI reacts slowly with water to form CO_2 gas. This gas can cause sealed containers to expand and possibly rupture. Product has a shelf life of 6 months.

Part B

HANDLING: Do not take internally. Avoid contact with skin, eyes and clothing. Upon contact with skin or eyes, wash off with water. Empty containers contain residue; observe all precautions and warnings listed for the product.

STORAGE: Do not store at temperatures above 120°F (49°C). Product is hygroscopic; protect with padding of dry air -40°C (-40°F) dew point or dry nitrogen. Calcium chloride drying system with silica gel on the vents can also be used. Product has a shelf life of 1 year (closed container).

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Part A

ENGINEERING CONTROLS: Local exhaust should be used to maintain levels below the TLV regarding industrial ventilation (i.e., ACGIH Industrial Ventilation) should be consulted for guidance about adequate ventilation.

PERSONAL PROTECTIVE EQUIPMENT

EYES AND FACE: Liquid chemical goggles. Vapor resistant goggles should be worn when contact lenses are in use. In a splash hazard environment chemical goggles should be used in combination with a full-faced shield.

SKIN: Permeation resistant gloves (butyl rubber, nitrile rubber, and polyvinyl alcohol). However, please note that PVA degrades in water. Cover as much of the exposed skin area as possible with appropriate clothing. If skin creams are used, keep area covered by cream to a minimum.

RESPIRATORY: Concentrations greater than the TLV can occur when MDI is sprayed heated or used in a poorly ventilated area. In such cases, or whenever concentrations of MDI exceed the TLV are not known, respiratory protection must be worn. A supplied air respirator (either positive pressure or continuos flow type) is required. In an emergency situation, a self-contained breathing apparatus may be used. MDI has poor warning properties, since the concentration at which MDI can be smelled is substantially higher than the maximum exposure limit. Observe OSHA regulations for respirator use (29 CFR 1910.134).

OTHER PROTECTIVE EQUIPMENT: Provide eyewash fountain and quick drench facilities in close proximity to points of potential exposure.

MONITORING: Isocyanate levels must be monitored. Monitoring of airborne isocyanates in the breathing zone of individuals should become part of the overall personal protective program. NIOSH and OSHA recommendations should be followed.

MEDICAL SURVEILLANCE: Medical supervision of all persons who handle or come in contact with isocyanates is recommended. These should include pre-employment and periodic medical examinations with pulmonary function tests (FEC, FVC as a minimum). Persons with breathing disorders should avoid working with isocyanates. Once a person is diagnosed as sensitized to an isocyanate, no further exposure should be permitted.

HYGIENE PRACTICES: Wash with soap and water after handling. Remove contaminated clothing and wash before reuse. Clean and inspect PPE before reuse. Do not eat, drink, or smoke in work area.

Part B

ENGINEERING CONTROLS: Local exhaust ventilation is recommended if vapors, mists or aerosols are generated. Otherwise, use general exhaust ventilation.

PERSONAL PROTECTIVE EQUIPMENT

EYES AND FACE: Wear safety glasses with side shields.

SKIN: Wear chemical resistant gloves and apron.

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

HYGIENE PRACTICES: Wash with soap and water after handling. Remove contaminated clothing and wash before reuse. Clean and inspect PPE before reuse. Do not eat, drink, or smoke in work area.

9. PHYSICAL AND CHEMICAL PROPERTIES

Part A

APPEARANCE AND ODOR: Transparent brown liquid with slightly musty odor
BOILING POINT: 406°F (208°C) @ 5mm Hg for MDI
MELTING/FREEZING POINT: Below 32°F (0°C) for MDI
VAPOR PRESSURE: <10-5 mm Hg @ 77°F (25°C)
VAPOR DENSITY (Air=1): 8.5 (MDI)
SPECIFIC GRAVITY (Water=1): 1.23 @ 77°F (25°C)
% VOLATILE BY VOLUME: Negligible
SOLUBILITY IN WATER: Not soluble, reacts slowly in order to liberate CO_2 gases
BULK DENSITY: 10.25 lbs/gal
ODOR THRESHOLD: Not established
pH: Not established

Part B

APPEARANCE AND ODOR: Black liquid with slightly musty to no odor
ODOR THRESHOLD: Not determined
IRRITATION THRESHOLD: Not determined
BOILING POINT: Not determined
FREEZING POINT: Not determined
pH @25°C: 4-8" 10/6 isopropanol/water
EVAPORATION RATE: N/A
VAPOR PRESSURE (mm Hg): 0.01-3.5 @ 25°C
BULK DENSITY: N/A
SPECIFIC GRAVITY (Water=1): 0.9-1.1
SOLUBILITY IN WATER: Soluble to slightly soluble

10. STABILITY AND REACTIVITY

Part A

STABILITY: This is a stable material.

MATERIALS TO AVOID: Water, amines, strong bases, and alcohols will cause some corrosion to copper alloys and aluminum.

DECOMPOSITION PRODUCTS: By high heat and fire: carbon monoxide, oxides of nitrogen, traces of HCN, MDI vapors or aerosols.

UNSTABLE CONDITIONS: Contamination with water and high heat above 400°F (204°C).

HAZARDOUS POLYMERIZATION: May occur. Contact with moisture and other materials which react with isocyanates, or temperature above 400°F (204°C) may cause some polymerization.

Part B

STABILITY: This is a stable material.
MATERIALS TO AVOID: Strong oxidizers.
HAZARDOUS DECOMPOSITION PRODUCTS: Carbon monoxide, carbon dioxide and other fragments which have not been identified.
HAZARDOUS POLYMERIZATION: Will not occur.

11. TOXICOLOGICAL INFORMATION

Part A

TOXICITY DATA FOR DIPHENYLMETHANE DIISOCYANATE (MONOMERIC AND POLYMERIC)
ACUTE ORAL LD50 (rat): >15,800 mg/kg
ACUTE DERMAL LD50 (rabbit): >5,010 but <7,940 mg/kg
ACUTE INHALATION LC50 (rat): The 4-hr LC50 for polymeric MDI in rat's ranges from 370 to 490 mg/m3. The LC50 for monomeric MDI was estimated to be between 172 and 187 mg/m3.
EYE EFFECTS: Slight to moderate irritation.
SKIN EFFECTS: Slight to moderate irritation.
SENSITIZATION: MDI has been shown to produce dermal sensitization in laboratory animals. Evidence of respiratory sensitization has also been observed in guinea pigs. In addition, there is some evidence suggestive of cross-sensitization between different types of diisocyanates.
CHRONIC TOXICITY: In a combined chronic inhalation toxicity/oncogenicity study, rats were exposed to an aerosol of polymeric MDI for 6 hours per day, 5 days per week for one or two years. The exposure concentrations were 0, 1.2, 1.0 and 6.0 mg/m3. Microscopic examination of tissues revealed the effects of irritation to the nasal cavity and lungs in animals exposed to 1.0 and 6.0 mg/m3. The No Observable Effect Level (NOEL) was 0.2 mg/m3.
CARCINOGENNICITY: In the study described above (chronic toxicity), the occurrence of pulmonary adenomas and single pulmonary adenomas and a single pulmonary adenocarcinoma was considered to be related to MDI. These tumors were observed only in rats exposed to high concentration of 6.0 mg/m3.
MUTAGENICITY: Positive (salmonella microsome test with metabolic activation; cell transformation assay) as well as negative (mouse lymphoma specific locus mutation test with or without metabolic activation) results have been observed "in vitro". However, MDI was negative in an "in vitro" (mouse micronucleus) assay.
DEVELOPMENTAL TOXICITY: Rats were exposed to polymeric MDI at air concentrations of 0, 1, 4 and 12 mg/3 during days 6-15 of gestation. Maternal toxicity (including mortality) was observed at the highest concentration of 12 mg/m3 accompanied by embryo and fetal toxicity. However, no eratogenic effects were observed even at this lethal concentration.

Part B

TOXICITY: No data.
CARCINOGENICITY: This product is not established as a carcinogen by NTP, IARC or OSHA.

12. ECOLOGICAL INFORMATION

Part A

ECOLOGY DATA: Diphenylmethane Diisocyanate (monomeric and polymeric)
AQUATIC TOXICITY: LC50-24 hours (static) greater then 500 mg/liter for daphnia magna, limnea stagnalis, and zebra fish (brachydanio rerio) for both polymeric and monomeric MDI.

Part B

No data.

13. DISPOSAL CONSIDERATIONS

Part A

WASTE DISPOSAL METHOD: Waste must be disposed of in accordance to local, state and federal environmental control regulations. Incineration is the preferred method.

EMPTY CONTAINER PRECAUTIONS: Empty containers must be handled with care due to product residue. Decontaminate containers prior to disposal. Empty decontaminated containers should be crushed to prevent reuse. Do not heat or cut empty container with electric or gas torch. Gases may be toxic.

TRANSPORTATION EMERGENCIES: Avanti International requires that Chemtrec be immediately notified at (800) 424-9300 when this product is unintentionally released from its container during its course of distribution, regardless of the amount released. Distribution includes transportation, storage incidental to transportation, loading and unloading. Such notification must be immediate and made by the person having knowledge of the release.

Part B

WASTE DISPOSAL METHOD: The uncured form of this product (component B only) does meet the criteria of a hazardous waste as defined under 40 CFR 261, (D009) of Subpart C. As a hazardous liquid waste, it should be disposed of in accordance with local, state and federal regulations by incineration.

EMPTY CONTAINER PRECAUTIONS: 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.

14. TRANSPORT INFORMATION

Part A

DOT (DEPARTMENT OF TRANSPORTATION)
PROPER SHIPPING NAME: Liquid Resin (non-regulated)
HAZARD CLASS: None
UN NUMBER: None
PACKING GROUP: None
LABEL: None
PLACARD: None
NMFC (NATIONAL MOTOR FREIGHT CARRIERS)
FREIGHT CLASS: 85

Part B

DOT (DEPARTMENT OF TRANSPORTATION)
PROPER SHIPPING NAME: Liquid Resin (non-regulated)
HAZARD CLASS: None
UN NUMBER: None
PACKING GROUP: None
LABEL: None
PLACARD: None
NMFC (NATIONAL MOTOR FREIGHT CARRIERS)
FREIGHT CLASS: 85

15. REGULATORY INFORMATION

Part A

SARA TITLE III
SECTION 302: None
SECTION 311/312: Immediate Health Hazard; Delayed Health Hazard, Reactive Hazard
SECTION 313: Polymeric Diphenylmethane Diisocyanate (CAS #9016-87-9) 100%; contained in this polymeric MDI product is 4,4'-Diphenylmethane Diisocyanate (CAS #101-68-8) upper bound 45%; Toluene Diisocyanate less than 1%.
CERCLA REPORTABLE QUANTITY: 5,000 lbs for 4,4'-Diphenylmethane Diisocyanate (CAS #101-68-8)
TSCA REGULATORY: All components of this product are either on the TSCA Inventory or exempt.
OSHA STATUS: This product is hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.
RCRA STATUS: MDI is not listed as a hazardous waste. This is because product uses, transformations, mixtures, processes, etc., may render the resulting material hazardous under the criteria of ignitability, corrosivity, reactivity and toxicity characteristics under the new Toxicity Characteristics Leaching Procedure (TCLP) code of Federal Regulations 261.20-24.
NFPA (NATIONAL FIRE PROTECTION AGENCY)
HEALTH: 3
FLAMMABILITY: 3
REACTIVITY: 1
SPECIAL: NONE

Part B

SARA TITLE III
SECTION 302: None
TSCA REGULATORY: All components of this product are either on the TSCA Inventory or exempt.
CALIFORNIA PROPOSITION 65: Component B for this product does not contain any chemicals that are listed under California Proposition 65.

16. OTHER INFORMATION

The information on this MSDS is accurate to the best of Avanti International's knowledge. Avanti International makes no expressed or implied warranty, and in no case shall be liable for consequential, special, or indirect damages resulting from the use or handling of this product. Additionally, if this MSDS is more than three (3) years old, please call our office for an updated version.