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1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product name: Kit 96677 ISOCYANATE
Product type: Polyurethane adhesive
Company address:
Henkel Corporation
1001 Trout Brook Crossing
Rocky Hill, Connecticut 06067

Item No. : 96677_30014N000 / IDH No. 702226
Region: United States
Contact Information:
Telephone: 860.571.5100
Emergency telephone: 860.571.5100
Internet: www.loctite.com

2. COMPOSITION/INFORMATION ON INGREDIENTS

<u>Hazardous components</u>	<u>%</u>	<u>ACGIH TLV</u>	<u>OSHA PEL</u>	<u>OTHER</u>
Methylene bisphenyl isocyanate 101-68-8	30-60	0.005 ppm TWA	0.02 ppm Ceiling 0.2 mg/m ³ Ceiling	None
Methylene bisphenyl isocyanate 26447-40-5	10-30	None	None	None
Homologues of methylene bisphenyl isocyanate 9016-87-9	10-30	None	None	None
Bis (2-ethylhexyl) phthalate 117-81-7	5-10	5 mg/m ³ TWA	5 mg/m ³ TWA	None
Carbon black 1333-86-4	0.1-1	3.5 mg/m ³ TWA	3.5 mg/m ³ TWA	None

3. HAZARDS IDENTIFICATION**EMERGENCY OVERVIEW**

Physical state: Liquid
Color: Colorless to Straw
Odor: Slight, Musty

HMIS:

HEALTH: 3*
FLAMMABILITY: 1
PHYSICAL HAZARD: 1
Personal Protection: See Section 8

WARNING: HARMFUL IF INHALED.
MAY CAUSE ALLERGIC SKIN AND RESPIRATORY REACTION.
MAY CAUSE LUNG DAMAGE.
CAUSES EYE, SKIN AND RESPIRATORY TRACT IRRITATION

Relevant routes of exposure: Inhalation, Skin contact, Eye contact, Ingestion

Potential Health Effects

Inhalation:	Methylene bisphenyl isocyanate (MDI) vapors or mist at concentrations above the TLV can irritate 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 preexisting, nonspecific bronchial hyperreactivity can respond to concentrations below the TLV with similar symptoms as well as lead to bronchitis, bronchial spasm and pulmonary edema (fluid in lungs). Chronic: As a result of previous repeated exposures or a single large dose, certain individuals develop isocyanate sensitization (chemical asthma) which will cause them to react to a later exposure to isocyanate at levels well below the TLV. These symptoms, which can include chest tightness, wheezing, cough, 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. Over exposure 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.
Skin contact:	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 reddening, swelling, rash, scaling, blistering and in some cases, skin sensitization. Individuals who have skin sensitization can develop these symptoms from contact with liquid or vapor. Animal tests have indicated that respiratory sensitization can result from skin contact with MDI. These data reinforce the need to prevent direct skin contact with MDI.
Eye contact:	Liquid, aerosols or vapor are irritating and can cause tearing, reddening and swelling. If left untreated, corneal damage can occur and injury is slow to heal. Damage however is usually reversible. See Section 4 for First Aid measures.
Ingestion:	Irritation and corrosive action can occur in the mouth, stomach tissue and digestive tract if swallowed. Symptoms can include sore throat, abdominal pain, nausea, vomiting and diarrhea.
Existing conditions aggravated by exposure:	Asthma. Other respiratory disorders (bronchitis, emphysema, bronchial hyperreactivity). Skin allergies. Eczema.

See Section 11 for additional toxicological information.

4. FIRST AID MEASURES

Inhalation:	Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention. Asthmatic-type symptoms may develop and may be immediate or delayed up to several hours.
Skin contact:	Remove contaminated clothing and shoes. Wash with soap and water. Wash clothing before reuse. For severe exposures, get under safety shower after removing clothing, then get medical attention. For lesser exposure, seek medical attention if irritation develops or persists after area is washed.
Eye contact:	Flush with copious amounts of water, preferably, lukewarm water for at least 15 minutes, holding eyelids open all the time. Get medical attention.
Ingestion:	Do not induce vomiting. Keep individual calm. Never give anything by mouth to an unconscious person. Get medical attention immediately.

5. FIRE-FIGHTING MEASURES

Flash point:	213°C (415°F) Seta closed cup
Autoignition temperature:	Not determined
Flammable/Explosive limits-lower %:	Not determined
Flammable/Explosive limits-upper %:	Not determined
Extinguishing media:	Water spray (fog), foam, dry chemical or carbon dioxide.
Special fire fighting procedures:	Wear self-contained breathing apparatus and full protective clothing, such as turn-out gear. During a fire, MDI vapors and other irritating, highly toxic gases may be generated by thermal decomposition or combustion. At temperatures above 204.4°C (400°F), polymeric MDI can polymerize and decompose which can cause pressure build-up in closed containers. Explosive rupture is possible. Therefore, use cold water to cool fire-exposed containers.
Unusual fire or explosion hazards:	Closed containers may rupture (due to build up of pressure) when exposed to extreme heat. In the event of fire, cool tanks with water spray.
Hazardous combustion products:	Hydrogen cyanide. Oxides of carbon. Oxides of nitrogen. Methylene bisphenyl isocyanate.

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6. ACCIDENTAL RELEASE MEASURES

Environmental precautions:	Prevent product from entering drains or open waters.
Clean-up methods:	Evacuate and ventilate spill area; dike spill to prevent entry into water system; wear full protective equipment during clean-up. If temporary control of isocyanate vapor is required, a blanket of protein foam (available at most fire departments) may be placed over spill. Large quantities may be pumped into closed, but not sealed containers for disposal. For minor spills, absorb isocyanates with sawdust or other absorbent, shovel into suitable unsealed containers, transport to well ventilated area (outside) and treat with neutralizing solution: mixture of 80% water and 20% non-ionic surfactant Tergitol TMN-10; or 90% water, 3-8% concentrated ammonia and 2% detergent. Add about ten parts of neutralizer per part of isocyanate, with mixing. Allow to stand uncovered for 48 hours to let carbon dioxide escape. Decontaminate floor with decontamination solution letting stand for at least 15 minutes.

7. HANDLING AND STORAGE

Handling:	Avoid contact with eyes, skin and clothing. Do not breathe mist or vapors. Exposure to vapors of heated MDI can be extremely dangerous. Wash thoroughly after handling. Protect from moisture. Keep away from heat, spark and flame.
Storage:	Store in tightly closed containers to prevent moisture contamination. Do not reseal if contamination is suspected. MDI reacts slowly with water to form carbon dioxide gas. This gas can cause sealed containers to expand and possibly rupture. If container is exposed to high heat (204.4 °C (400 °F)), it can be pressurized and possibly rupture.
Incompatible products:	Water, amines, strong bases, and alcohols. Will cause some corrosion of copper alloys and aluminum.

For information on product shelf life contact Henkel Customer Service at (800) 243-4874.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering controls:	Local exhaust should be used to maintain levels below the TLV whenever MDI is processed, heated or spray applied. Standard reference sources regarding industrial ventilation (i.e., ACGIH Industrial Ventilation) should be consulted for guidance about adequate ventilation. Air monitoring: Monitoring of airborne isocyanates in the breathing zone of individuals should become part of the overall employee exposure characterization program. Isocyanate exposure levels must be monitored. Monitoring techniques have been developed by NIOSH and OSHA. Medical Surveillance: Medical supervision of all employees who handle or come in contact with isocyanates is recommended. Persons with asthmatic-type conditions, chronic bronchitis, other chronic respiratory diseases or recurrent skin eczema or sensitization should be excluded from working with isocyanates. Once a person is diagnosed as sensitized to an isocyanate, no further exposure can be permitted.
Respiratory protection:	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, respiratory protection must be worn. A positive pressure, supplied-air respirator or a self-contained breathing apparatus is recommended. In situations where MDI is not sprayed, heated, or used in a poorly ventilated area, and a supplied-air or self-contained breathing apparatus is unavailable or its use impractical, at least an air-purifying cartridge and particulate pre-filters must be worn. However, this should be permitted only for short periods of time (less than one hour) at relatively low concentrations (at or near the TLV). However, due to the poor warning properties of MDI, proper fit and timely replacement of filter elements must be ensured. Observe OSHA regulations for respiratory use (29 CFR 1910.134).
Skin protection:	Permeation resistant gloves (butyl rubber, nitrile rubber, polyvinyl alcohol). However, please note that polyvinyl alcohol degrades in water. Cover as much of the exposed skin area as possible with appropriate clothing. If skin creams are used, keep the area covered by the cream to a minimum.
Eye/face protection:	Chemical splash goggles or safety glasses with side shields. In a splash hazard environment, chemical goggles should be used in combination with a full face shield.

See Section 2 for exposure limits.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state:	Liquid
Color:	Colorless to Straw
Odor:	Slight, Musty
Vapor pressure:	0 kPa at 20 °C (68 °F)
pH:	Not applicable
Boiling point/range:	Not available

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Melting point/range: Not available
Specific gravity: 8.5
Vapor density: Heavier than air
Evaporation rate: Not available
Solubility in water: Negligible. Reacts slowly with water to liberate carbon dioxide gas.
Partition coefficient (n-octanol/water): Not available
VOC content: Not available

10. STABILITY AND REACTIVITY

Stability: Stable under normal conditions of storage and use.
Hazardous polymerization: Contact with moisture, other materials which can react with isocyanates, or temperatures above 204.4°C (400°F), may cause polymerization.
Hazardous decomposition products: Thermal decomposition can lead to release of irritating gases and vapors. Hydrogen cyanide (hydrocyanic acid). Oxides of nitrogen. Oxides of carbon.
Incompatibility: Water, amines, alkalis and alcohols. Will cause some corrosion to copper alloys and aluminum.
Conditions to avoid: Heat, flames and sparks. Contamination with water. Storage with incompatible materials.

11. TOXICOLOGICAL INFORMATION

Carcinogen Status

Hazardous components	NTP Carcinogen	IARC Carcinogen	OSHA Carcinogen
Methylene bisphenyl isocyanate 101-68-8	No	No	No
Methylene bisphenyl isocyanate 26447-40-5	No	No	No
Homologues of methylene bisphenyl isocyanate 9016-87-9	No	No	No
Bis (2-ethylhexyl) phthalate 117-81-7	Suspect Carcinogen	No	Yes
Carbon black 1333-86-4	No	Group 2B	Yes

Literature Referenced Target Organ & Other Health Effects

Hazardous components	Health Effects/Target Organs
Methylene bisphenyl isocyanate 101-68-8	Allergen, Irritant, Respiratory
Methylene bisphenyl isocyanate 26447-40-5	Allergen, Irritant, Respiratory, Mutagen
Homologues of methylene bisphenyl isocyanate 9016-87-9	Allergen, Irritant, Kidney, Liver, Respiratory
Bis (2-ethylhexyl) phthalate 117-81-7	Some evidence of carcinogenicity, Reproductive, Liver, Kidney, Developmental, Central nervous system
Carbon black 1333-86-4	Respiratory, Some evidence of carcinogenicity

12. ECOLOGICAL INFORMATION

Ecological information: For both polymeric and monomeric MDI: Aquatic toxicity - LC50 - 24 hour (static): greater than 500 mg/l for Daphnia magna, Limnea stagnalis, and Zebra fish (Brachydanio rerio).

13. DISPOSAL CONSIDERATIONS

Information provided is for unused product only.

Recommended method of disposal: Dispose of in accordance with Federal, State and local regulations.

EPA hazardous waste number: Not a RCRA hazardous waste.

14. TRANSPORT INFORMATION

The shipping classifications in this section are for non-bulk packaging only (unless otherwise specified). Shipping classification may be different for bulk packaging.

U.S. Department of Transportation Ground (49 CFR):

Proper shipping name:	Not regulated
Hazard class or division:	None
Identification number:	None
Packing group:	None

International Air Transportation (ICAO/IATA):

Proper shipping name:	Not regulated
Hazard class or division:	None
Identification number:	None
Packing group:	None

Water Transportation (IMO/IMDG):

Proper shipping name:	Not regulated
Hazard class or division:	None
Identification number:	None
Packing group:	None

15. REGULATORY INFORMATION

United States Regulatory Information

TSCA 8 (b) Inventory Status: All components are listed or are exempt from listing on the Toxic Substances Control Act Inventory.
TSCA 12 (b) Export Notification: None.

CERCLA/SARA Section 302 EHS: None.
CERCLA/SARA Section 311/312: Immediate Health Hazard, Delayed Health Hazard
CERCLA/SARA 313: This product contains the following toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 (40 CFR 372). Methylene bisphenyl isocyanate (CAS# 101-68-8). Methylene bisphenyl isocyanate (CAS# 26447-40-5). Bis (2-ethylhexyl) phthalate (CAS#117-81-7). Homologues of methylene bisphenyl isocyanate (CAS# 9016-87-9).

California Proposition 65: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

Canada Regulatory Information

CEPA DSL/NDL Status: All components are listed on or are exempt from listing on the Domestic Substances List.
WHMIS hazard class: D.1.A, D.2.A, D.2.B

16. OTHER INFORMATION

This material safety data sheet contains changes from the previous version in sections: 15

Prepared by: Gary Pierson, Sr. Product Safety and Regulatory Affairs Specialist

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