



## Material Safety Data Sheet

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### SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

**PRODUCT NAME:** 3M(TM) Scotch-Weld(TM) Polyurethane Reactive Adhesive TS-230 Black

**MANUFACTURER:** 3M

**DIVISION:** Industrial Adhesives and Tapes Division

**ADDRESS:** 3M Center  
St. Paul, MN 55144-1000

**EMERGENCY PHONE:** 1-800-364-3577 or (651) 737-6501 (24 hours)

**Issue Date:** 04/13/2007

**Supersedes Date:** 06/06/2005

**Document Group:** 07-3074-7

#### Product Use:

Specific Use: curing hot-melt adhesive  
Intended Use: Structural adhesive

### SECTION 2: INGREDIENTS

| <u>Ingredient</u>   | <u>C.A.S. No.</u> | <u>% by Wt</u> |
|---|-------------------|----------------|
| P,P'-DIPHENYLMETHANE DIISOCYANATE (MDI)                                   | 101-68-8          | < 3            |
| POLYURETHANE RESIN - N.J. TRADE SECRET (T.S.) REGISTRY NO. 04499600-5736P | Trade Secret      | > 97           |

### SECTION 3: HAZARDS IDENTIFICATION

#### 3.1 EMERGENCY OVERVIEW

**Specific Physical Form:** Waxy Solid

**Odor, Color, Grade:** Black, mild odor

**General Physical Form:** Solid

**Immediate health, physical, and environmental hazards:**

May cause allergic respiratory reaction.

May cause allergic skin reaction. May cause thermal burns.

#### 3.2 POTENTIAL HEALTH EFFECTS

**Eye Contact:**

Moderate Eye Irritation: Signs/symptoms may include redness, swelling, pain, tearing, and blurred or hazy vision.

Thermal Burns: Signs/symptoms may include severe pain, redness and swelling, and tissue destruction.

**Skin Contact:**

Thermal Burns: Signs/symptoms may include intense pain, redness and swelling, and tissue destruction.

Prolonged or repeated exposure may cause:

Allergic Skin Reaction (non-photo induced): Signs/symptoms may include redness, swelling, blistering, and itching.

Moderate Skin Irritation: Signs/symptoms may include localized redness, swelling, itching, and dryness.

**Inhalation:**

Vapors from heated material may cause irritation of the respiratory system. Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

Respiratory Tract Irritation: Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

Prolonged or repeated exposure may cause:

Allergic Respiratory Reaction: Signs/symptoms may include difficulty breathing, wheezing, cough, and tightness of chest.

**Ingestion:**

No health effects are expected.

Physical Blockage: Signs/symptoms may include cramping, abdominal pain, and constipation.

**Target Organ Effects:**

Persons previously sensitized to isocyanates may develop a cross-sensitization reaction to other isocyanates.

## SECTION 4: FIRST AID MEASURES

### 4.1 FIRST AID PROCEDURES

The following first aid recommendations are based on an assumption that appropriate personal and industrial hygiene practices are followed.

**Eye Contact:** Immediately flush eyes with large amounts of water for at least 15 minutes. DO NOT ATTEMPT TO REMOVE MOLTEN MATERIAL. Get immediate medical attention.

**Skin Contact:** Remove contaminated clothing and shoes. Immediately flush skin with large amounts of cold water for at least 15 minutes. DO NOT ATTEMPT TO REMOVE MOLTEN MATERIAL. Cover affected area with a clean dressing. Get immediate medical attention. Wash contaminated clothing and clean shoes before reuse.

**Inhalation:** Remove person to fresh air. If signs/symptoms develop, get medical attention.

**If Swallowed:** Do not induce vomiting unless instructed to do so by medical personnel. Give victim two glasses of water. Never give anything by mouth to an unconscious person. Get medical attention. No need for first aid is anticipated.

## SECTION 5: FIRE FIGHTING MEASURES

### 5.1 FLAMMABLE PROPERTIES

|                          |                          |
|--------------------------|--------------------------|
| Autoignition temperature | <i>No Data Available</i> |
| Flash Point              | $\geq 390$ °F            |
| Flammable Limits - LEL   | <i>Not Applicable</i>    |
| Flammable Limits - UEL   | <i>Not Applicable</i>    |

### 5.2 EXTINGUISHING MEDIA

Ordinary combustible material. Use fire extinguishers with class A extinguishing agents (e.g., water, foam).

### 5.3 PROTECTION OF FIRE FIGHTERS

**Special Fire Fighting Procedures:** Wear full protective equipment (Bunker Gear) and a self-contained breathing apparatus (SCBA).

**Unusual Fire and Explosion Hazards:** No unusual fire or explosion hazards are anticipated.

**Note:** See STABILITY AND REACTIVITY (SECTION 10) for hazardous combustion and thermal decomposition information.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

**Accidental Release Measures:** Observe precautions from other sections. Call 3M- HELPS line (1-800-364-3577) for more information on handling and managing the spill. Evacuate unprotected and untrained personnel from hazard area. The spill should be cleaned up by qualified personnel. Ventilate the area with fresh air. Collect as much of the spilled material as possible. Place in a closed container approved for transportation by appropriate authorities. Dispose of collected material as soon as possible.

**In the event of a release of this material, the user should determine if the release qualifies as reportable according to local, state, and federal regulations.**

## SECTION 7: HANDLING AND STORAGE

### 7.1 HANDLING

Avoid skin contact with hot material. Keep out of the reach of children. Keep container closed when not in use. Avoid breathing of dust created by cutting, sanding, grinding or machining. For industrial or professional use only. Avoid eye contact with dust or airborne particles. Do not expose to temperatures above 275 degrees F.

### 7.2 STORAGE

Store away from heat. Store out of direct sunlight.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

## 8.1 ENGINEERING CONTROLS

Provide appropriate local exhaust for cutting, grinding, sanding or machining. Do not use in a confined area or areas with little or no air movement. Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures to below Occupational Exposure Limits and/or control mist, vapor, or spray. If ventilation is not adequate, use respiratory protection equipment.

## 8.2 PERSONAL PROTECTIVE EQUIPMENT (PPE)

### 8.2.1 Eye/Face Protection

Avoid eye contact.

The following eye protection(s) are recommended: Safety Glasses with side shields, Indirect Vented Goggles.

### 8.2.2 Skin Protection

Wear appropriate gloves, such as Nomex, when handling this material to prevent thermal burns. Avoid skin contact. Avoid skin contact with hot material. Gloves are not required. Select and use gloves and/or protective clothing to prevent skin contact based on the results of an exposure assessment. Consult with your glove and/or protective clothing manufacturer for selection of appropriate compatible materials.

### 8.2.3 Respiratory Protection

Avoid breathing of vapors, mists or spray. Avoid breathing of dust created by cutting, sanding, grinding or machining. Select one of the following NIOSH approved respirators based on airborne concentration of contaminants and in accordance with OSHA regulations: Half facepiece or fullface supplied-air respirator. Consult the current 3M Respiratory Selection Guide for additional information or call 1-800-243-4630 for 3M technical assistance.

### 8.2.4 Prevention of Swallowing

Do not ingest. Wash hands after handling and before eating.

## 8.3 EXPOSURE GUIDELINES

| <u>Ingredient</u>                       | <u>Authority</u> | <u>Type</u> | <u>Limit</u> | <u>Additional Information</u> |
|---|------------------|-------------|--------------|-------------------------------|
| FREE ISOCYANATES                        | 3M               | TWA         | 0.005 ppm    |                               |
| FREE ISOCYANATES                        | 3M               | STEL        | 0.02 ppm     |                               |
| P,P'-DIPHENYLMETHANE DIISOCYANATE (MDI) | ACGIH            | TWA         | 0.005 ppm    |                               |
| P,P'-DIPHENYLMETHANE DIISOCYANATE (MDI) | OSHA             | CEIL        | 0.02 ppm     | Table Z-1                     |

### SOURCE OF EXPOSURE LIMIT DATA:

ACGIH: American Conference of Governmental Industrial Hygienists

CMRG: Chemical Manufacturer Recommended Guideline

OSHA: Occupational Safety and Health Administration

AIHA: American Industrial Hygiene Association Workplace Environmental Exposure Level (WEEL)

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

|                                 |                          |
|---------------------------------|--------------------------|
| <b>Specific Physical Form:</b>  | Waxy Solid               |
| <b>Odor, Color, Grade:</b>      | Black, mild odor         |
| <b>General Physical Form:</b>   | Solid                    |
| <b>Autoignition temperature</b> | <i>No Data Available</i> |
| <b>Flash Point</b>              | >=390 °F                 |
| <b>Flammable Limits - LEL</b>   | <i>Not Applicable</i>    |

|                                |  |
|--------------------------------|--|
| Flammable Limits - UEL         | <i>Not Applicable</i>                                |
| Boiling point                  | 302 °F [@ 5 mmHg] [Details: MDI]                     |
| Density                        | 1.08 g/ml  |
| Vapor Density                  | 8.6 [Ref Std: AIR=1] [Details: MDI]                  |
| Vapor Pressure                 | 0.0003 mmHg [@ 25 °C] [Details: MDI]                 |
| Specific Gravity               | 1.08 [Ref Std: WATER=1]                              |
| pH                             | <i>Not Applicable</i>                                |
| Melting point                  | <i>No Data Available</i>                             |
| Solubility in Water            | Nil  |
| Evaporation rate               | <i>No Data Available</i>                             |
| Volatile Organic Compounds     | <=1 g/l [Test Method: tested per EPA method 24A]     |
| Percent volatile               | <=3 % weight   |
| VOC Less H2O & Exempt Solvents | <=1  |
| Viscosity                      | 9000 centipoise [@ 250 °C] [Test Method: Brookfield] |

## SECTION 10: STABILITY AND REACTIVITY

**Stability:** Stable.

**Materials and Conditions to Avoid:** Amines; Alcohols; Heat; Reaction with water, alcohols, and amines is not hazardous if container can vent to the atmosphere to prevent pressure buildup. Additional Information: Do not expose to temperatures above 275 degrees F.

**Hazardous Polymerization:** Hazardous polymerization will not occur.

### Hazardous Decomposition or By-Products

| <u>Substance</u> | <u>Condition</u>  |
|------------------|-------------------|
| Amine Compounds  | During Combustion |
| Isocyanates      | During Combustion |
| Carbon monoxide  | During Combustion |
| Carbon dioxide   | During Combustion |
| Hydrogen Cyanide | During Combustion |

**Hazardous Decomposition:** Do not expose to temperatures above 275 F.

## SECTION 11: TOXICOLOGICAL INFORMATION

### Product-Based Toxicology Information:

AIR SAMPLING DATA: 3M conducted air monitoring of Jet-Weld (tm) TS- 230 Thermoset Adhesive to determine exposure to MDI. The monitoring yielded an exposure of 0.0012ppm MDI in the operator's breathing zone. The adhesive was spray applied using a Nordson Model 560 bulk applicator at 20psi, 245 degrees F and an adhesive flow-rate of 1.5 pounds/hour. Exposure time was 20 minutes. Monitoring was conducted in 20ft X 10ft X 20ft. room with no local exhaust ventilation.

## SECTION 12: ECOLOGICAL INFORMATION

**ECOTOXICOLOGICAL INFORMATION**

Not determined.

**CHEMICAL FATE INFORMATION**

Not determined.

**SECTION 13: DISPOSAL CONSIDERATIONS**

**Waste Disposal Method:** Dispose of waste product in a sanitary landfill. Incinerate in an industrial or commercial facility in the presence of a combustible material. As a disposal alternative, incinerate in an industrial or commercial facility. As a disposal alternative, dispose of waste product in a facility permitted to accept chemical waste. Empty containers are not hazardous waste as per U.S. EPA criteria. Empty 10 fl. oz. aluminum cartridges are recyclable using normal recycling techniques (See Decomposition Section).

Since regulations vary, consult applicable regulations or authorities before disposal.

**SECTION 14: TRANSPORT INFORMATION**

**ID Number(s):**

62-3897-2631-6, 62-3897-2635-7, 62-3897-5230-4, 62-3897-5235-3, 62-3897-5238-7, 62-3897-6829-2, 62-3897-6839-1, 62-3897-7530-5, 62-3897-8530-4, 62-3897-9530-3

Not regulated per U.S. DOT, IATA or IMO.

*These transportation classifications are provided as a customer service. As the shipper YOU remain responsible for complying with all applicable laws and regulations, including proper transportation classification and packaging. 3M's transportation classifications are based on product formulation, packaging, 3M policies and 3M's understanding of applicable current regulations. 3M does not guarantee the accuracy of this classification information. This information applies only to transportation classification and **not the packaging, labeling, or marking requirements**. The original 3M package is certified for U.S. ground shipment only. If you are shipping by air or ocean, the package may not meet applicable regulatory requirements.*

**SECTION 15: REGULATORY INFORMATION**

**US FEDERAL REGULATIONS**

Contact 3M for more information.

**311/312 Hazard Categories:**

Fire Hazard - No Pressure Hazard - No Reactivity Hazard - No Immediate Hazard - Yes Delayed Hazard - Yes

Section 313 Toxic Chemicals subject to the reporting requirements of that section and 40 CFR part 372 (EPCRA):

| <u>Ingredient</u> | <u>C.A.S. No</u> | <u>% by Wt</u> |
|-------------------|------------------|----------------|
|-------------------|------------------|----------------|

P,P'-DIPHENYLMETHANE DIISOCYANATE 101-68-8 <3  
(MDI) (Diisocyanates (EPCRA 313))

## STATE REGULATIONS

Contact 3M for more information.

## CHEMICAL INVENTORIES

The components of this product are in compliance with the chemical notification requirements of TSCA.

Contact 3M for more information.

## INTERNATIONAL REGULATIONS

Contact 3M for more information.

**WHMIS:** Hazardous

This MSDS has been prepared to meet the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200.

## SECTION 16: OTHER INFORMATION

### NFPA Hazard Classification

**Health:** 2 **Flammability:** 1 **Reactivity:** 0 **Special Hazards:** None

National Fire Protection Association (NFPA) hazard ratings are designed for use by emergency response personnel to address the hazards that are presented by short-term, acute exposure to a material under conditions of fire, spill, or similar emergencies. Hazard ratings are primarily based on the inherent physical and toxic properties of the material but also include the toxic properties of combustion or decomposition products that are known to be generated in significant quantities.

### Revision Changes:

Section 1: Product use information was modified.

Section 1: Division name was modified.

Copyright was modified.

Section 14: ID Number(s) was modified.

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