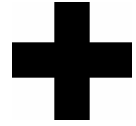




THE DOW CHEMICAL COMPANY MATERIAL SAFETY DATA SHEET



Product Name: POLYOX(TM) WSR 303
MSDS#: 1798

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Dow (hereinafter, and for purposes of this MSDS only, refers to The Dow Chemical Company and to Dow Chemical Canada Inc.) encourages and expects you to read and understand the entire MSDS, as there is important information throughout the document. Dow expects you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

1.1 IDENTIFICATION

Product Name POLYOX(TM) WSR 303

1.2 COMPANY IDENTIFICATION

The Dow Chemical Company
Midland, MI 48674

1.3 EMERGENCY TELEPHONE NUMBER

24-HOUR EMERGENCY TELEPHONE NUMBER: (989)636-4400.
Customer Information Number: 1-800-258-2436.

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2. COMPOSITION INFORMATION

<u>Component</u>	<u>CAS #</u>	<u>Amount (%W/W)</u>
Poly(ethylene oxide)	25322-68-3	>= 95 %
Fumed silica (generic)	112945-52-5	<= 3%
Calcium as mixed salts	Not available	<= 1%

3. HAZARDS IDENTIFICATION

3.1 EMERGENCY OVERVIEW

Appearance White to off-white

Physical State Powder

Odor Ammoniacal

Hazards of product MAY CAUSE EYE IRRITATION.
MAY FORM EXPLOSIVE DUST-AIR MIXTURE.
ISOLATE AREA.
SLIPPING HAZARD.

3.2 POTENTIAL HEALTH EFFECTS

Effects of Single Acute Overexposure

Inhalation No adverse effects are anticipated from inhalation.

Eye Contact May cause slight eye irritation. Corneal injury is unlikely.

Skin Contact Essentially nonirritating to skin.

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

Swallowing Low toxicity if swallowed. Small amounts swallowed incidental to normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.

Chronic, Prolonged or Repeated Overexposure

Effects of Repeated Overexposure Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

Other Effects of Overexposure

See Section 11 for toxicological information and additional information about potential health effects.

3.3 POTENTIAL ENVIRONMENTAL EFFECTS

See Section 12 for Ecological Information.

4. FIRST AID PROCEDURES

4.1 INHALATION

No emergency medical treatment necessary.

4.2 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.

4.3 SKIN CONTACT

Wash skin with plenty of water.

4.4 SWALLOWING

If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.

4.5 NOTES TO PHYSICIAN

No specific antidote.

Treatment of exposure should be directed at the control of symptoms and the clinical condition of

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the patient.

5. FIRE FIGHTING MEASURES

5.1 FLAMMABLE PROPERTIES - REFER TO SECTION 9, PHYSICAL AND CHEMICAL PROPERTIES

5.2 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.

5.3 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. Burning liquids may be extinguished by dilution with water. Do not use direct water stream. May spread fire. Hand held dry chemical or carbon dioxide extinguishers may be used for small fires. Dust explosion hazard may result from forceful application of fire extinguishing agents. 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.

5.4 SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS

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

5.5 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.

Do not permit dust to accumulate. When suspended in air dust can pose an explosion hazard.

Minimize ignition sources. If dust layers are exposed to elevated temperatures, spontaneous combustion may occur.

Pneumatic conveying and other mechanical handling operations can generate combustible dust.

To reduce the potential for dust explosions, electrically bond and ground equipment and do not permit dust to accumulate. Dust can be ignited by static discharge.

Electrically bond and ground all equipment.

For POLYOX WSR products in flexible intermediate bulk containers, a static ignition hazard can result from handling and use. Non-conductive containers cannot be grounded. For transfers between flexible intermediate bulk containers and another non-conductive container, special

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precautions may be necessary to dissipate static electricity. For conductive components (containers, personnel, equipment) use proper bonding and grounding during product transfer as described in National Fire Protection Association Document NFPA 77. Refer to National Fire Protection Association Document NFPA 69 for descriptions of explosion prevention systems.

5.6 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.

6. ACCIDENTAL RELEASE MEASURES

Steps to be Taken if Material is Released or Spilled:

Contain spilled material if possible. Collect in suitable and properly labeled containers. Collect with vacuum equipment. Attempt to neutralize by adding materials such as: soda ash. See Section 13, Disposal Considerations, for additional information.

Personal Precautions: Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection. Isolate area. Refer to Section 7, Handling for additional precautionary measures. Keep unnecessary and unprotected personnel from entering the area. Spilled material may cause a slipping hazard.

Environmental Precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

7. HANDLING AND STORAGE

7.1 HANDLING

General Handling

Keep away from heat, sparks and flame.

Avoid contact with eyes.

Wash thoroughly after handling.

No smoking, open flames or sources of ignition in handling and storage area.

Electrically ground all equipment.

Good housekeeping and controlling of dusts are necessary for safe handling of product.

Spills of these organic materials on hot fibrous insulations may lead to lowering of the autoignition temperatures possibly resulting in spontaneous combustion.

Ventilation

Good general ventilation should be sufficient for most conditions.

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Other Precautions

See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

7.2 STORAGE

Storage temperature: < 40 °C < 104 °F

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

8.1 EXPOSURE LIMITS

Component	Exposure Limits	Skin. Form
Particulates (Insoluble) Not Otherwise Specified (PNOS)	10 mg/m3 TWA8 ACGIH	Inhalable fraction
	3 mg/m3 TWA8 ACGIH	Particulate matter containing no asbestos and crystalline silica <1%
	5 mg/m3 TWA8 OSHA 15 mg/m3 TWA8 OSHA	Respirable fraction Particulate matter containing no asbestos and crystalline silica <1% Respirable fraction Total dust
Poly(ethylene oxide)	10 mg/m3 TWA8 AIHA WEEL	Aerosol
Fumed silica (generic)	10 mg/m3 TWA8 ACGIH	Inhalable Particulate
	3 mg/m3 TWA8 ACGIH 20 mppcf, or (80 mg/m3) / % SiO2 TWA8 OSHA	Respirable particulate

In the Exposure Limits Chart above, if there is no specific qualifier (i.e., Aerosol) listed in the Form Column for a particular limit, the listed limit includes all airborne forms of the substance that can be inhaled.

A "Yes" in the Skin Column indicates a potential significant contribution to overall exposure by the cutaneous (skin) route, including mucous membranes and the eyes, either by contact with vapors or by direct skin contact with the substance. A "Blank" in the Skin Column indicates that exposure by the cutaneous (skin) route is not a potential significant contributor to overall exposure.

8.2 PERSONAL PROTECTION

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Respiratory Protection: No respiratory protection should be needed.

Ventilation: Good general ventilation should be sufficient for most conditions.

Eye Protection: Use safety glasses.

Other Protective Equipment: No precautions other than clean body-covering clothing should be needed.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Powder

Appearance: White to off-white

Odor: Ammoniacal

Flash Point - Closed Cup: *No test data available.*

Flammable Limits In Air:

Lower *No test data available.*

Upper *No test data available.*

Autoignition Temperature: 280 - 330 °C 536 - 626 °F

Vapor Pressure: *Not applicable.*

Boiling Point (760 mmHg): *Not applicable.*

Vapor Density (air = 1): *Not applicable.*

Specific Gravity (H₂O = 1): *Not applicable.*

Bulk Density: 500 kg/m³ 31 lb/ft³

Freezing Point: *No test data available.*

Melting Point: 62 - 67 °C 143 - 153 °F , Crystalline melting point

Solubility in Water (by weight): *No test data available.*

pH: *No test data available.*

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Molecular Weight: 100000 - 8000000 g/mol

Percent Volatiles: < 1.0 Wt%

10. STABILITY AND REACTIVITY

10.1 STABILITY/INSTABILITY Stable under recommended storage conditions. See Storage, Section 7.2., Thermally stable at typical use temperatures.

Conditions to Avoid: Avoid contact with air (oxygen). Exposure to elevated temperatures can cause product to decompose. Generation of gas during decomposition can cause pressure in closed systems. Avoid static discharge. Avoid moisture.

Incompatible Materials: Avoid contact with: Strong acids. Strong bases. Strong oxidizers.

Thermal Decomposition: Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Carbon dioxide. Alcohols. Ethers. Hydrocarbons. Ketones. Polymer fragments.

10.2 HAZARDOUS POLYMERIZATION Will not occur.

11. TOXICOLOGICAL INFORMATION

ACUTE TOXICITY

Peroral

The oral LD50 for rats is >4000 mg/kg.

Percutaneous

The LD50 for skin absorption in rabbits is >5000 mg/kg.

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SENSITIZATION (ANIMAL AND HUMAN STUDIES)

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

REPRODUCTIVE TOXICITY

In animal studies, did not interfere with reproduction.

CHRONIC TOXICITY AND CARCINOGENICITY

Did not cause cancer in laboratory animals.

GENETIC TOXICOLOGY

In Vitro

In vitro genetic toxicity studies were negative.

In Vivo

Animal genetic toxicity studies were negative.

12. ECOLOGICAL INFORMATION

12.1 ENVIRONMENTAL FATE

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.

BOD (% Oxygen consumption)

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

	Day 5	Day 10	Day 15	Day 20	Day 28/30
				6 %	

Modified Sturm Test (OECD 301B)(% CO₂ evolved)

	Day 5	Day 10	Day 15	Day 28
				4.2 - 19.9 %

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12.2 ECOTOXICITY

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

Toxicity to Aquatic Invertebrates

water flea (*Daphnia magna*); Acute LC50

Result value: (\geq 732) mg/L

Toxicity to Fish

fathead minnow (*Pimephales promelas*); Acute LC50

Result value: \geq 1231 mg/L

12.3 FURTHER INFORMATION

13. DISPOSAL CONSIDERATIONS

13.1 DISPOSAL

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. DOW HAS 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 2 (Composition/ Information on Ingredients). FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Landfill. As a service to its customers, Dow can provide names of information resources to help identify waste management companies and other facilities which recycle, reprocess or manage chemicals or plastics, and that manage used drums. Telephone Dow's Customer Information Group at 1-800-258-2436 or 1-989-832-1556 (U.S.), or 1-800-331-6451 (Canada) for further details .

14. TRANSPORT INFORMATION

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14.1 U.S. D.O.T.

NON-BULK

Proper Shipping Name : NOT REGULATED

BULK

Proper Shipping Name : NOT REGULATED

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. 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.

15. REGULATORY INFORMATION

15.1 FEDERAL/NATIONAL

OSHA HAZARD COMMUNICATION STANDARD

This product is a "Hazardous Chemical" as defined by 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) SECTION 313

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

COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT OF 1980 (CERCLA) SECTION 103

This product contains the following substances which are subject to CERCLA Section 103 reporting requirements and which are listed in 40 CFR 302.4.

Component	CAS #	Amount
Ammonia	7664-41-7	<= 0.0200%

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Monoethylamine	75-04-7	<= 0.0200%
Ethylene oxide	75-21-8	<= 0.0040%

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 TITLE III (EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT OF 1986) SECTION 302

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

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 TITLE III (EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT OF 1986) SECTIONS 311 AND 312

Delayed (Chronic) Health Hazard : No
Fire Hazard : No
Immediate (Acute) Health Hazard : Yes
Reactive Hazard : No
Sudden Release of Pressure Hazard : No

TOXIC SUBSTANCES CONTROL ACT (TSCA)

All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements under 40 CFR 720.30.

CEPA - DOMESTIC SUBSTANCES LIST (DSL)

All substances contained in this product are listed on the Canadian Domestic Substances List (DSL) or are not required to be listed.

15.2 STATE/LOCAL

PENNSYLVANIA (WORKER AND COMMUNITY RIGHT-TO-KNOW ACT): PENNSYLVANIA HAZARDOUS SUBSTANCES LIST AND/OR PENNSYLVANIA ENVIRONMENTAL HAZARDOUS SUBSTANCE LIST:

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

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PENNSYLVANIA (WORKER AND COMMUNITY RIGHT-TO-KNOW ACT): PENNSYLVANIA SPECIAL HAZARDOUS SUBSTANCES LIST:

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.

Component	CAS #	Amount
Ethylene oxide	75-21-8	<= 0.0040%

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 birth defects or other reproductive harm.

Component	CAS #	Amount
Ethylene oxide	75-21-8	<= 0.0040%

CALIFORNIA SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT (SCAQMD) RULE 443.1:

VOC: Volatiles = Substances with a vapor pressure of > 0.5 mmHg @ 104 °C (219.2 °F)
0.0 g/l
0.00 g/l of material less water and less exempted solvents.

This section provides selected regulatory information on this product including its components. This is not intended to include all regulations. It is the responsibility of the user to know and comply with all applicable rules, regulations and laws relating to the product being used.

16. OTHER INFORMATION

16.1 ADDITIONAL INFORMATION

Additional information on this product may be obtained by calling Dow's Customer Information Group at 1-800-258-2436 (U.S.) or 1-800-331-6451 (Canada).

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Ask for the brochure:
POLYOX WSR Storage and Handling (report).

16.2 HAZARD RATING SYSTEM

NFPA ratings for this product are: H - 0 F - 1 R - 0

These ratings are part of a specific hazard communication program and should be disregarded where individuals are not trained in the use of this hazard rating system. You should be familiar with the hazard communication programs applicable to your workplace.

16.3 RECOMMENDED USES AND RESTRICTIONS

FOR INDUSTRY USE ONLY

Dow recommends that you use this product in a manner consistent with the listed use. If your intended use is not consistent with Dow's stated use, please contact Dow's Customer Information Group at 1-800-258-2436 (U.S.) or 1-800-331-6451 (Canada) for more information.

16.4 REVISION

Version: 6.

Revision: 02/26/2004

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

16.5 LEGEND

Bacterial/NA	Non Acclimated Bacteria
F	Fire
H	Health
IHG	Industrial Hygiene Guideline
N/A	Not available
NFPA	National Fire Protection Association
O	Oxidizer
R	Reactivity
TS	Trade secret
VOL/VOL	Volume/Volume
W	Water Reactive

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W/W

Weight/Weight

NOTICE: Dow urges each customer or recipient of this MSDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this MSDS 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 its 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 Dow, 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 MSDSs, Dow is not and cannot be responsible for MSDSs obtained from any source other than Dow. If you have obtained a Dow MSDS from a non-Dow source or if you are not sure that a Dow MSDS is current, please contact Dow for the most current version.