

MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT & COMPANY IDENTIFICATION

24-HOUR EMERGENCY PHONE NUMBER: 517-636-4400

Product: MU 35113.00 DEVELOPMENTAL ADHESION PROMOTER AP3000

Product Code: 61262

Effective Date: 06/23/98

The Dow Chemical Company, Midland, MI 48674

MSD: 006145

Customer Information Center: 800-258-2436

2. COMPOSITION/INFORMATION ON INGREDIENTS

1-Methoxy-2-propanol	CAS# 000107-98-2	>98% min.
Water		<1% max.
Proprietary Ingredient		0.1-1%

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

 * Clear, colorless liquid. Slight ether odor. Flowable. *
 * Vapors may travel a long distance; ignition and/or flash back *
 * may occur. *
 * May occur. *
 * May occur. *

POTENTIAL HEALTH EFFECTS (See Section 11 for toxicological data.)

EYE: May cause slight transient (temporary) eye irritation.
 Corneal injury is unlikely.

SKIN: Prolonged or repeated exposure may cause skin irritation.
 Prolonged skin contact with very large amounts may cause drowsiness.

INGESTION: Single dose oral toxicity is considered to be extremely low. Small amounts swallowed incidental to normal handling operations are not likely to cause injury; swallowing amounts larger than that may cause injury.

INHALATION: The odor is objectionable at 100 ppm; higher levels produce eye, nose, and throat irritation and are intolerable at 1000 ppm. Anesthetic effects are seen at or above 1000 ppm.

SYSTEMIC (OTHER TARGET ORGAN) EFFECTS: Observations in animals include liver and kidney effects. Signs and symptoms of excessive exposure may be anesthetic or narcotic effects.

TERATOLOGY (BIRTH DEFECTS): Birth defects are unlikely.
 Exposures having no adverse effects on the mother should have no effect on the fetus.

REPRODUCTIVE EFFECTS: In animal studies, has been shown not to interfere with reproduction.

4. FIRST AID

EYE: Flush eyes with plenty of water.

SKIN: Wash off in flowing water or shower.

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

INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.

NOTE TO PHYSICIAN: No specific antidote. Supportive care. Treatment based on judgment of the physician in response to reactions of the patient.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES

FLASH POINT: 90F, 32C

METHOD USED: Setflash

AUTOIGNITION TEMPERATURE: 545F, 287C

FLAMMABILITY LIMITS

LFL: 1.5 vol% @ 151C

UFL: 10.9 vol% @ 151C

HAZARDOUS COMBUSTION PRODUCTS: During a fire, smoke may contain the original material in addition to unidentified toxic and/or irritating compounds. Hazardous combustion products may include and are not limited to: carbon monoxide, carbon dioxide.

OTHER FLAMMABILITY INFORMATION: Violent steam generation or eruption may occur upon application of direct water stream. Vapors are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flash back may occur. Flammable mixtures may exist within the vapor space of containers at room temperature. Flammable concentration of vapor can accumulate at temperatures above 90 deg. F. Spills of these organic liquids on hot fibrous insulations may lead to lowering of the autoignition temperatures possibly resulting in spontaneous combustion.

EXTINGUISHING MEDIA: Water fog or fine spray, carbon dioxide, dry chemical, foam. Alcohol resistant foams (ATC type) are preferred if available. General purpose synthetic foams (including AFFF) or protein foams may function, but much less effectively. Do not use direct water stream. Straight or direct water streams may not be effective to extinguish fire.
 MEDIA TO BE AVOIDED: Do not use direct water stream.

FIRE FIGHTING INSTRUCTIONS: Keep people away. Isolate fire area and deny unnecessary entry. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. Burning liquids may be extinguished by dilution with water. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Eliminate ignition sources. Stay upwind. Keep out of low areas where gases (fumes) can accumulate. Do not use direct water stream. May spread fire. Water may not be effective in extinguishing fire. Move container from fire area if this is possible without hazard.

PROTECTIVE EQUIPMENT FOR FIRE FIGHTERS: 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

Adhesion
Promoter
(for BCB)

or not used, fight fire from a protected location or safe distance.

6. ACCIDENTAL RELEASE MEASURES (See Section 15 for Regulatory Information)

PROTECT PEOPLE: Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. For large spills, warn public of downwind explosion hazard. Check area with explosion meter before reentering area. Ground and bond all containers and handling equipment.

PROTECT THE ENVIRONMENT: Vapor explosion hazard, keep out of sewers.

CLEANUP: Pump with explosion-proof equipment. Absorb with material such as dirt or sand. If available, use foam to smother or suppress.

7. HANDLING AND STORAGE

HANDLING: Containers, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers. No smoking, open flames or sources of ignition in handling and storage area. Never use air pressure for transferring product. Electrically ground all equipment.

STORAGE: Use of non-sparking or explosion proof equipment may be necessary, depending upon the type of operation. Minimize sources of ignition, such as static buildup, heat, spark or flame. Keep containers tightly closed when not in use. Store in carbon steel, stainless steel, Teflon.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS: Local exhaust ventilation may be necessary for some operations.

PERSONAL PROTECTIVE EQUIPMENT
EYE/FACE PROTECTION: Use safety glasses.

SKIN PROTECTION: For brief contact, no precautions other than clean body-covering clothing should be needed. Use gloves impervious to this material when prolonged or frequently repeated contact could occur.

RESPIRATORY PROTECTION: When airborne exposure guidelines and/or comfort levels may be exceeded, use an approved air-purifying respirator.

EXPOSURE GUIDELINES: Propylene glycol monomethyl ether: ACGIH TLV and OSHA PEL are 100 ppm TWA, 150 ppm STEL. PELs are in accord with those recommended by CGSA, as in the 1983 revision of PELs.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Clear, colorless liquid.

ODOR: Slight ether; objectionable @ 100 ppm or higher.

VAPOR PRESSURE: 12.5 mmHg @ 25C

VAPOR DENSITY: 3.12

BOILING POINT: 248.3F, 120C

SOLUBILITY IN WATER: Infinitely.

SPECIFIC GRAVITY: 0.919 @ 25/25C

VOLATILE ORGANIC COMPOUNDS (VOC) CONTENT: 919 g/L or 7.65 lb/gal as per Rule 44.1 of California SCAQMD

10. STABILITY AND REACTIVITY

CHEMICAL STABILITY: Stable under recommended storage conditions. See Storage Section.

CONDITIONS TO AVOID: Avoid static discharge. Flammable vapors can be released at elevated temperatures.

INCOMPATIBILITY WITH OTHER MATERIALS: Avoid contact with oxidizing materials.

HAZARDOUS DECOMPOSITION PRODUCTS: Does not normally decompose. Hazardous decomposition products depend upon temperature, air supply and the presence of other materials.

HAZARDOUS POLYMERIZATION: Will not occur.

11. TOXICOLOGICAL INFORMATION (See Section 3 for Potential Health Effects. For detailed toxicological data, write or call the address or non-emergency number shown in Section 1)

SKIN: The LD50 for skin absorption in rabbits is approximately 13,000 mg/kg (12 ml/kg).

INGESTION: The oral LD50 for rats is 7200 mg/kg (6.6 ml/kg).

INHALATION: The LC50 for rats is > 7500 ppm for 4 hours.

MUTAGENICITY: In vitro mutagenicity studies were negative.

12. ECOLOGICAL INFORMATION (For detailed Ecological data, write or call the address or non-emergency number shown in Section 1)

ENVIRONMENTAL FATE

MOVEMENT & PARTITIONING: Bioconcentration potential is low (BCF less than 100 or Log Pow less than 3). Log octanol/water partition coefficient (log Pow) is estimated using the Pomona-based Chem structural fragment method to be -0.437. Log air/water partition coefficient (log Kaw) is estimated to be -3.92. Log soil organic carbon partition coefficient (log Koc) is estimated to be -0.638. Potential for mobility in soil is very high (Koc between 0 and 50).

DEGRADATION & PERSISTENCE: Biodegradation under aerobic static laboratory conditions is high (BOD20 or BOD28/ThOD greater than 40%).

20-Day biochemical oxygen demand (BOD20) is 1.14 p/p.

10-Day biochemical oxygen demand (BOD10) is 0.42 p/p.

5-Day biochemical oxygen demand (BOD5) is below detection limits.

Degradation is expected in the atmospheric environment within minutes to hours.

Inhibitory concentration (IC50) in OECD "Activated Sludge, Respiration Inhibition Test" (Guideline #209) is >1000 mg/L.

Theoretical oxygen demand (ThOD) is calculated to be 1.35 p/p. Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

ECOTOXICITY: Material is practically non-toxic to aquatic organisms on an acute basis (LC50 greater than 100 mg/L in most sensitive species).

Acute LC50 for fathead minnow (*Pimephales promelas*) is 20800 mg/L.

Acute LC50 for water flea (*Daphnia magna*) is 23300 mg/L.

Growth inhibition EC50 for green alga *Selenastrum capricornutum*

is >1000 mg/L.

13. DISPOSAL CONSIDERATIONS (See Section 15 for Regulatory Information)

DISPOSAL: DO NOT DUMP INTO ANY SEDGES, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal methods 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. THE DOW CHEMICAL COMPANY 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, recycler, reclaimer, incinerator or other thermal destruction device.

As a service to its customers, Dow can provide lists of companies which recycle, reprocess or manage chemicals or plastics, and companies that manage used drums. Telephone Dow's Customer Information Center at 800-258-2436 or 517-832-1556 for further details.

14. TRANSPORT INFORMATION

DEPARTMENT OF TRANSPORTATION (D.O.T.):

For DOT regulatory information, if required, consult transportation regulations, product shipping papers, or your Dow representative.

CANADIAN TDG INFORMATION:

For TDG regulatory information, if required, consult transportation regulations, product shipping papers, or your Dow representative.

15. REGULATORY INFORMATION (Not meant to be all-inclusive--selected regulations represented)

NOTICE: The information herein is presented 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 from one location to another; it is the buyer's responsibility to ensure that its activities comply with federal, state or provincial, and local laws. The following specific information is made for the purpose of complying with numerous federal, state or provincial, and local laws and regulations. See other sections for health and safety information.

U.S. REGULATIONS

SARA 313 INFORMATION: To the best of our knowledge, this product contains no chemical subject to SARA Title III Section 313 supplier notification requirements.

SARA HAZARD CATEGORIES: This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

An immediate health hazard
A delayed health hazard
A fire hazard

TOXIC SUBSTANCES CONTROL ACT (TSCA):

All ingredients are on the TSCA inventory or are not required to be listed on the TSCA inventory.

The CAS Number for TSCA is 107-99-2.

STATE RIGHT-TO-KNOW: The following product components are cited on certain state lists as mentioned. Non-listed components may be shown in the composition section of the MSDS.

CHEMICAL NAME	CAS NUMBER	LIST
2-PROPANOL, 1-METHOXY-	000107-99-2	NY3 PA1

NY3-New Jersey Workplace Hazardous Substance (present at greater than or equal to 1.0%).
PA1-Pennsylvania Hazardous Substance (present at greater than or equal to 1.0%).

OSHA HAZARD COMMUNICATION STANDARD:

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

16. OTHER INFORMATION

MSDS STATUS: Revised Section 2.

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) RATINGS:

Health	1
Flammability	3
Reactivity	0

The Information Herein Is Given In Good Faith, But No Warranty, Express Or Implied, Is Made. Consult The Dow Chemical Company For Further Information.