SAFETY DATA SHEET

ANGUS CHEMICAL COMPANY

Product name
AMP-95® 氨甲基丙醇
AMP-95® 2-Amino-2-methyl-1-propanol

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ANGUS CHEMICAL COMPANY 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	AMP-95® 氨甲基丙醇 AMP-95® 2-Amino-2-methyl-1-propanol

Manufacturer or supplier's details

Company	ANGUS CHEMICAL COMPANY
Address	1500 E. LAKE COOK ROAD Buffalo Grove IL 60089-6553
Customer Information Number	+86-21-5389-3200
E-mail address	APR_CC@ANGUS.COM
Emergency telephone number	**+1 703-527-3887** **0532-83889090** (Local Emergency Contact)
Recommended use	Coatings and paints. For industrial use. The ANGUS Chemical Company recommends 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 the Customer Information Group (see Section 1 of this data sheet).

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance	Liquid.
Colour	Colorless
Odour	Amine.

Combustible liquid. May be harmful if swallowed. Causes skin irritation. Causes serious eye damage. Harmful to aquatic life with long lasting effects.

GHS Classification

Flammable liquids	Category 4
Acute toxicity (Oral)	Category 5
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 1
Chronic aquatic toxicity	Category 3

GHS label elements

Hazard pictograms

Signal word: Danger

Hazard statements:
Combustible liquid.
May be harmful if swallowed.
Causes skin irritation.
Causes serious eye damage.
Harmful to aquatic life with long lasting effects.

Precautionary statements

Prevention:

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Avoid release to the environment.
Wear protective gloves/ eye protection/ face protection.

Response:

IF ON SKIN: Wash with plenty of water.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.

Physical and chemical hazards

Combustible liquid.

Health hazards

May be harmful if swallowed. Causes skin irritation. Causes serious eye damage.

Environmental hazards

Harmful to aquatic life with long lasting effects.

Other hazards which do not result in classification

None known.

3. COMPOSITION/INFORMATION ON INGREDIENTS

This product is a mixture.

Components

Chemical name	CAS-No.	Concentration (% w/w)
2-Amino-2-methyl-1-propanol	124-68-5	> 89
2-Methylamino-2-methyl-1-propanol	27646-80-6	< 7
Water	7732-18-5	5

4. FIRST AID MEASURES

If inhaled	Move person to fresh air; if effects occur, consult a physician.
In case of skin contact	Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing. Seek medical attention if symptoms occur or irritation persists. Wash clothing before reuse. Suitable emergency safety shower facility should be immediately available.
In case of eye contact	Wash immediately and continuously with flowing water for at least 30 minutes. Remove contact lenses after the first 5 minutes and continue washing. Obtain prompt medical consultation, preferably from an ophthalmologist. Suitable emergency eye wash facility should be immediately available.
If swallowed	Seek medical attention immediately. Do not induce vomiting. Give one cup (8 ounces or 240 ml) of water or milk if available and transport to a medical facility. Do not give anything by mouth unless the person is fully conscious.
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.
Protection of first-aiders	First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.
Notes to physician	Chemical eye burns may require extended irrigation. Obtain prompt consultation, preferably from an ophthalmologist. If burn is present, treat as any thermal burn, after decontamination. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. No specific antidote. Due to irritant properties, swallowing may result in burns/ulceration of mouth, stomach and lower gastrointestinal tract with subsequent stricture. Aspiration of vomitus may cause lung injury. Suggest endotracheal/esophageal control if lavage is done.

5. FIREFIGHTING MEASURES

Suitable extinguishing media	Water fog or fine spray. Carbon dioxide fire extinguishers. Dry chemical 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	None known.
Specific hazards during firefighting	Violent steam generation or eruption may occur upon application of direct water stream to hot liquids.
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 dioxide. Carbon monoxide. Nitrogen oxides.
Specific extinguishing methods	Keep people away. Isolate fire and deny unnecessary entry. Do not use direct water stream. May spread fire. 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.
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). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	Evacuate area. Keep upwind of spill. Ventilate area of leak or spill. Only trained and properly protected personnel must be involved in clean-up operations. No smoking in area. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection. Refer to section 7, Handling, for additional precautionary measures.
Environmental precautions	Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.
Methods and materials for	Contain spilled material if possible.

containment and cleaning up	Collect in suitable and properly labeled containers. See Section 13, Disposal Considerations, for additional information.

7. HANDLING AND STORAGE

Handling

Advice on safe handling	Keep away from heat, sparks and flame. Product freezes at -2°C (28.4°F). May be melted in drum. Do not swallow. Wash thoroughly after handling. Avoid breathing vapor or mist. Use with adequate ventilation. Do not get in eyes, on skin, on clothing. Keep container closed. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Storage

Conditions for safe storage	Store in a cool, dry place. Store in original container. Keep containers tightly closed when not in use to prevent formation of carbonate salts. Do not store in: Aluminum. Brass. Copper. Zinc. Copper alloys. Galvanized containers.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Contains no substances with occupational exposure limit values.

Engineering measures	Local exhaust ventilation may be necessary for some operations. 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.

Personal protective equipment

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 material is heated or sprayed, use an

	approved air-purifying respirator. The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter, type AP2.
Eye/face protection	Use chemical goggles. Eye wash fountain should be located in immediate work area.
Skin and body protection	Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.
Hand protection	Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Polyethylene. Chlorinated polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Examples of acceptable glove barrier materials include: Viton. Butyl rubber. Neoprene. Natural rubber ("latex"). Polyvinyl chloride ("PVC" or "vinyl"). Nitrile/butadiene rubber ("nitrile" or "NBR"). 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.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Liquid.
Colour	Colorless
Odour	Amine.
Odour Threshold	No test data available
pH	11.3 (20 °C) Method: Literature 1% aqueous solution.
Melting point/range	-2 °C Method: Literature
Freezing point	-2 °C Method: Literature
Boiling point/boiling range	100 - 165 °C Method: Literature
Flash point	81 °C Method: Literature, closed cup
Evaporation rate	No test data available
Upper explosion limit / Upper flammability limit	No test data available

Lower explosion limit / Lower flammability limit	No test data available
Vapour pressure	0.34 mmHg (20 °C) Method: Measured Anhydrous
Relative vapour density	3 Method: Literature
Relative density	0.942 (25 °C) Method: Literature
Water solubility	Method: Literature Miscible with water
Partition coefficient: n-octanol/water	log Pow: -0.63 (20 °C) Method: OECD Test Guideline 107 or Equivalent GLP: yes Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Auto-ignition temperature	No test data available
Viscosity	
Viscosity, dynamic	147 mPa.s (25 °C) Method: Literature
Viscosity, kinematic	No test data available
Percent volatility	No data available
Molecular weight	No test data available

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

10. STABILITY AND REACTIVITY

Reactivity	No dangerous reaction known under conditions of normal use.
Chemical stability	Stable under recommended storage conditions. See Storage, Section 7.
Conditions to avoid	Exposure to elevated temperatures can cause product to decompose. Product absorbs carbon dioxide from the air. Reaction with carbon dioxide may form carbonate salts.
Incompatible materials	Avoid contact with: Strong acids. Strong oxidizers. Avoid contact with metals such as: Zinc. Aluminum. Copper. Copper alloys. Galvanized metals.

	Brass. Avoid unintended contact with: Halogenated hydrocarbons.
Hazardous decomposition products	Decomposition products depend upon temperature, air supply and the presence of other materials.

11. TOXICOLOGICAL INFORMATION

Toxicological information on this product or its components appear in this section when such data is available.

Acute toxicity

Product:

Acute oral toxicity	Remarks: Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury. Swallowing may result in irritation or burns of the mouth, throat, and gastrointestinal tract. LD50 (Rat, male): 2,900 mg/kg Method: OECD 401 or equivalent LD50 (Mouse): 2,150 mg/kg
Acute inhalation toxicity	Remarks: At room temperature, exposure to vapor is minimal due to low volatility. Vapor from heated material or mist may cause respiratory irritation. Remarks: The LC50 has not been determined.
Acute dermal toxicity	Remarks: Prolonged skin contact is unlikely to result in absorption of harmful amounts. LD50 (Rabbit, male and female): > 2,000 mg/kg Method: OECD Test Guideline 402 Symptoms: No deaths occurred at this concentration. Assessment: The substance or mixture has no acute dermal toxicity

Skin corrosion/irritation

Product:

Result	Skin irritation
Remarks	Brief contact may cause severe skin irritation with pain and local redness. Prolonged contact may cause severe skin burns. Symptoms may include pain, severe local redness, swelling, and tissue damage.
Remarks	Not classified as corrosive to the skin according to DOT guidelines.

Serious eye damage/eye irritation

Product:

Result	Corrosive

Remarks	May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur.

Respiratory or skin sensitisation

Product:

Remarks	For skin sensitization: Did not cause allergic skin reactions when tested in guinea pigs.
Remarks	For respiratory sensitization: No relevant data found.

Carcinogenicity

Product:

No relevant data found.

Teratogenicity

Product

In a screening study in rats, 2-amino-2-methyl-1-propanol hydrochloride salt was toxic to the fetus when administered at high oral doses. However, this material did not cause birth defects or any other effects on the fetus when high doses were administered dermally, the most likely route of exposure, in a definitive rat developmental toxicity study.

Mutagenicity

Product

Animal genetic toxicity studies were negative.
In vitro genetic toxicity studies were negative.

Reproductive toxicity

Product:

In animal studies, did not interfere with reproduction.

STOT - single exposure

Product:

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

Repeated dose toxicity

Product:

Remarks	In animals, effects have been reported on the following organs: Liver.

Aspiration toxicity

Product:

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

12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

Toxicity to fish	Remarks: 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). May increase pH of aquatic systems to > pH 10 which may be toxic to aquatic organisms. LC50 (Lepomis macrochirus (Bluegill sunfish)): 190 mg/l Exposure time: 96.0 h Test Type: static test Method: OECD Test Guideline 203 or Equivalent LC50 (European plaice (Pleuronectes platessa).): 184 mg/l Exposure time: 96.0 h Test Type: semi-static test Method: OECD Test Guideline 203 or Equivalent LC50 (Leuciscus idus (Golden orfe)): 331 mg/l Exposure time: 48.0 h Test Type: static test Method: OECD Test Guideline 203 or Equivalent
Toxicity to daphnia and other aquatic invertebrates	LC50 (Crangon crangon (shrimp)): 179.00 mg/l Exposure time: 96.0 h Test Type: semi-static test Method: OECD Test Guideline 202 or Equivalent LC50 (Daphnia magna (Water flea)): 193.00 mg/l Exposure time: 48.0 h Test Type: static test Method: OECD Test Guideline 202 or Equivalent
Toxicity to algae	EyC50 (alga Scenedesmus sp.): 565.5 mg/l End point: Biomass Exposure time: 72 h Test Type: static test Method: OECD Test Guideline 201 or Equivalent
Toxicity to bacteria	EC50 (activated sludge): 342.9 mg/l Exposure time: 3 h Test Type: static test Method: OECD 209 Test

Persistence and degradability

Product:

Biodegradability	Result: Readily biodegradable. Remarks: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. Biodegradation: 89.3 %

	Exposure time: 28 d Method: OECD Test Guideline 301F or Equivalent Remarks: 10-day Window: Pass
Chemical Oxygen Demand (COD)	2.410 mg/mg Method: Estimated.
ThOD	2.690 mg/mg Method: Estimated.
Photodegradation	Sensitiser: OH radicals Concentration: 1,500,000 1/cm3 Rate constant: 2.55E-11 cm3/s Rate constant: Degradation half life: 0.42 d Method: Estimated.

Bioaccumulative potential

Product:

Bioaccumulation	Species: Fish Bioconcentration factor (BCF): < 1 Temperature: 20 °C Method: OECD Test Guideline 107 or Equivalent GLP: yes Remarks: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water	log Pow: -0.63 (20 °C) Method: OECD Test Guideline 107 or Equivalent GLP: yes Remarks: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Mobility in soil

Product:

Distribution among environmental compartments	Koc: 18 Method: Estimated. Remarks: Potential for mobility in soil is very high (Koc between 0 and 50).

Other adverse effects

Product:

Ozone-Depletion Potential	Remarks: This substance is not in Annex I of Regulation (EC) No 1005/2009 on substances that deplete the ozone layer.

13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues	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.
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.
Landfill.
ANGUS HAS NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL.

14. TRANSPORT INFORMATION

International Regulations

IATA-DGR
Not regulated as a dangerous good

IMDG-Code
Not regulated as a dangerous good

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable for product as supplied.

Road & Rail
Not regulated as a dangerous good

National Regulations
Refer to section 15 for specific national regulation.

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

National regulatory information

Regulations on Safety Management of Hazardous Chemicals

Identification of Major Hazard Installations for Dangerous Chemicals (GB 18218):	Not applicable
Hazardous Chemicals for Priority Management under SAWS:	Not applicable

China Severely Restricted Toxic Chemicals for Import and Export:	Not applicable
Hazardous Chemicals for Priority Environmental Management under MEP:	Not applicable

Regulations on Labor Protection in Workplaces where Toxic Substances are Used

Catalogue of Highly Toxic Chemicals:	Not applicable

The components of this product are reported in the following inventories:

China. Inventory of Existing Chemical Substances in China (IECSC)	All Components OK

16. OTHER INFORMATION

Date format	yyyy/mm/dd
Revision:	
Revision Date	2021/01/07
Version	1.2
Identification Number:	000040000015

Full text of other abbreviations

AICS - Australian Inventory of Chemical Substances; 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; CPR - Controlled Products Regulations; 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; 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

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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