



# SAFETY DATA SHEET

## THE DOW CHEMICAL COMPANY

**Product name:** UCON™ Lubricant LB-650-XY23

**Issue Date:** 11/09/2017

**Print Date:** 11/10/2017

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:** UCON™ Lubricant LB-650-XY23

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

**Identified uses:** Selection of the appropriate polyglycol product for a specific application requires knowledge of the fluid requirements of the application, awareness of the most important of these requirements, and a match-up with the properties of the various polyglycol materials. Polyglycol products can be formulated for use in numerous industry applications such as hydraulic fluids, quenchants, compressor and refrigeration lubricants, heat transfer fluids, machinery lubricants, solder assist fluids, metalworking lubricants, textile finishing, etc. We recommend that you use this product in a manner consistent with the listed use. If your intended use is not consistent with the stated use, please contact your sales or technical service representative.

### **COMPANY IDENTIFICATION**

THE DOW CHEMICAL COMPANY  
2030 WILLARD H DOW CENTER  
MIDLAND MI 48674-0000  
UNITED STATES

**Customer Information Number:**

800-258-2436

SDSQuestion@dow.com

### **EMERGENCY TELEPHONE NUMBER**

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

**Local Emergency Contact:** 800-424-9300

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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.

Skin sensitisation - Category 1

Specific target organ toxicity - repeated exposure - Category 2

### **Label elements**

**Hazard pictograms**



Signal word: **WARNING!**

**Hazards**

May cause an allergic skin reaction.

May cause damage to organs (Blood) through prolonged or repeated exposure.

**Precautionary statements****Prevention**

Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.

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

Wear protective gloves.

**Response**

IF ON SKIN: Wash with plenty of soap and water.

Get medical advice/ attention if you feel unwell.

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

Wash contaminated clothing before reuse.

**Disposal**

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

**Other hazards**

No data available

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**3. COMPOSITION/INFORMATION ON INGREDIENTS**

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This product is a mixture.

Component	CASRN	Concentration
Polypropylene glycol monobutyl ether	9003-13-8	> 95.0 %
N-phenyl-alpha-naphthylamine	90-30-2	<= 2.4 %
2,5-Furandione, dihydro-3-(tetrapropenyl)-	26544-38-7	< 3.0 %

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**4. FIRST AID MEASURES**

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**Description of first aid measures**

**General advice:**

First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

**Inhalation:** Move person to fresh air; if effects occur, consult a physician.

**Skin contact:** Remove material from skin immediately by washing with soap and plenty of water. Remove contaminated clothing and shoes while washing. Seek medical attention if irritation persists. Wash clothing before reuse. Discard items which cannot be decontaminated, including leather articles such as shoes, belts and watchbands.

**Eye contact:** Flush eyes thoroughly with water for several minutes. Remove contact lenses after the initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferably an ophthalmologist.

**Ingestion:** No emergency medical treatment necessary.

**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:** No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

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## 5. FIREFIGHTING MEASURES

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**Suitable extinguishing media:** Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.

**Unsuitable extinguishing media:** Do not use direct water stream. May spread fire.

**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: Carbon monoxide. Carbon dioxide. Combustion products may include trace amounts of: Nitrogen oxides.

**Unusual Fire and Explosion Hazards:** Container may rupture from gas generation in a fire situation. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids.

**Advice for firefighters**

**Fire Fighting Procedures:** Keep people away. Isolate fire and deny unnecessary entry. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Do not use direct water stream. May

spread fire. Move container from fire area if this is possible without hazard. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage.

**Special protective equipment for firefighters:** Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

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## 6. ACCIDENTAL RELEASE MEASURES

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**Personal precautions, protective equipment and emergency procedures:** Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection. Refer to section 7, Handling, for additional precautionary measures.

**Environmental precautions:** Material will float on water. Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

**Methods and materials for containment and cleaning up:** Contain spilled material if possible. Collect in suitable and properly labeled containers. See Section 13, Disposal Considerations, for additional information.

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## 7. HANDLING AND STORAGE

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**Precautions for safe handling:** Avoid prolonged or repeated contact with skin. Wash thoroughly after handling. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION. Do not use sodium nitrite or other nitrosating agents in formulations containing this product. Suspected cancer-causing nitrosamines could be formed. Spills of these organic materials on hot fibrous insulations may lead to lowering of the autoignition temperatures possibly resulting in spontaneous combustion.

**Conditions for safe storage:** Store in the following material(s): 316 stainless steel. Carbon steel. Glass-lined container. Polypropylene. Polyethylene-lined container. Stainless steel. Teflon. This material may soften and lift certain paint and surface coatings. Use product promptly after opening. Store in original unopened container. Unopened containers of material stored beyond the recommended shelf life should be retested against the sales specifications before use. Additional storage and handling information on this product may be obtained by calling your sales or customer service contact.

### Storage stability

**Shelf life:** Use within  
24 Month

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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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### Control parameters

If exposure limits exist, they are listed below. If no exposure limits are displayed, then no values are applicable.

Exposure limits have not been established for those substances listed in the composition, if any have been disclosed.

### Exposure controls

**Engineering controls:** Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

### Individual protection measures

**Eye/face protection:** Use safety glasses (with side shields).

#### Skin protection

**Hand protection:** Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Butyl rubber. Ethyl vinyl alcohol laminate ("EVAL"). Examples of acceptable glove barrier materials include: Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyvinyl chloride ("PVC" or "vinyl"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

**Other protection:** Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

**Respiratory protection:** Under intended handling conditions, no respiratory protection should be needed.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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### Appearance

Physical state	Liquid.
Color	Brown
Odor	Mild
Odor Threshold	No test data available
pH	No test data available
Melting point/range	Not applicable to liquids
Freezing point	See Pour Point
Boiling point (760 mmHg)	> 200 °C ( > 392 °F) <i>Calculated.</i>
Flash point	<b>closed cup</b> 149 °C ( 300 °F) <i>ASTM D 93</i>
Evaporation Rate (Butyl Acetate = 1)	No test data available
Flammability (solid, gas)	Not applicable to liquids
Lower explosion limit	No test data available
Upper explosion limit	No test data available

<b>Vapor Pressure</b>	< 0.01 mmHg at 20 °C (68 °F) <i>ASTM E1719</i>
<b>Relative Vapor Density (air = 1)</b>	>10 <i>Calculated.</i>
<b>Relative Density (water = 1)</b>	1.000 at 20 °C (68 °F) / 20 °C <i>Calculated.</i>
<b>Water solubility</b>	< 0.1 % at 20 °C (68 °F) <i>Visual</i>
<b>Partition coefficient: n-octanol/water</b>	No data available
<b>Auto-ignition temperature</b>	No test data available
<b>Decomposition temperature</b>	No test data available
<b>Dynamic Viscosity</b>	No test data available
<b>Kinematic Viscosity</b>	124 - 143 cSt at 40 °C (104 °F) <i>ASTM D 445</i>
<b>Explosive properties</b>	No data available
<b>Oxidizing properties</b>	No data available
<b>Liquid Density</b>	0.9986 g/cm <sup>3</sup> at 20 °C (68 °F) <i>Calculated.</i>
<b>Molecular weight</b>	No data available
<b>Pour point</b>	-28.9 °C ( -20.0 °F) <i>ASTM D97</i>
<b>Volatile Organic Compounds</b>	0.0 g/L <i>EPA Method No. 24</i>

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:** Thermally stable at typical use temperatures.

**Possibility of hazardous reactions:** Polymerization will not occur.

**Conditions to avoid:** Exposure to elevated temperatures can cause product to decompose. Generation of gas during decomposition can cause pressure in closed systems.

**Incompatible materials:** Avoid contact with: Strong acids. Strong bases. Strong oxidizers.

**Hazardous decomposition products:** Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Aldehydes. Alcohols. Ethers. Hydrocarbons. Ketones. Organic acids. Polymer fragments.

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## 11. TOXICOLOGICAL INFORMATION

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*Toxicological information appears in this section when such data is available.*

### Acute toxicity

#### Acute oral toxicity

Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.

For the major component(s):

LD50, Rat, > 5,000 mg/kg Estimated.

**Acute dermal toxicity**

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

For the major component(s):

LD50, Rat, > 5,000 mg/kg Estimated.

**Acute inhalation toxicity**

At room temperature, exposure to vapor is minimal due to low volatility; single exposure is not likely to be hazardous. For respiratory irritation and narcotic effects: No relevant data found.

As product: The LC50 has not been determined.

**Skin corrosion/irritation**

Brief contact is essentially nonirritating to skin.

**Serious eye damage/eye irritation**

Essentially nonirritating to eyes.

**Sensitization**

For the minor component(s):

Has caused allergic skin reactions in humans.

Has caused allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:

No relevant data found.

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

Evaluation of available data suggests that this material is not an STOT-SE toxicant.

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

Contains component(s) which have been reported to cause effects on the following organs in animals: Blood.

**Carcinogenicity**

For the minor component(s): Did not cause cancer in laboratory animals.

**Teratogenicity**

No specific, relevant data available for assessment.

**Reproductive toxicity**

No specific, relevant data available for assessment.

**Mutagenicity**

For the minor component(s): In vitro genetic toxicity studies were negative in some cases and positive in other cases.

**Aspiration Hazard**

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

**COMPONENTS INFLUENCING TOXICOLOGY:****Polypropylene glycol monobutyl ether****Acute inhalation toxicity**

At room temperature, exposure to vapor is minimal due to low volatility; single exposure is not likely to be hazardous. For respiratory irritation and narcotic effects: No relevant data found.

As product: The LC50 has not been determined.

For similar material(s): Rat, 8 Hour, No deaths occurred following exposure to a saturated atmosphere.

**N-phenyl-alpha-naphthylamine****Acute inhalation toxicity**

Rat, 8 Hour, vapour, No deaths occurred following exposure to a saturated atmosphere.

**2,5-Furandione, dihydro-3-(tetrapropenyl)-****Acute inhalation toxicity**

For similar material(s): LC50, Rat, male and female, 4 Hour, dust/mist, 5.3 mg/l

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**12. ECOLOGICAL INFORMATION**

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*Ecotoxicological information appears in this section when such data is available.*

**Toxicity****Polypropylene glycol monobutyl ether****Acute toxicity to fish**

Material is slightly toxic to aquatic organisms on an acute basis (LC50/EC50 between 10 and 100 mg/L in the most sensitive species tested).

LC50, Pimephales promelas (fathead minnow), 96 Hour, 20 - 65 mg/l

**Acute toxicity to aquatic invertebrates**

EC50, Daphnia magna (Water flea), 48 Hour, 26 mg/l

**Acute toxicity to algae/aquatic plants**

EC50, > 100 mg/l

**Toxicity to bacteria**

IC50, Bacteria, 16 Hour, 19,000 mg/l

**N-phenyl-alpha-naphthylamine****Acute toxicity to fish**

Material is highly toxic to aquatic organisms on an acute basis (LC50/EC50 between 0.1 and 1 mg/L in the most sensitive species tested).

LC50, Oncorhynchus mykiss (rainbow trout), semi-static test, 96 Hour, 0.44 mg/l, OECD Test Guideline 203 or Equivalent

**Acute toxicity to aquatic invertebrates**



LC50, Daphnia magna (Water flea), static test, 48 Hour, 0.3 mg/l, OECD Test Guideline 202 or Equivalent

**Toxicity to bacteria**

EC50, activated sludge, static test, 3 Hour, Respiration rates., > 10,000 mg/l

**Chronic toxicity to aquatic invertebrates**

NOEC, Daphnia magna (Water flea), 21 d, 0.032 mg/l

**2,5-Furandione, dihydro-3-(tetrapropenyl)-****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, Oncorhynchus mykiss (rainbow trout), semi-static test, 96 Hour, > 100 mg/l, OECD Test Guideline 203 or Equivalent

**Acute toxicity to aquatic invertebrates**

For similar material(s):

EC50, Daphnia dubia (water flea), 48 Hour, > 100 mg/l, OECD Test Guideline 202

**Acute toxicity to algae/aquatic plants**

EC50, Pseudokirchneriella subcapitata (green algae), static test, 96 Hour, Growth rate, 110 mg/l

**Toxicity to bacteria**

EC50, activated sludge, static test, 3 Hour, Respiration rates., 800 mg/l, OECD Test Guideline 209

**Persistence and degradability****Polypropylene glycol monobutyl ether**

**Biodegradability:** Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.

10-day Window: Fail

**Biodegradation:** 48 %

**Exposure time:** 28 d

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

10-day Window: Fail

**Biodegradation:** 25 %

**Exposure time:** 28 d

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

**Chemical Oxygen Demand:** 2.04 mg/mg

**Biological oxygen demand (BOD)**

Incubation Time	BOD
5 d	5 %
10 d	5 %
20 d	15 %

**N-phenyl-alpha-naphthylamine**

**Biodegradability:** Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.

10-day Window: Not applicable

**Biodegradation:** 0 %

**Exposure time:** 28 d

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

10-day Window: Not applicable

**Biodegradation:** 0 %

**Exposure time:** 14 d

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

**Theoretical Oxygen Demand:** 2.99 mg/mg

**Biological oxygen demand (BOD)**

Incubation Time	BOD
5 d	< 5 %
10 d	< 5 %
20 d	< 5 %

**Photodegradation**

**Test Type:** Half-life (indirect photolysis)

**Sensitization:** OH radicals

**Atmospheric half-life:** 0.031 d

**Method:** Estimated.

**2,5-Furandione, dihydro-3-(tetrapropenyl)-**

**Biodegradability:** Biodegradation under aerobic static laboratory conditions is low (BOD20 or BOD28/ThOD between 2.5 and 10%).

10-day Window: Fail

**Biodegradation:** 9.9 %

**Exposure time:** 28 d

**Method:** OECD Test Guideline 301D

**Photodegradation**

**Sensitization:** OH radicals

**Atmospheric half-life:** 1.7 - 1.9 Hour

**Method:** Estimated.

**Photodegradation**

**Sensitization:** Ozone.

**Atmospheric half-life:** 1.4 - 2.1 Hour

**Method:** Estimated.

**Bioaccumulative potential****Polypropylene glycol monobutyl ether**

**Bioaccumulation:** No bioconcentration is expected because of the relatively high molecular weight (MW greater than 1000).

**N-phenyl-alpha-naphthylamine**

**Bioaccumulation:** Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

**Partition coefficient: n-octanol/water(log Pow):** 4.20 Measured

**Bioconcentration factor (BCF):** 427 - 2,730 Fish Measured

**2,5-Furandione, dihydro-3-(tetrapropenyl)-**

**Bioaccumulation:** Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

**Partition coefficient: n-octanol/water(log Pow):** > 4.39 OECD Test Guideline 107

**Mobility in soil**

**Polypropylene glycol monobutyl ether**

No data available.

**N-phenyl-alpha-naphthylamine**

Expected to be relatively immobile in soil (Koc > 5000).

**Partition coefficient (Koc):** 21000 Estimated.

**2,5-Furandione, dihydro-3-(tetrapropenyl)-**

Potential for mobility in soil is low (Koc between 500 and 2000).

**Partition coefficient (Koc):** 825 Measured

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## 13. DISPOSAL CONSIDERATIONS

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**Disposal methods:** DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. AS YOUR SUPPLIER, WE HAVE NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION: Composition Information. FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Incinerator or other thermal destruction device.

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## 14. TRANSPORT INFORMATION

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**DOT**

Not regulated for transport

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

Not regulated for transport

**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):**

Not regulated for transport

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

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 material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**Pennsylvania Worker and Community Right-To-Know Act:**

To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

**California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986)**

WARNING: This product contains a chemical(s) known to the State of California to cause cancer.

**Components**

Naphthalenamine  
Aniline  
Naphthylamine

**CASRN**

134-32-7  
62-53-3  
91-59-8

**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

#### NFPA

Health	Fire	Reactivity
2	0	0

### Revision

Identification Number: 167573 / A001 / Issue Date: 11/09/2017 / Version: 5.0

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

### 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.

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