



# SAFETY DATA SHEET

THE DOW CHEMICAL COMPANY\*

**Product name:** ADCOTE™ 527

**Issue Date:** 02/24/2015

**Print Date:** 03/13/2015

THE DOW CHEMICAL COMPANY\* encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

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## 1. IDENTIFICATION

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**Product name:** ADCOTE™ 527

**Recommended use of the chemical and restrictions on use**

**Identified uses:** This product is used in coatings, textiles, binders and adhesives.

**COMPANY IDENTIFICATION**

THE DOW CHEMICAL COMPANY\*  
Agent for Rohm and Haas Chemicals LLC  
100 INDEPENDENCE MALL WEST  
PHILADELPHIA PA 19106-2399  
UNITED STATES

**Customer Information Number:**

215-592-3000

[SDSQuestion@dow.com](mailto:SDSQuestion@dow.com)

**EMERGENCY TELEPHONE NUMBER**

**24-Hour Emergency Contact:** 1 800 424 9300

**Local Emergency Contact:** 989-636-4400

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## 2. HAZARDS IDENTIFICATION

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**Hazard classification**

This material is hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29CFR 1910.1200.

Flammable liquids - Category 2

Skin irritation - Category 2

Eye irritation - Category 2A

Respiratory sensitisation - Category 1

Skin sensitisation - Category 1

Carcinogenicity - Category 1B

Specific target organ toxicity - single exposure - Category 3

**Label elements**

**Hazard pictograms**



Signal word: **DANGER!**

### Hazards

Highly flammable liquid and vapour.

Causes skin irritation.

May cause an allergic skin reaction.

Causes serious eye irritation.

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

May cause respiratory irritation.

May cause drowsiness or dizziness.

May cause cancer.

### Precautionary statements

#### Prevention

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Keep container tightly closed.

Ground/bond container and receiving equipment.

Use explosion-proof electrical/ ventilating/ lighting/ equipment.

Use only non-sparking tools.

Take precautionary measures against static discharge.

Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.

Wash skin thoroughly after handling.

Use only outdoors or in a well-ventilated area.

Contaminated work clothing should not be allowed out of the workplace.

Wear protective gloves/ protective clothing/ eye protection/ face protection.

In case of inadequate ventilation wear respiratory protection.

#### Response

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

IF exposed or concerned: Get medical advice/ attention.

If skin irritation or rash occurs: Get medical advice/ attention.

If eye irritation persists: Get medical advice/ attention.

Take off contaminated clothing and wash before reuse.

In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

#### Storage

Store in a well-ventilated place. Keep container tightly closed.

Store in a well-ventilated place. Keep cool.

Store locked up.

**Disposal**

Dispose of contents/ container to an approved waste disposal plant.

**Other hazards**

Static-accumulating flammable liquid.

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**3. COMPOSITION/INFORMATION ON INGREDIENTS**

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This product is a mixture.

Component	CASRN	Concentration
Polyurethane resin	Not Hazardous	60.0 - 64.0 %
Methylenebis(4-phenyl isocyanate)	101-68-8	< 5.0 %
Ethyl acetate	141-78-6	30.0 - 35.0 %

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**4. FIRST AID MEASURES**

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**Description of first aid measures**

**Inhalation:** Move to fresh air. If breathing is irregular or stopped, administer artificial respiration. Call a physician immediately.

**Skin contact:** Take off all contaminated clothing immediately. Wash off immediately with soap and plenty of water. If skin irritation persists, call a physician. Wash contaminated clothing before re-use.

**Eye contact:** Flush eyes with water as a precaution. If eye irritation persists, consult a specialist.

**Ingestion:** Never give anything by mouth to an unconscious person. If a person vomits when lying on his back, place him in the recovery position. Do NOT induce vomiting. Rinse mouth. Immediately give large quantities of water to drink. Call a physician immediately.

**Most important symptoms and effects, both acute and delayed:** Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

**Indication of any immediate medical attention and special treatment needed**

**Notes to physician:** Bronchial constriction may develop after extensive exposure to isocyanates, even in individuals who have not been shown to be previously sensitized.

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**5. FIREFIGHTING MEASURES**

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**Suitable extinguishing media:** Foam Carbon dioxide (CO2) Dry powder

**Unsuitable extinguishing media:** no data available

**Special hazards arising from the substance or mixture**

**Hazardous combustion products:** During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Nitrogen oxides. Hydrogen cyanide. Isocyanates. Carbon dioxide. Carbon monoxide.

**Unusual Fire and Explosion Hazards:** Vapors can travel to a source of ignition and flash back. Heated material can form flammable or explosive vapors with air. Closed containers may rupture via pressure build-up when exposed to fire or extreme heat.

**Advice for firefighters**

**Fire Fighting Procedures:** For safety reasons in case of fire, containers should be stored separately in closed containments. Cool closed containers exposed to fire with water spray. **EXPLOSION HAZARD.** Fight advanced fires from a protected location. Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

**Special protective equipment for firefighters:** Wear self-contained breathing apparatus and protective suit.

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## 6. ACCIDENTAL RELEASE MEASURES

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**Personal precautions, protective equipment and emergency procedures:** Use personal protective equipment. Refer to protective measures listed in sections 7 and 8. **MATERIAL IS A POTENTIAL SENSITIZER.** If exposed to material during clean-up operations, **IMMEDIATELY** remove all contaminated clothing and wash exposed skin areas with soap and water. See SECTION 4, First Aid Measures, for further information.

**Environmental precautions:** Do not flush into surface water or sanitary sewer system.

**Methods and materials for containment and cleaning up:** Evacuate personnel to safe areas. Remove all sources of ignition. Ensure adequate ventilation. Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

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## 7. HANDLING AND STORAGE

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**Precautions for safe handling:** Provide sufficient air exchange and/or exhaust in work rooms. Avoid exceeding the given occupational exposure limits (see section 8). In case of insufficient ventilation, wear suitable respiratory equipment. Do not breathe vapours or spray mist. Wear personal protective equipment. For personal protection see section 8. Keep away from heat and sources of ignition. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapours). Ensure all equipment is electrically grounded before beginning transfer operations. May cause sensitisation of susceptible persons by skin contact. **CONTAINERS MAY BE HAZARDOUS WHEN EMPTY.** Since emptied containers retain product residue follow all MSDS and label warnings even after container is emptied.

**Conditions for safe storage:** Material can burn; limit indoor storage to approved areas equipped with automatic sprinklers. Keep container tightly closed in a dry and well-ventilated place. Keep away from

heat and sources of ignition. Electrical installations / working materials must comply with the technological safety standards.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control parameters

Exposure limits are listed below, if they exist.

Component	Regulation	Type of listing	Value/Notation
Methylenebis(4-phenyl isocyanate)	Rohm and Haas	TWA	0.005 ppm
	Rohm and Haas	STEL	0.02 ppm
	ACGIH	TWA	0.005 ppm
	OSHA Z-1	C	0.2 mg/m3 0.02 ppm
Ethyl acetate	Rohm and Haas	TWA	150 ppm
	Rohm and Haas	STEL	300 ppm
	ACGIH	TWA	400 ppm
	OSHA Z-1	TWA	1,400 mg/m3 400 ppm

### Exposure controls

**Engineering controls:** Use explosion-proof local exhaust ventilation with a minimum capture velocity of 100 ft/min (0.5 m/sec) at the point of vapor evolution. Refer to the current edition of Industrial Ventilation: A Manual of Recommended Practice published by the American Conference of Governmental Industrial Hygienists for information on the design, installation, use, and maintenance of exhaust systems.

**Hygiene measures:** Wash hands before breaks and immediately after handling the product.

**Protective measures:** Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

### Individual protection measures

**Eye/face protection:** Use chemical splash goggles and face shield (ANSI Z87.1 or approved equivalent). Eye protection worn must be compatible with respiratory protection system employed.

#### Skin protection

**Hand protection:** Chemical-resistant gloves should be worn whenever this material is handled. The glove(s) listed below may provide protection against permeation. (Gloves of other chemically resistant materials may not provide adequate protection): 4H Glove (Trademark of Safety 4 A/S of Denmark) Butyl-rubber. Gloves should be removed and replaced immediately if there is any indication of degradation or chemical breakthrough. Before removing gloves clean them with soap and water. NOTE: Material is a possible skin sensitizer.

**Other protection:** Avoid all skin contact. Selection of specific personal protective equipment such as long sleeves, safety glasses with side shields, face shield, safety shoes, boots, apron, or full body suit will depend on the task.

**Respiratory protection:** A respiratory protection program meeting OSHA 1910.134 and ANSI Z88.2 requirements or equivalent must be followed whenever workplace conditions warrant a respirator's use. None required if airborne concentrations are maintained below the exposure limit listed in Exposure Limit Information. Above the exposure limit: Wear a properly fitted NIOSH approved (or equivalent) self-contained breathing apparatus in the pressure demand mode, OR full-facepiece, airline respirator in the pressure demand mode with emergency escape provision.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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**Appearance**

Physical state	liquid
Color	amber
Odor	Solvent odor
Odor Threshold	no data available
pH	Not Applicable
Melting point/range	no data available
Freezing point	no data available
Boiling point (760 mmHg)	77.00 °C ( 170.60 °F) Ethyl acetate
Flash point	<b>closed cup</b> 0.50 °C ( 32.90 °F) <i>SETAFLASH CLOSED CUP</i> SETAFLASH CLOSED CUP
Evaporation Rate (Butyl Acetate = 1)	6.20 Ethyl acetate
Flammability (solid, gas)	Not Applicable
Lower explosion limit	2.20 % vol Ethyl acetate
Upper explosion limit	11.50 % vol Ethyl acetate
Vapor Pressure	73.0000000 mmHg at 20.00 °C (68.00 °F) Ethyl acetate
Relative Vapor Density (air = 1)	3.0400 Ethyl acetate
Relative Density (water = 1)	1.0400
Water solubility	insoluble
Partition coefficient: n-octanol/water	no data available
Auto-ignition temperature	426.00 °C (798.80 °F) Ethyl acetate
Decomposition temperature	no data available
Kinematic Viscosity	no data available
Explosive properties	no data available
Oxidizing properties	no data available
Molecular weight	no data available
Percent volatility	32.00 - 34.00 %
Volatile Organic Compounds	Not Determined

NOTE: The physical data presented above are typical values and should not be construed as a specification.

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## 10. STABILITY AND REACTIVITY

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**Reactivity:** no data available

**Chemical stability:** no data available

**Possibility of hazardous reactions:** Stable under recommended storage conditions. Avoid moisture. Hazardous polymerization will also occur if contaminated with the following: - water (moisture)

**Conditions to avoid:** Heat, flames and sparks. Exposure to water vapour.

**Incompatible materials:** Strong oxidizing agents Water

**Hazardous decomposition products:** Heating or fire conditions liberates toxic gas.

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## 11. TOXICOLOGICAL INFORMATION

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*Toxicological information on this product or its components appear in this section when such data is available.*

### **Acute toxicity**

#### **Acute oral toxicity**

Product test data not available.

#### **Acute dermal toxicity**

Product test data not available.

#### **Acute inhalation toxicity**

Product test data not available.

### **Skin corrosion/irritation**

Product test data not available.

### **Serious eye damage/eye irritation**

Product test data not available.

### **Sensitization**

Product test data not available.

### **Specific Target Organ Systemic Toxicity (Single Exposure)**

Product test data not available.

### **Specific Target Organ Systemic Toxicity (Repeated Exposure)**

Product test data not available.

### **Carcinogenicity**

Product test data not available.

### **Teratogenicity**

Product test data not available.

### **Reproductive toxicity**

Product test data not available.

**Mutagenicity**

Product test data not available.

**Aspiration Hazard**

Product test data not available.

**COMPONENTS INFLUENCING TOXICOLOGY:****Methylenebis(4-phenyl isocyanate)****Acute oral toxicity**

LD50, Rat, > 2,000 mg/kg No deaths occurred at this concentration.

**Acute dermal toxicity**

LD50, Rabbit, > 9,400 mg/kg

**Acute inhalation toxicity**

LC50, Rat, 1 Hour, dust/mist, 2.24 mg/l

**Skin corrosion/irritation**

Prolonged contact may cause moderate skin irritation with local redness.

Repeated contact may cause moderate skin irritation with local redness.

May stain skin.

**Serious eye damage/eye irritation**

May cause moderate eye irritation.

May cause slight temporary corneal injury.

**Sensitization**

Skin contact may cause an allergic skin reaction.

Animal studies have shown that skin contact with isocyanates may play a role in respiratory sensitization.

May cause allergic respiratory reaction.

MDI concentrations below the exposure guidelines may cause allergic respiratory reactions in individuals already sensitized.

Asthma-like symptoms may include coughing, difficult breathing and a feeling of tightness in the chest. Occasionally, breathing difficulties may be life threatening.

**Specific Target Organ Systemic Toxicity (Single Exposure)**

May cause respiratory irritation.

Route of Exposure: Inhalation

Target Organs: Respiratory Tract

**Specific Target Organ Systemic Toxicity (Repeated Exposure)**

Tissue injury in the upper respiratory tract and lungs has been observed in laboratory animals after repeated excessive exposures to MDI/polymeric MDI aerosols.

**Carcinogenicity**

Lung tumors have been observed in laboratory animals exposed to respirable aerosol droplets of MDI/Polymeric MDI (6 mg/m<sup>3</sup>) for their lifetime. Tumors occurred concurrently with respiratory irritation and lung injury. Current exposure guidelines are expected to protect against these effects reported for MDI.

**Teratogenicity**

Has been toxic to the fetus in laboratory animals at doses toxic to the mother. Did not cause birth defects in laboratory animals.

**Reproductive toxicity**

No relevant data found.

**Mutagenicity**

Genetic toxicity data on MDI are inconclusive. MDI was weakly positive in some in vitro studies; other in vitro studies were negative. Animal mutagenicity studies were predominantly negative.

**Aspiration Hazard**

Based on physical properties, not likely to be an aspiration hazard.

**Ethyl acetate****Acute oral toxicity**

LD50, Rabbit, 4,934 mg/kg

**Acute dermal toxicity**

LD50, Rabbit, > 17,900 mg/kg

**Acute inhalation toxicity**

Prolonged excessive exposure may cause adverse effects. Symptoms may include headache, dizziness and drowsiness, progressing to incoordination and unconsciousness. May cause respiratory irritation and central nervous system depression.

LC50, Rat, 4 Hour, vapour, > 28.6 mg/l

**Skin corrosion/irritation**

Essentially nonirritating to skin.  
May cause drying and flaking of the skin.

**Serious eye damage/eye irritation**

May cause slight eye irritation.  
May cause slight temporary corneal injury.  
Vapor may cause eye irritation experienced as mild discomfort and redness.

**Sensitization**

Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:

No relevant data found.

**Specific Target Organ Systemic Toxicity (Single Exposure)**

May cause drowsiness or dizziness.

Route of Exposure: Inhalation

Target Organs: Nervous system

**Specific Target Organ Systemic Toxicity (Repeated Exposure)**

Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed.

In animals, effects have been reported on the following organs:

Liver.  
Respiratory tract.

**Carcinogenicity**

For the hydrolysis product: Ethanol when not consumed in an alcoholic beverage is not classifiable as a human carcinogen.

**Teratogenicity**

Relevant data not available.

**Reproductive toxicity**

Relevant data not available.

**Mutagenicity**

In vitro genetic toxicity studies were predominantly negative. Animal genetic toxicity studies were negative.

**Aspiration Hazard**

Based on physical properties, not likely to be an aspiration hazard.

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## 12. ECOLOGICAL INFORMATION

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*Ecotoxicological information on this product or its components appear in this section when such data is available.*

**General Information**

There is no data available for this product.

**Toxicity****Methylenebis(4-phenyl isocyanate)****Acute toxicity to fish**

The measured ecotoxicity is that of the hydrolyzed product, generally under conditions maximizing production of soluble species.

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

Based on information for a similar material:

LC50, Danio rerio (zebra fish), static test, 96 Hour, > 1,000 mg/l, OECD Test Guideline 203 or Equivalent

**Acute toxicity to aquatic invertebrates**

Based on information for a similar material:

EC50, Daphnia magna (Water flea), static test, 24 Hour, > 1,000 mg/l, OECD Test Guideline 202 or Equivalent

**Acute toxicity to algae/aquatic plants**

Based on information for a similar material:

NOEC, Desmodesmus subspicatus (green algae), static test, 72 Hour, Growth rate inhibition, 1,640 mg/l, OECD Test Guideline 201 or Equivalent

**Toxicity to bacteria**

Based on information for a similar material:

EC50, activated sludge, static test, 3 Hour, Respiration rates., > 100 mg/l

**Toxicity to soil-dwelling organisms**

EC50, Eisenia fetida (earthworms), Based on information for a similar material:, 14 d, > 1,000 mg/kg

**Toxicity to terrestrial plants**

EC50, Avena sativa (oats), Growth inhibition, 1,000 mg/l

EC50, Lactuca sativa (lettuce), Growth inhibition, 1,000 mg/l

**Ethyl acetate****Acute toxicity to fish**

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

LC50, Pimephales promelas (fathead minnow), 96 Hour, 230 mg/l

**Acute toxicity to aquatic invertebrates**

EC50, Daphnia magna (Water flea), 24 Hour, 3,090 mg/l, DIN 38412

**Acute toxicity to algae/aquatic plants**

NOEC, Pseudokirchneriella subcapitata (green algae), 72 Hour, > 100 mg/l, OECD Test Guideline 201

EbC50, alga Scenedesmus sp., static test, 48 Hour, Biomass, 3,300 mg/l

**Chronic toxicity to fish**

NOEC, Pimephales promelas (fathead minnow), 32 d, < 9.65 mg/l

**Chronic toxicity to aquatic invertebrates**

NOEC, Daphnia magna (Water flea), semi-static test, 21 d, number of offspring, 2.4 mg/l

**Persistence and degradability****Methylenebis(4-phenyl isocyanate)**

**Biodegradability:** In the aquatic and terrestrial environment, material reacts with water forming predominantly insoluble polyureas which appear to be stable. In the atmospheric environment, material is expected to have a short tropospheric half-life, based on calculations and by analogy with related diisocyanates.

10-day Window: Not applicable

**Biodegradation:** 0 %

**Exposure time:** 28 d

**Method:** OECD Test Guideline 302C or Equivalent

**Ethyl acetate**

**Biodegradability:** Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

10-day Window: Pass

**Biodegradation:** 100 %

**Exposure time:** 28 d

**Method:** OECD Test Guideline 301D or Equivalent

**Theoretical Oxygen Demand:** 1.82 mg/mg

**Bioaccumulative potential**

**Methylenebis(4-phenyl isocyanate)**

**Bioaccumulation:** Bioconcentration potential is low ( $BCF < 100$  or  $\text{Log Pow} < 3$ ). Reacts with water. In the aquatic and terrestrial environment, movement is expected to be limited by its reaction with water forming predominantly insoluble polyureas.

**Bioconcentration factor (BCF):** 92 Cyprinus carpio (Carp) 28 d

**Ethyl acetate**

**Bioaccumulation:** Bioconcentration potential is low ( $BCF < 100$  or  $\text{Log Pow} < 3$ ).

**Partition coefficient: n-octanol/water(log Pow):** 0.68 Measured

**Bioconcentration factor (BCF):** 30 Fish. Measured

**Mobility in soil****Methylenebis(4-phenyl isocyanate)**

In the aquatic and terrestrial environment, movement is expected to be limited by its reaction with water forming predominantly insoluble polyureas.

**Ethyl acetate**

Potential for mobility in soil is very high (Koc between 0 and 50).

**Partition coefficient(Koc):** 3 Estimated.

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**13. DISPOSAL CONSIDERATIONS**

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**Disposal methods:** For disposal, incinerate this material at a facility that complies with local, state, and federal regulations. (See 40 CFR 268)

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**14. TRANSPORT INFORMATION**

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**DOT**

Proper shipping name	Resin solution
UN number	UN 1866
Class	3
Packing group	II
Reportable Quantity	Ethyl acetate

**Classification for SEA transport (IMO-IMDG):**

Proper shipping name	RESIN SOLUTION
UN number	UN 1866
Class	3
Packing group	II
Marine pollutant	No
Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code	Consult IMO regulations before transporting ocean bulk

**Classification for AIR transport (IATA/ICAO):**

Proper shipping name	Resin solution
UN number	UN 1866

<b>Class</b>	3
<b>Packing group</b>	II

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

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## 15. REGULATORY INFORMATION

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### OSHA Hazard Communication Standard

This product is considered hazardous under the OSHA Hazard Communication Standard (29 CFR 1910.1200).

### Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312

Fire Hazard  
Acute Health Hazard  
Chronic Health Hazard

### Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313

This product contains a chemical which is listed in Section 313 at or above de minimis concentrations. The following listed chemicals are present: (Quantity present is found elsewhere on this MSDS.)

<b>Components</b>	<b>CASRN</b>
Methylenebis(4-phenyl isocyanate)	101-68-8

### Pennsylvania

Any material listed as "Not Hazardous" in the CAS REG NO. column of SECTION 2, Composition/Information On Ingredients, of this MSDS is a trade secret under the provisions of the Pennsylvania Worker and Community Right-to-Know Act.

### California (Proposition 65)

This product contains trace levels of a component or components known to the state of California to cause cancer:

<b>Components</b>	<b>CASRN</b>
Toluene diisocyanate	26471-62-5
Propylene Oxide	75-56-9

### United States TSCA Inventory (TSCA)

All components of this product are in compliance with the inventory listing requirements of the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

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**16. OTHER INFORMATION**

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**Hazard Rating System****HMIS**

Health	Flammability	Physical Hazard
2*	3	0

\* = Chronic Effects (See Hazards Identification)

**Revision**

Identification Number: 101108631 / 1001 / Issue Date: 02/24/2015 / Version: 2.0

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

**Legend**

ACGIH	USA. ACGIH Threshold Limit Values (TLV)
C	Ceiling
OSHA Z-1	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
Rohm and Haas	Rohm and Haas OEL's
STEL	Short term exposure limit
TWA	Time weighted average

**Information Source and References**

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

THE DOW CHEMICAL COMPANY\* urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.