

Material Safety Data Sheet. No: SD4010-R00

Summary Sheet

This product is a formulation of a number of components some or all of which may have hazard risks. The Material Safety Data Sheet (MSDS) provided is a combination of the MSDS for the individual components.

Product Identification

Catalogue No.:	4010-XXXX	Name:	CapMix A (THF/Lutidine/Acetic anhydride)
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Components and Composition

Chemical Name	Composition	CAS No.	EINECS No.
Tetrahydrofuran (THF)	80%	109-99-9	203-726-8
2,6-Lutidine	10%	108-48-5	20-3-587-3
Acetic anhydride	10%	108-24-7	203-564-8

Number of MSDS attached: 3

**SD0054
SD0099
SD0121**

Total Number of pages including Summary sheet: 9

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Material Safety Data Sheet. No: SD0054-R00

Section 1 : Chemical Identification

Catalogue No.:	0054	Name:	Tetrahydrofuran
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Section 2 : Composition/information on Ingredients

Chemical Name	CAS No.	EINECS No.
1,4 Epoxy-Butane	109-99-9	203-726-8

Section 3 : Hazards Identification

Main Hazard	Flammable
Other Specific Hazards	

Section 4 : First Aid Measures

Eyes	In case of contact, immediately flush eyes with copious amounts of water for at least 15 minutes. OBTAIN MEDICAL ATTENTION
Skin	In case of contact, remove contaminated clothing, immediately wash skin with soap and copious amounts of water. OBTAIN MEDICAL ATTENTION
Ingestion	Induce vomiting and washout mouth with water provided the person is conscious. OBTAIN MEDICAL ATTENTION
Inhalation	Immediately remove to fresh air. If not breathing, give artificial respiration. OBTAIN MEDICAL ATTENTION

Section 5 : Fire Fighting Measures

Extinguishing Media	Carbon dioxide, dry chemical powder or appropriate foam
Special Hazards of Product	Explosive peroxides can form on standing or on exposure to air or direct sunlight. Volatile and flammable liquid. Heat will build up pressure in closed storage containers. Vapour may travel some distance to points of ignition and cause flash back.
Protective Equipment for Fire Fighting	Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

Section 6 : Accidental Release Measures

Personal Protection	Wear protective clothing, respirator, chemical safety goggles, rubber gloves and rubber boots
Leaks and Spills	Ventilate area and remove all sources of ignition. Clean the contaminated area thoroughly with a suitable solvent and absorbent material taking care to avoid breathing fumes. Dispose of all cleaning materials with care (see section 13). Use non-sparking tools.

Section 7 : Handling and Storage

Handling	Wear protective clothing, gloves and safety goggles. Use in a fume extraction cabinet. Avoid contact with eyes, skin and clothing. Avoid inhalation. Wash thoroughly after handling. Avoid heat, sparks and open flames. Keep containers closed when not in use. Earth metal containers when in use. Can form explosive peroxides which could explode during concentration or evaporation. Do not concentrate if peroxide concentrations are above 5ppm or 0.05%. Periodically check for peroxides in stored material before use.
Storage	Protect from extremes of temperature and direct sunlight. Store in sealed containers in an appropriately protected and secure flammable liquid store. Proper storage should be determined based on other materials stored and their hazards and chemical incompatibilities

Section 8 : Exposure controls/Personal Protection

Exposure Controls	Always use adequate fume extraction and keep storage vessels closed when not in use. See also sections 6 and 7 above.
Personal Protection	Protective gloves, goggles or laboratory spectacles and clothing are recommended. See also sections 6 and 7 above.

Section 9 : Physical and Chemical Properties

Physical State	Clear, colourless liquid		
Melting Point	N/A	Boiling Point	65-67°C
Flash Point	-17°C	Explosion Limits	Lower:1.8% in air by volume Upper:11.8% in air by volume
Solubility (Water)	Miscible	Solubility (Org. Solvents)	N/A
Chemical Formula	C ₄ H ₈ O	Molecular Weight	72.11
Other Information	Vapour Pressure at 20°C = 143mmHg; Freezing Point -108.5°C; Auto ignition temperature = 321°C		

Section 10 : Stability and Reactivity

Chemical Stability	Stable..
Incompatibilities	Oxidising agents and strong acids and bases
Hazardous Decomposition or Combustion Products	Incomplete combustion can generate carbon monoxide and other toxic vapours. May form peroxides on storage and exposure to air or direct sunlight
Hazardous Polymerisation	Hazardous polymerisation may occur

Section11 : Toxicological Data

Toxic Effects	Inhalation: Exposure can cause nausea, dizziness, headache and central nervous system depression. Vapours can be irritating to the mucous membranes and upper respiratory tract. Eye contact: Liquid and high vapour concentration can cause irritation Skin Contact: prolonged and repeated contact can cause irritation and dermatitis Ingestion: Systemic effects similar to inhalation Effects of over-exposure: Nausea, dizziness, headache, and narcosis. Liver and kidney damage can occur from chronic exposure.
Other Toxicological Data	Exposure Limits: Time weighted average (8Hr): 50ppm or 150mg/m ³ Short Term Exposure Level100ppm or 300mg/m ³

Section 12 : Ecological Information

In use, caution should be exercised to minimise release into the environment by using appropriate containment procedures. Product not inherently biodegradable.

Section 13 : Disposal Information

Dispose by incineration at high temperature in an approved incinerator fitted with appropriate environmental protection equipment. Dispose of in accordance with all applicable Local, National, State and Federal regulations. Labels should not be removed from containers until they have been thoroughly cleaned in an appropriate manner. Containers should not be treated as domestic waste and disposed of appropriately. Always use an approved disposal company.

Section 14 : Transport Information

UN No.	2056	UN Class	3	UN Packing Gp.	II
Road Freight	ADR/RID Hazard ID: 33				
Sea Freight	Not a marine pollutant. EmS: F-E S-D				
Air Freight	IATA-DGR Packaging: 307				

Section 15 : Regulatory Information

European Information:

R Phrases	R11 - Highly flammable R19 - May form explosive peroxides R36/37 - Irritating to eyes and respiratory system
S Phrases	S16 - Keep away from sources of ignition - No smoking S29 - Do not empty into drains S33 - Take precautionary measures against static discharges

Section 16 : Other information

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Material Safety Data Sheet. No: SD0099-R00

Section 1 : Chemical Identification

Catalogue No.:	0099	Name:	2,6-Lutidine
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Section 2 : Composition/information on Ingredients

Chemical Name	CAS No.	EINECS No.
2,6-Dimethyl Pyridine	108-48-5	203-587-3

Section 3 : Hazards Identification

Main Hazard	Harmful
Other Specific Hazards	Flammable

Section 4 : First Aid Measures

Eyes	In case of contact, immediately flush eyes with copious amounts of water for at least 15 minutes. OBTAIN MEDICAL ATTENTION
Skin	In case of contact, remove contaminated clothing, immediately wash skin with soap and copious amounts of water. OBTAIN MEDICAL ATTENTION
Ingestion	Induce vomiting and washout mouth with water provided the person is conscious. OBTAIN MEDICAL ATTENTION
Inhalation	Immediately remove to fresh air. If not breathing, give artificial respiration. OBTAIN MEDICAL ATTENTION

Section 5 : Fire Fighting Measures

Extinguishing Media	Carbon dioxide, dry chemical powder or appropriate foam
Special Hazards of Product	
Protective Equipment for Fire Fighting	Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

Section 6 : Accidental Release Measures

Personal Protection	Wear protective clothing, respirator, chemical safety goggles, rubber gloves and rubber boots
Leaks and Spills	Ventilate area and remove all sources of ignition. Clean the contaminated area thoroughly with a suitable solvent and absorbent material taking care to avoid breathing fumes. Dispose of all cleaning materials with care (see section 13). Use non-sparking tools.

Section 7 : Handling and Storage

Handling	Wear protective clothing, gloves and safety goggles. Use in a fume extraction cabinet. Avoid contact with eyes, skin and clothing. Avoid inhalation. Wash thoroughly after handling. Avoid heat, sparks and open flames. Keep containers closed when not in use. Earth metal containers when in use.
Storage	Protect from extremes of temperature and direct sunlight. Store in sealed containers in an appropriately protected and secure flammable liquid store. Proper storage should be determined based on other materials stored and their hazards and chemical incompatibilities

Section 8 : Exposure controls/Personal Protection

Exposure Controls	Always use adequate fume extraction and keep storage vessels closed when not in use. See also sections 6 and 7 above.
Personal Protection	Protective gloves, goggles or laboratory spectacles and clothing are recommended. See also sections 6 and 7 above.

Section 9 : Physical and Chemical Properties

Physical State	Clear, Colourless Liquid		
Melting Point	-6°C	Boiling Point	143-145°C
Flash Point	33°C	Explosion Limits	N/A
Solubility (Water)	Miscible	Solubility (Org. Solvents)	N/A
Chemical Formula	C ₇ H ₉ N	Molecular Weight	107.16
Other Information			

Section 10 : Stability and Reactivity

Chemical Stability	Stable
Incompatibilities	Acids, acid chlorides, oxidisers and chloroformates
Hazardous Decomposition or Combustion Products	Thermal decomposition may produce carbon monoxide, carbon dioxide and nitrogen oxides
Hazardous Polymerisation	Does not occur

Section 11 : Toxicological Data

Toxic Effects	Inhalation: Vapours and mist inhalation is irritating to the mucous membranes and upper respiratory tract Ingestion: Harmful when swallowed and causes irritation Eye contact: Causes eye irritation Skin contact: Causes skin irritation. May be absorbed through the skin Prolonged exposure can cause coughing, chest pains, difficulty in breathing and gastrointestinal disturbances
Other Toxicological Data	ORL-RAT LD50 – 400mg/kg SKN-GPG LD50 – 2500mg/kg

Section 12 : Ecological Information

Data not yet available. In use, caution should be exercised to minimise release into the environment by using appropriate containment procedures

Section 13 : Disposal Information

Dispose by incineration at high temperature in an approved incinerator fitted with appropriate environmental protection equipment. Dispose of in accordance with all applicable Local, National, State and Federal regulations. Labels should not be removed from containers until they have been thoroughly cleaned in an appropriate manner. Containers should not be treated as domestic waste and disposed of appropriately. Always use an approved disposal company.

Section 14 : Transport Information

UN No.	N/A	UN Class	N/A	UN Packing Gp.	N/A
Road Freight	N/A				
Sea Freight	N/A				
Air Freight	N/A				

Section 15 : Regulatory Information

European Information:

R Phrases	R10 – Flammable R21 – Harmful in contact with skin	R20 - Harmful by inhalation R22 - Harmful if swallowed
S Phrases	S26 In case of contact with eye, rinse immediately with plenty of water and seek medical advice S28 After contact with skin, wash immediately with plenty of soap S36 – Wear suitable protective clothing	

Section 16 : Other information

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Material Safety Data Sheet. No: SD0121-R00

Section 1 : Chemical Identification

Catalogue No.:	0121	Name:	Acetic Anhydride
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Section 2 : Composition/information on Ingredients

Chemical Name	CAS No.	EINECS No.
Ethanoyl Ethanoate	108-24-7	203-564-8

Section 3 : Hazards Identification

Main Hazard	Harmful
Other Specific Hazards	Corrosive, Flammable

Section 4 : First Aid Measures

Eyes	In case of contact, immediately flush eyes with copious amounts of water for at least 15 minutes. OBTAIN MEDICAL ATTENTION
Skin	In case of contact, remove contaminated clothing, immediately wash skin with soap and copious amounts of water. OBTAIN MEDICAL ATTENTION
Ingestion	Induce vomiting and washout mouth with water provided the person is conscious. OBTAIN MEDICAL ATTENTION
Inhalation	Immediately remove to fresh air. If not breathing, give artificial respiration. OBTAIN MEDICAL ATTENTION

Section 5 : Fire Fighting Measures

Extinguishing Media	Carbon dioxide, dry chemical powder or appropriate foam
Special Hazards of Product	Do not use water or water-based extinguishers
Protective Equipment for Fire Fighting	Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

Section 6 : Accidental Release Measures

Personal Protection	Ventilate area and remove all sources of ignition. Clean the contaminated area thoroughly with a suitable solvent and absorbent material taking care to avoid breathing fumes. Dispose of all cleaning materials with care (see section 13). Use non-sparking tools.
Leaks and Spills	Clean the contaminated area thoroughly with a suitable solvent and absorbent material taking care to avoid breathing fumes. Dispose of all cleaning materials with care (see section 13)

Section 7 : Handling and Storage

Handling	Wear protective clothing, gloves and safety goggles. Use in a fume extraction cabinet. Avoid contact with eyes, skin and clothing. Avoid inhalation. Wash thoroughly after handling. Avoid heat, sparks and open flames. Keep containers closed when not in use. Earth metal containers when in use.
Storage	Protect from extremes of temperature and direct sunlight. Store in sealed containers in an appropriately protected and secure flammable liquid store. Proper storage should be determined based on other materials stored and their hazards and chemical incompatibilities

Section 8 : Exposure controls/Personal Protection

Exposure Controls	Always use adequate fume extraction and keep storage vessels closed when not in use. See also sections 6 and 7 above.
Personal Protection	Protective gloves, goggles or laboratory spectacles and clothing are recommended. See also sections 6 and 7 above.

Section 9 : Physical and Chemical Properties

Physical State	Clear , colourless liquid		
Melting Point	-73.1°C	Boiling Point	139.8°C
Flash Point	49°C	Explosion Limits	
Solubility (Water)	2.6% by weight at 20°C (NOTE: Reacts with water to produce acetic acid)	Solubility (Org. Solvents)	N/A
Chemical Formula	C ₄ H ₆ O ₃	Molecular Weight	102.1
Other Information	Density 1.082		

Section 10 : Stability and Reactivity

Chemical Stability	Stable
Incompatibilities	Moisture, acids, bases, alcohols, oxidising and reducing agents, finely powdered metals.
Hazardous Decomposition or Combustion Products	Carbon monoxide, carbon dioxide
Hazardous Polymerisation	Does not occur

Section11 : Toxicological Data

Toxic Effects	Inhalation: Vapours and mist inhalation is irritating to the mucous membranes and upper respiratory tract Ingestion: Harmful when swallowed and causes irritation Eye contact: Causes eye irritation Skin contact: Causes skin irritation. May be absorbed through the skin Acute exposure: Material is extremely destructive to the tissue of mucous membranes and upper respiratory tract, skin and eyes. Inhalation may be fatal as a result of spasm, inflammation of the larynx and bronchi, chemical pneumonitis and pulmonary edema. Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea and vomiting.
Other Toxicological Data	ORL-RAT LD50: 1780 mg/kg IHL-RAT LD50: 1000pm/4hr SKN-RBT LD50: 4ml/kg

Section 12 : Ecological Information

Data not yet available. In use, caution should be exercised to minimise release into the environment by using appropriate containment procedures

Section 13 : Disposal Information

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Section 14 : Transport Information

UN No.	1715	UN Class		UN Packing Gp.	
Road Freight	ADR/RIC Code/Class 8 Packing GroupII				
Sea Freight	IMDG Code/Class 8 Packing GroupII				
Air Freight	IATA Code/Class 8 Packing GroupII				

Section 15 : Regulatory Information

European Information:

R Phrases	R10 – Flammable R20/22 - Harmful. Harmful by inhalation and if swallowed R34 – Causes burns
S Phrases	S26 In case of contact with eye, rinse immediately with plenty of water and seek medical advice R36/37 – Irritating to eyes and respiratory system S45 – In case of accident or if you feel unwell, seek medical advice immediately (show label whenever possible)

Section 16 : Other information

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