



SAFETY DATA SHEET

DOW CHEMICAL THAILAND LTD

Product name: ACULYN™ 44 Polymer

Issue Date: 08.09.2022

Print Date: 09.09.2022

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: ACULYN™ 44 Polymer

Recommended use of the chemical and restrictions on use

Identified uses: Rheology modifier

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 mixture.

| Component | CASRN | Concentration |
|-----------|-------|---------------|
|-----------|-------|---------------|

Propane-1,2-diol

57-55-6

>= 36.0 - < 38.0 %

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. Suitable emergency eye wash facility should be available in work area.

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

5. FIREFIGHTING MEASURES

Extinguishing media

Suitable extinguishing media: Alcohol-resistant foam. Carbon dioxide (CO₂). Dry chemical. Water spray.

Unsuitable extinguishing media: None known..

Special hazards arising from the substance or mixture

Hazardous combustion products: Carbon oxides.

Unusual Fire and Explosion Hazards: Exposure to combustion products may be a hazard to health.. Dried product can burn.. Material can splatter above 100C/212F..

Advice for firefighters

Fire Fighting Procedures: Use water spray to cool unopened containers.. Evacuate area.. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations..

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Remove undamaged containers from fire area if it is safe to do so.

Special protective equipment for firefighters: Wear self-contained breathing apparatus for firefighting if necessary.. Use personal protective equipment..

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Material can create slippery conditions. Follow safe handling advice and personal protective equipment recommendations.

Environmental precautions: Discharge into the environment must be avoided. Prevent further leakage or spillage if safe to do so. Prevent spreading over a wide area (e.g. by containment or oil barriers). Retain and dispose of contaminated wash water. Local authorities should be advised if significant spillages cannot be contained.

Methods and materials for containment and cleaning up: Soak up with inert absorbent material. Clean up remaining materials from spill with suitable absorbant. Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable. For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, store recovered material in appropriate container.
See sections: 7, 8, 11, 12 and 13.

7. HANDLING AND STORAGE

Precautions for safe handling: Take care to prevent spills, waste and minimize release to the environment. Handle in accordance with good industrial hygiene and safety practice. Monomer vapors can be evolved when material is heated during processing operations. See SECTION 8, for types of ventilation required.

Use only with adequate ventilation. See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.

Conditions for safe storage: Keep in properly labelled containers. Store in accordance with the particular national regulations.

Do not store with the following product types: Strong oxidizing agents.
Unsuitable materials for containers: None known.

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 |
|------------------|------------|-----------------|----------------------|
| Propane-1,2-diol | US WEEL | TWA | 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 chloride ("PVC" or "vinyl"). Examples of acceptable glove barrier materials include: Neoprene. Avoid gloves made of: Polyvinyl alcohol ("PVA"). **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: Wear clean, body-covering clothing.

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. In misty atmospheres, use an approved particulate 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 | opaque White to off-white |
| Odor | characteristic |
| Odor Threshold | No data available |
| pH | 7.0 - 9.0 |
| Melting point/range | -60.00 °C |
| Freezing point | No data available |
| Boiling point (760 mmHg) | 100.00 °C Water |
| Flash point | 110.00 °C <i>SETAFLASH CLOSED CUP</i> |
| Evaporation Rate (Butyl Acetate = 1) | <1.00 Water |
| Flammability (solid, gas) | Not Applicable |
| Lower explosion limit | 2.60 % vol |
| Upper explosion limit | 12.50 % vol |
| Vapor Pressure | No data available |
| Relative Vapor Density (air = 1) | <1.0000 Water |

| | |
|-----------------------------------------------|---------------------|
| Relative Density (water = 1) | 1.0700 |
| Water solubility | completely miscible |
| Partition coefficient: n-octanol/water | No data available |
| Auto-ignition temperature | 421.00 °C |
| Decomposition temperature | No data available |
| Kinematic Viscosity | No data available |
| Explosive properties | No data available |
| Oxidizing properties | No data available |
| Molecular weight | No data available |
| Percent volatility | 64.00 - 66.00 % |

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

10. STABILITY AND REACTIVITY

Reactivity: Not classified as a reactivity hazard.

Chemical stability: Stable under normal conditions.

Possibility of hazardous reactions: Can react with strong oxidizing agents.

Conditions to avoid: None known.

Incompatible materials: Avoid contact with oxidizing materials.

Hazardous decomposition products

No hazardous decomposition products are known.

11. TOXICOLOGICAL INFORMATION

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

Information on likely routes of exposure

Inhalation, Eye contact, Skin contact, Ingestion.

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.

For this family of materials:
LD50, Rat, male, > 5,000 mg/kg

Information for components:

Propane-1,2-diol
LD50, Rat, > 20,000 mg/kg

Acute dermal toxicity

Information for the Product:

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

For similar material(s):
LD50, Rabbit, male, > 5,000 mg/kg

Information for components:

Propane-1,2-diol
LD50, Rabbit, > 2,000 mg/kg No deaths occurred at this concentration.

Acute inhalation toxicity

Information for the Product:

Brief exposure (minutes) is not likely to cause adverse effects. Mist may cause irritation of upper respiratory tract (nose and throat).

The LC50 has not been determined.

Information for components:

Propane-1,2-diol
LC50, Rabbit, 2 Hour, dust/mist, 317.042 mg/l No deaths occurred at this concentration.

Skin corrosion/irritation

Not classified based on available information.

Information for the Product:

Based on product testing:
Brief contact is essentially nonirritating to skin.

Information for components:

Propane-1,2-diol
Prolonged contact is essentially nonirritating to skin.
Repeated contact may cause flaking and softening of skin.

Serious eye damage/eye irritation

Not classified based on available information.

Information for the Product:

Based on product testing:
Essentially nonirritating to eyes.

Information for components:

Propane-1,2-diol

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

Sensitization

For skin sensitization:

Not classified based on available information.

For respiratory sensitization:

Not classified based on available information.

Information for the Product:

Did not cause allergic skin reactions when tested in guinea pigs.
For similar material(s):
Did not cause allergic skin reactions when tested in humans.

For respiratory sensitization:
No relevant data found.

Information for components:

Propane-1,2-diol

Did not cause allergic skin reactions when tested in humans.

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:

Propane-1,2-diol

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:

Propane-1,2-diol

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:

In rare cases, repeated excessive exposure to propylene glycol may cause central nervous system effects.

Information for components:

Propane-1,2-diol

In rare cases, repeated excessive exposure to propylene glycol may cause central nervous system effects.

Carcinogenicity

Not classified based on available information.

Information for the Product:

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

Information for components:

Propane-1,2-diol

Did not cause cancer in laboratory animals.

Teratogenicity

Not classified based on available information.

Information for the Product:

Contains component(s) which did not cause birth defects or any other fetal effects in lab animals.

Information for components:

Propane-1,2-diol

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:

Contains component(s) which did not interfere with reproduction in animal studies. Contains component(s) which did not interfere with fertility in animal studies.

Information for components:

Propane-1,2-diol

In animal studies, did not interfere with reproduction. In animal studies, did not interfere with fertility.

Mutagenicity

Not classified based on available information.

Information for the Product:

For this family of materials: In vitro mutagenicity studies were negative.

Information for components:

Propane-1,2-diol

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).

For this family of materials:

LC50, Rainbow trout (*Oncorhynchus mykiss*), 96 Hour, 741 mg/l, OECD Test Guideline 203

Acute toxicity to aquatic invertebrates

For this family of materials:

EC50, *Daphnia magna*, 48 Hour, 897 mg/l, OECD Test Guideline 202

For this family of materials:

NOEC, *Daphnia magna*, 48 Hour, 563 mg/l, OECD Test Guideline 202

Acute toxicity to algae/aquatic plants

For this family of materials:

EbC50, green alga *Pseudokirchneriella subcapitata* (formerly known as *Selenastrum capricornutum*), Static, 72 Hour, Biomass, 229 mg/l, OECD Test Guideline 201

For this family of materials:

NOEC, green alga *Pseudokirchneriella subcapitata* (formerly known as *Selenastrum capricornutum*), Static, 72 Hour, 125 mg/l, OECD Test Guideline 201

Persistence and degradability

Biodegradability: Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.

Bioaccumulative potential

Propane-1,2-diol

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Partition coefficient: n-octanol/water(log Pow): -1.07 Measured

Bioconcentration factor (BCF): 0.09 Fish Estimated.

Mobility in Soil

Propane-1,2-diol

Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.

Partition coefficient (Koc): < 1 Estimated.

Results of PBT and vPvB assessment

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

Other adverse effects

No relevant data found.

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. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. FOR UNUSED AND UNCONTAMINATED PRODUCT, always send to a licensed disposer per applicable regulations. Consult the local waste disposal expert for the appropriate waste disposal method. Recover or recycle, if possible. Otherwise, send it to a licensed disposer.

Contaminated packaging: Empty containers retain product residues. Follow label warnings even after container is emptied. Improper disposal or reuse of this container may be dangerous and illegal. Refer to applicable federal, state and local regulations.

14. TRANSPORT INFORMATION

Classification for ROAD and Rail transport:

Not regulated for transport

Classification for SEA transport (IMO-IMDG):

| | |
|---------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code | Not regulated for transport 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

Department of Agriculture

Not applicable

Department of Energy Business

Not applicable

Department of Livestock

Not applicable

Department of Industrial Works

Not applicable

Food and Drug Administration

Not applicable

Department of Fisheries

Not applicable

16. OTHER INFORMATION

Revision

Identification Number: 10392569 / A176 / Issue Date: 08.09.2022 / Version: 2.0

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

AIIC - 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; TECl - 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.

TH

