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 TERGITOL(TM) NP-40 SURFACTANT

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.

* or ® Indicates a Trademark of The Dow Chemical Company.

2. COMPOSITION INFORMATION

Component	CAS #	Amount (%W/W)
Poly(oxy-1,2-ethanediyl), alpha-(4-nonylphenyl)-omega-hydroxy-, branched	127087-87-0	> 97 %
Polyethylene glycol	25322-68-3	< 3%
Dinonylphenyl polyoxyethylene	9014-93-1	< 1%

3. HAZARDS IDENTIFICATION

3.1 EMERGENCY OVERVIEW

Appearance White

Physical State Solid

Odor Mild

Hazards of product NORMAL PRECAUTIONS SHOULD BE FOLLOWED IN HANDLING, STORAGE AND USE.

3.2 POTENTIAL HEALTH EFFECTS

Effects of Single Acute Overexposure

Inhalation Short-term harmful health effects are not expected from vapor generated at ambient temperature.

Eye Contact May cause mild discomfort.

Skin Contact Brief contact may cause slight irritation with itching and local redness.

Skin Absorption No evidence of harmful effects from available information.

Swallowing No evidence of harmful effects from available information.

Chronic, Prolonged or Repeated Overexposure

Effects of Repeated Overexposure No adverse effects anticipated from available information.
Other Effects of Overexposure None currently known.

Medical Conditions Aggravated by Exposure

A knowledge of the available toxicology information and of the physical and chemical properties of the material suggests that overexposure is unlikely to aggravate existing medical conditions.

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

3.3 POTENTIAL ENVIRONMENTAL EFFECTS

Not harmful to aquatic organisms.

4. FIRST AID PROCEDURES

4.1 INHALATION

No emergency care anticipated.

4.2 EYE CONTACT

Flush eyes thoroughly with water for several minutes. Remove contact lenses, if worn.

4.3 SKIN CONTACT

Wash skin with plenty of water.

4.4 SWALLOWING

No emergency care anticipated.

4.5 NOTES TO PHYSICIAN

Toxicology studies have shown this or similar material to be of very low acute toxicity. There is no specific antidote. Treatment of overexposure should be directed at the control of symptoms and the clinical condition of the patient.

5. FIRE FIGHTING MEASURES

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

5.2 EXTINGUISHING MEDIA

Extinguish fires with water spray or apply alcohol-type or all-purpose-type foam by manufacturer's recommended techniques for large fires. Use carbon dioxide or dry chemical media for small fires.

5.3 FIRE FIGHTING PROCEDURES

Do not direct a solid stream of water or foam into hot, burning pools; this may cause frothing and increase fire intensity.

5.4 SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS

Use self-contained breathing apparatus and protective clothing.

5.5 UNUSUAL FIRE AND EXPLOSION HAZARDS

Avoid accumulation of water. Product may be carried across water surface spreading fire or contacting an ignition source.

5.6 HAZARDOUS COMBUSTION PRODUCTS

Burning can produce the following products: Carbon monoxide and/or carbon dioxide. Carbon monoxide is highly toxic if inhaled; carbon dioxide in sufficient concentrations can act as an asphyxiant.

6. ACCIDENTAL RELEASE MEASURES

Steps to be Taken if Material is Released or Spilled:
Contain spills immediately with inert materials (e.g., sand, earth). Transfer liquids and solid diking material to suitable containers for recovery or disposal. To avoid gelling and foaming problems, do not use water to flush away spills.

Personal Precautions: Wear eye protection. Floor may be slippery; use care to avoid falling. See Section 8.2 - Personal Protection.

Environmental Precautions: Avoid discharge to natural waters.

7. HANDLING AND STORAGE

7.1 HANDLING

General Handling

Keep container closed.
Use with adequate ventilation.
Wash thoroughly after handling.

FOR INDUSTRY USE ONLY.

Ventilation

Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines.

Other Precautions

Surfactants can cause foaming problems in biological wastewater treatment plants and other high shear operations.

7.2 STORAGE

Store in accordance with good industrial practices. Storage information may be obtained from product-specific Storage and Handling Guides, or by calling Dow's Customer Information Group at 1-800-258-2436 (U.S.) or 1-800-331-6451 (Canada).

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

8.1 EXPOSURE LIMITS

Component	Exposure Limits	Skin	Form
Polyethylene glycol	10 mg/m3 TWA8 AIHA WEEL		Aerosol

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

Respiratory Protection:	Atmospheric levels should be maintained below the exposure guideline. When airborne exposure guidelines and/or comfort levels may be exceeded, use an approved air-purifying respirator. For emergency response or for situations where the atmospheric level is unknown, use an approved positive-pressure self-contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply.
Ventilation:	Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines.
Eye Protection:	Monogoggles
Protective Gloves:	Polyvinyl chloride coated
Other Protective Equipment:	Eye Bath, Safety Shower

II

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Solid

Appearance: White

Odor: Mild

Flash Point - Closed Cup: **257 °C** **495 °F** *Pensky-Martens Closed Cup ASTM D 93*

Flash Point - Open Cup: **290 °C** **555 °F** *Cleveland Open Cup ASTM D 92*

Flammable Limits In Air:
Lower *Not determined.*
Upper *Not determined.*

Autoignition Temperature: *Not currently available.*

Vapor Pressure: **< 0.01 mmHg** *20 °C*

Boiling Point (760 mmHg): **> 250 °C** **> 482 °F** Decomposes

Vapor Density (air = 1): **> 1**

Specific Gravity (H2O = 1): **1.0705** *35 °C / 20 °C*

Freezing Point: **43.7 °C** **110.7 °F**

Melting Point: *Not determined.*

Solubility in Water (by weight): Completely soluble but some compositions may form gels

pH: **6.3**

Molecular Weight: **1980 g/mol** (Average)

Evaporation Rate (Butyl Acetate = 1): **< 0.01**

10. STABILITY AND REACTIVITY

10.1 STABILITY/INSTABILITY Stable

Conditions to Avoid: Prolonged excessive heat may cause product decomposition.

Incompatible Materials: Normally unreactive; however, avoid strong bases at high temperatures, strong acids, strong oxidizing agents and materials reactive with hydroxyl compounds.

10.2 HAZARDOUS POLYMERIZATION Will not occur.

11. TOXICOLOGICAL INFORMATION

ACUTE TOXICITY

Peroral

Rat; male; LD50 = 15.9 (10.1 - 24.9) g/kg

Time to Death: 0 to 2 days

Gross Pathology: congestion of the lungs with slight hemorrhage, congestion of the adrenals and kidneys, mottling of the livers, gastrointestinal irritation.

Percutaneous

Rat; male; LD50 = 4.49 (2.46 - 8.21) ml/kg; 24 hr occluded contact, molten compound.

Time to Death: 3 to 7 days.

Irritation: erythema and necrosis of the skin.

Gross Pathology: marked congestion and hemorrhage of the lungs, congestion and mottling of the liver.

Inhalation

substantially saturated vapor, 6 hour exposure static generation method at 23° C Rat

Mortality: 0/6

Major Signs: loss of coordination and prostration.

Inhalation

Aerosol exposure Rat; male; 8 hr exposure

Mortality: 0/6

IRRITATION

Skin: Rabbit; 0.01 ml; molten compound
Results: no irritation
Skin: Rabbit; 4 h occluded; 0.5 ml
Results: not corrosive.

Eye: Rabbit; 0.5 ml

Results: no irritation

SIGNIFICANT DATA WITH POSSIBLE RELEVANCE TO HUMANS

In two-year feeding studies, the 4-mole ethoxylate of nonylphenol (NPE4) at doses of 200 mg/kg/day or 40 mg/kg/day in rats and dogs, respectively, produced no significant effects. The 9-mole ethoxylate (NPE9) at doses of 140 or 30 mg/kg/day in the diet of rats or dogs, respectively, produced no adverse effects. Parameters evaluated included body and organ weights and histopathology of 28 tissues. A dose of 1000 mg/kg/day of NPE9 resulted in reduced body weights and enlarged livers in rats and reduced weight, emesis, and minimal blood changes in dogs. A dose of 88 mg/kg/day NPE9 produced increased liver to body weight ratios in dogs which was attributed to decreased food consumption. Rats fed dietary concentrations of a related alkylphenol ethoxylate, the 40-mole ethoxylate of octylphenol (OPE40), up to 14000 ppm (700 mg/kg/day) for two years showed no adverse effects on growth or survival, feed consumption, hematologic values, urine measurements, organ weights or histopathologic lesions.

Alkylphenol Ethoxylate Toxicity: In studies with rabbits, sustained occluded skin contact of some undiluted surfactants caused inflammatory changes in the lung. Developmental effects including extra ribs and other skeletal variations were observed in the fetuses of rats treated with maternally toxic levels of a 9-mole ethoxylate of octylphenol, or a 4-mole or 9-mole ethoxylate of nonylphenol. The significance of these findings to humans is unclear as several human studies did not show any association of congenital effects in children and maternal exposure to spermicides containing octyl or nonylphenol ethoxylates. Alkylphenol Toxicity: Several studies with nonylphenol have resulted in slightly increased kidney weights in male rats continuously exposed to dietary concentrations of 200 ppm or greater (approximately >10 mg/kg/body weight/day). No histological lesions of the kidney were observed in one study but histopathological lesions, primarily tubule mineralization, were observed at 2000 ppm in one study and in a dose-related manner at concentrations >=200 ppm in a third study. These results indicate that continuous exposure to high concentrations of nonylphenol may be toxic to the kidney. While nonylphenol has been shown to bind to the estrogen receptor and to have weak estrogen mimetic activity in several in vitro and in vivo screening assays, treatment of rats at dietary concentrations of nonylphenol up to 2000 ppm in their diet for 90 days did not result in alterations in estrous cycles, sperm measurements, or endocrine organ weights or histopathology. In addition, a three generation (F0 through F3 weaning) study conducted by the NIEHS indicated that nonylphenol did not affect reproductive parameters at dietary concentrations up to 2000 ppm in any generation. Effects in juvenile females consistent with those seen in screening assays (e.g., premature vaginal opening) were observed following high level exposure post-weaning (F1, F2, and F3) at 650 and 2000 ppm. Sperm counts were reduced at 650 and 2000 ppm in the F2 adults compared to controls from the same generation. These results and other inconsistent or potentially body weight related findings are considered of questionable significance. The No Observed Adverse Effect Level (NOAEL) for reproduction was 2000 ppm and for all effects was 200 ppm (except as noted for kidneys above). Considering the high doses (e.g., 100-350 mg/kg/day for females in the 2000 ppm group; the higher doses occurring post-weaning), the lack of permanent/prolonged effects is considered significant. Based on the results of these studies, exposure to low doses of nonylphenol, such as from workplace or environmental exposure, would not be expected to result in effects on mammalian reproduction. In a 2-generation reproduction study with octylphenol at dietary

concentrations of 0.2 to 2000 ppm, treatment-related effects in adult F0, F1, and F2 animals were limited to reduced body weights and feed consumption at 2000 ppm. No effects on any reproductive parameters were observed in either generation. No effects on sperm measurements, estrous cyclicity, or reproductive organs were observed in adult animals. Pup body weights during lactation were reduced at 2000 ppm. The NOAEL for systemic and postnatal toxicity was 200 ppm (approximately 15 mg/kg/day) and for reproductive toxicity was >2000 ppm (approximately 150 mg/kg/day). Although octylphenol has weak estrogen mimetic activity in some screening assays, no estrogenic or reproductive effects occurred from dietary exposure to rats for two generations over a 10,000 fold dose range.

ADDITIONAL STUDIES

There was evidence of myocardial effects in several species from repeated oral doses.

12. ECOLOGICAL INFORMATION

12.1 ENVIRONMENTAL FATE

BOD (% Oxygen consumption)

	Day 5	Day 10	Day 15	Day 20	Day 28/30
	11 %	28 %		65 %	

12.2 ECOTOXICITY

Toxicity to Micro-organisms
Bacterial Inhibition; IC50
Result value: > 1000 mg/l

Toxicity to Aquatic Invertebrates
Cladoceran; 48 h; LC50
Result value: > 1000 mg/l

12.3 FURTHER INFORMATION

Appropriate treatment of effluents will reduce levels of nonylphenol ethoxylate (NPE) residues to concentrations that should pose no harm to the environment, including protection for weak estrogen-mimetic activity observed for some degradation intermediates.
Chemical Oxygen Demand (COD) - measured: 1.91 mg/mg
Theoretical Oxygen Demand (THOD) - calculated:: 1.95 mg/mg

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: incinerator or other thermal destruction device. waste water treatment system. 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

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

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

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

Component	CAS #	Amount
Ethylene oxide	75-21-8	<= 0.0020%
1,4-Dioxane	123-91-1	<= 0.0015%
Acetaldehyde	75-07-0	<= 0.0006%
Formaldehyde	50-00-0	<= 0.0004%

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

This product contains the following substances subject to SARA Section 302 reporting requirements and are listed in 40 CFR Part 302.4.

None.

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 TITLE III (EMERGENCY PLANNING AND COMMUNITY RIGHT TO KNOW ACT) SECTION 313

This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act 1986 and 40 CFR Part 372.

This product does not contain toxic chemicals at levels which require reporting under the statute.

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

Delayed (Chronic) Health Hazard : No
Fire Hazard : No
Immediate (Acute) Health Hazard : No

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.

15.2 STATE/LOCAL

PENNSYLVANIA (WORKER AND COMMUNITY RIGHT-TO-KNOW ACT)

The following product components are cited in the Pennsylvania Hazardous Substances List, the Pennsylvania Special Hazardous Substance List, and/or the Pennsylvania Environmental Hazardous Substance list, and are present at levels which require reporting.
None.

MASSACHUSETTS (HAZARDOUS SUBSTANCES DISCLOSURE BY EMPLOYERS)

The following components of this product appear on the Massachusetts Substance List and are present at levels which could require identification in the MSDS:

Component	CAS #	Amount
Ethylene oxide	75-21-8	<= 0.0020%
1,4-Dioxane	123-91-1	<= 0.0015%
Acetaldehyde	75-07-0	<= 0.0006%
Formaldehyde	50-00-0	<= 0.0004%

CALIFORNIA PROPOSITION 65 (SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT OF 1986)

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

Component	CAS #	Amount
1,4-Dioxane	123-91-1	<= 0.0015%
Acetaldehyde	75-07-0	<= 0.0006%
Formaldehyde	50-00-0	<= 0.0004%

CALIFORNIA PROPOSITION 65 (SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT OF 1986)

This product contains the following chemical(s) known to the State of California to cause cancer and birth defects or other reproductive harm.

Component	CAS #	Amount
Ethylene oxide	75-21-8	<= 0.0020%

CALIFORNIA SCAQMD RULE 443.1 (SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT RULE 443.1, LABELING OF MATERIALS CONTAINING ORGANIC SOLVENTS)

VOC: Vapor pressure <0.01 mmHg at 20°C
0 g/L

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).

16.2 HAZARD RATING SYSTEM

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).

16.3 RECOMMENDED USES AND RESTRICTIONS

FOR INDUSTRY USE ONLY.

16.4 REVISION

Version: 5.0

Revision: 02/10/2003
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
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.