



SAFETY DATA SHEET

DOW CHEMICAL THAILAND LTD

Product name: CARBOWAX™ SENTRY™ Polyethylene Glycol
400 NF Low Aldehyde; Macrogol 400 Ph. Eur.

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DOW CHEMICAL THAILAND LTD 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.

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: CARBOWAX™ SENTRY™ Polyethylene Glycol 400 NF Low Aldehyde; Macrogol 400 Ph. Eur.

Recommended use of the chemical and restrictions on use

Identified uses: For the CARBOWAX™ SENTRY™ Product Line, a partial list of applications include pharmaceutical products, personal care products, automotive products, household products, packaging products, petroleum chemicals, plastics, inks, coatings, adhesives, chemical intermediates, rubber processing, lubricants, metalworking fluids, mold release agents, ceramics, and wood treating. For drug, cosmetic/personal care or indirect food applications, use CARBOWAX™ SENTRY™ brand products. Only SENTRY brand products are tested to meet applicable regulatory requirements. 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

DOW CHEMICAL THAILAND LTD
99/1 BJC 2 BUILDING,
SOI SAENGCHAN-RUBIA,
SUKHUMVIT 42 ROAD, PRAKANONG, KLONGTOEY,
BANGKOK 10110
THAILAND

Customer Information Number:

(66)2-3657000
SDSQuestion@dow.com

EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: (66)38-925-400

Local Emergency Contact: 038-925-400

2. HAZARDS IDENTIFICATION

GHS Classification

This product is not hazardous per the Globally Harmonized System of Classification and Labelling (GHS).

Other hazards

No data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

This product is a substance.

Component	CASRN	Concentration
Polyethylene glycol	25322-68-3	> 99.0 %

4. FIRST AID MEASURES

Description of first aid measures

General advice:

If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air and keep comfortable for breathing; consult a physician.

Skin contact: Wash off with plenty of water.

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: Rinse mouth with water. 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: Absorption may be promoted by damaged skin. J Pharm Sci. 1985 Oct;74(10):1062-6; Burns Incl Therm Inj 1982 Sep;9(1):49-52. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

5. FIREFIGHTING MEASURES

Extinguishing media

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..

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..

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental precautions: 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.

7. HANDLING AND STORAGE

Precautions for safe handling: See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Conditions for safe storage: Store in original container. Use product promptly after opening. Avoid prolonged exposure to heat and air. Store in the following material(s): Stainless steel. Polypropylene. Polyethylene-lined container. Teflon. Glass-lined container. Plasite 3066 lined container. Plasite 3070 lined container. 316 stainless steel.

Storage stability

Shelf life: Use within 24 Month

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

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

Component	Regulation	Type of listing	Value
Polyethylene glycol	US WEEL	TWA aerosol	10 mg/m ³

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 when prolonged or frequently repeated contact could occur. Examples of preferred glove barrier materials include: Butyl rubber. Natural rubber ("latex"). Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Polyvinyl alcohol ("PVA"). Polyvinyl chloride ("PVC" or "vinyl"). Examples of acceptable glove barrier materials include: Neoprene. 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: When prolonged or frequently repeated contact could occur, use protective clothing chemically resistant to this material. Selection of specific items such as faceshield, boots, apron, or full-body suit will depend on the task.

Respiratory protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions no respiratory protection should be needed; however, if discomfort is experienced, use an approved air-purifying respirator.

The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical state	Liquid.
Color	Colorless
Odor	Mild

Odor Threshold	No test data available
pH	4.5 - 7.0 <i>ASTM E70</i> (5% aqueous solution)
Melting point/range	Not applicable to liquids
Freezing point	4 - 8 °C <i>ASTM D1177</i>
Boiling point (760 mmHg)	> 200 °C <i>Calculated</i> . Decomposes
Flash point	closed cup 227 °C <i>ASTM D 93</i>
Evaporation Rate (Butyl Acetate = 1)	No test data available
Flammability (solid, gas)	Not applicable to liquids
Flammability (liquids)	Not expected to be a static-accumulating flammable liquid.
Lower explosion limit	No test data available
Upper explosion limit	No test data available
Vapor Pressure	< 0.01 mmHg at 20 °C <i>ASTM E1719</i>
Relative Vapor Density (air = 1)	10 <i>Calculated</i> .
Relative Density (water = 1)	1.127 at 20 °C / 20 °C <i>Calculated</i> .
Water solubility	at 20 °C <i>Measured</i> completely soluble
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No test data available
Decomposition temperature	No test data available
Kinematic Viscosity	6.8 - 8.0 cSt at 98.9 °C <i>ASTM D 445</i>
Explosive properties	No data available
Oxidizing properties	No data available
Liquid Density	9.392 lb/gln at 20 °C <i>ASTM D4052</i>
Molecular weight	380 - 420 g/mol <i>Calculated</i> .
Volatile Organic Compounds	2 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.

10. STABILITY AND REACTIVITY

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.. Carbon dioxide.. Carboxylic acids.. Polymer fragments..

11. TOXICOLOGICAL INFORMATION

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

Information on likely routes of exposure

Ingestion, Inhalation, Skin contact, Eye contact.

Acute toxicity (represents short term exposures with immediate effects - no chronic/delayed effects known unless otherwise noted)

Acute Toxicity Endpoints:

Not classified based on available information.

Acute oral toxicity

Information for the Product:

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

Based on testing for product(s) in this family of materials:

LD50, Rat, > 10,000 mg/kg Estimated.

Information for components:

Polyethylene glycol

Typical for this family of materials. LD50, Rat, > 10,000 mg/kg

Acute dermal toxicity

Information for the Product:

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

Prolonged/repeated exposure to damaged skin (as in burn patients) may result in absorption of toxic amounts.

Based on testing for product(s) in this family of materials:

LD50, Rabbit, > 20,000 mg/kg Estimated.

Information for components:

Polyethylene glycol

Typical for this family of materials. LD50, Rabbit, > 20,000 mg/kg

Acute inhalation toxicity

Information for the Product:

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.

Typical for this family of materials.

LC50, Rat, 6 Hour, dust/mist, > 2.5 mg/l No deaths occurred following exposure to a saturated atmosphere.

Information for components:

Polyethylene glycol

Typical for this family of materials. LC50, Rat, 6 Hour, dust/mist, > 2.5 mg/l No deaths occurred at this concentration.

Skin corrosion/irritation

Not classified based on available information.

Information for the Product:

Based on testing for product(s) in this family of materials:
Prolonged contact is essentially nonirritating to skin.

Information for components:

Polyethylene glycol

Prolonged contact is essentially nonirritating to skin.

Serious eye damage/eye irritation

Not classified based on available information.

Information for the Product:

Based on testing for product(s) in this family of materials:
May cause slight temporary eye irritation.
Corneal injury is unlikely.

Information for components:

Polyethylene glycol

May cause slight temporary eye irritation.
Corneal injury is unlikely.

Sensitization

For skin sensitization:

Not classified based on available information.

For respiratory sensitization:

Not classified based on available information.

Information for the Product:

For skin sensitization:

For this family of materials:
Did not cause allergic skin reactions when tested in humans.
For this family of materials, sensitization studies done in guinea pigs have been negative.

For respiratory sensitization:
No relevant data found.

Information for components:

Polyethylene glycol

For this family of materials:
Did not cause allergic skin reactions when tested in humans.
For this family of materials, sensitization studies done in guinea pigs have been negative.

For respiratory sensitization:
No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)

Not classified based on available information.

Information for the Product:

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

Information for components:

Polyethylene glycol

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

Aspiration Hazard

Not classified based on available information.

Information for the Product:

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

Information for components:

Polyethylene glycol

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

Chronic toxicity (represents longer term exposures with repeated dose resulting in chronic/delayed effects - no immediate effects known unless otherwise noted)

Specific Target Organ Systemic Toxicity (Repeated Exposure)

Not classified based on available information.

Information for the Product:

The use of topical applications containing this material may not be appropriate in severely burned patients.

This product should not be used in patients with kidney disease; these effects would not result from normal industrial handling.
Based on available data, repeated exposures are not anticipated to cause additional significant adverse effects.

Information for components:

Polyethylene glycol

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

Recent findings of kidney failure and death in burn patients, as well as some studies using animal burn models, suggest that polyethylene glycol may have been a factor.

The use of topical applications containing this material may not be appropriate in severely burned patients.

Carcinogenicity

Not classified based on available information.

Information for the Product:

Polyethylene glycols did not cause cancer in long-term animal studies.

Information for components:

Polyethylene glycol

Polyethylene glycols did not cause cancer in long-term animal studies.

Teratogenicity

Not classified based on available information.

Information for the Product:

Based on testing for product(s) in this family of materials: Did not cause birth defects or any other fetal effects in laboratory animals.

Information for components:

Polyethylene glycol

For similar material(s): Did not cause birth defects or any other fetal effects in laboratory animals.

Reproductive toxicity

Not classified based on available information.

Information for the Product:

Based on testing for product(s) in this family of materials: In animal studies, did not interfere with reproduction.

Information for components:

Polyethylene glycol

For similar material(s): In animal studies, did not interfere with reproduction.

Mutagenicity

Not classified based on available information.

Information for the Product:

Based on testing for product(s) in this family of materials: In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

Information for components:

Polyethylene glycol

For similar material(s): In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

12. ECOLOGICAL INFORMATION

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

Ecotoxicity

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), static test, 96 Hour, 87,209 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

LC50, Daphnia magna (Water flea), static test, 48 Hour, 53,484 mg/l, OECD Test Guideline 202 or Equivalent

Persistence and degradability

Biodegradability: Material is expected to be readily biodegradable.

10-day Window: Pass

Biodegradation: > 60 %

Exposure time: 20 d

Method: OECD Test Guideline 301D or Equivalent

Theoretical Oxygen Demand: 1.74 mg/mg

Chemical Oxygen Demand: 1.81 mg/mg

Bioaccumulative potential

Bioaccumulation: No bioconcentration is expected because of the relatively high water solubility.

Mobility in Soil

No data available.

Results of PBT and vPvB assessment

This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

Other adverse effects

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

13. DISPOSAL CONSIDERATIONS

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.

14. TRANSPORT INFORMATION

Classification for ROAD and Rail transport:

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.

15. REGULATORY INFORMATION

Emergency Decree on Controlling the Use of Volatile Substances B.E. 2533

Not applicable

Hazardous Substance Act B.E. 2535

This product may subject restriction or prohibition under below authorities due to certain applications. For details, please refer to local regulations to decide if any actions (of notification, registration, and/or license in accordance with the determined specific rules and procedure) are needed before business activity happen (production, import, export or to have it in possession for transport and/or storage).

Department of Agriculture

Not applicable

Department of Energy Business

Not applicable

Department of Livestock

Banned and/or restricted

Department of Industrial Works

Not applicable

Food and Drug Administration

Banned and/or restricted

Department of Fisheries

Not applicable

16. OTHER INFORMATION

Product Literature

Additional information on this product may be obtained by calling your sales or customer service contact. Ask for a product brochure. Additional information on this and other products may be obtained by visiting our web page.

Hazard Rating System

NFPA

Health	Flammability	Instability
0	1	0

Revision

Identification Number: 321772 / A176 / Issue Date: 28.06.2022 / Version: 5.0

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

Legend

TWA	8-hr TWA
US WEEL	USA. Workplace Environmental Exposure Levels (WEEL)

Full text of other abbreviations

AIIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

DOW CHEMICAL THAILAND LTD 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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