



Safety Data Sheet

Material Name: ETHYL ETHER**SDS ID: MAT08980****Section 1 - PRODUCT AND COMPANY IDENTIFICATION****Material Name**

ETHYL ETHER

Synonyms

MTG MSDS 112; DIETHYL ETHER; ETHOXYETHANE; ETHER; ETHYL OXIDE; DIETHYL OXIDE; SURFURIC ETHER; UN 1155; C4H10O

Chemical Family

ethers, aliphatic

Product Use

industrial.

Restrictions on Use

None known.

Details of the supplier of the safety data sheet

MATHESON TRI-GAS, INC.

150 Allen Road, Suite 302

Basking Ridge, NJ 07920

General Information: 1-800-416-2505

Emergency #: 1-800-424-9300 (CHEMTREC)

Outside the US: 703-527-3887 (Call collect)

Section 2 - HAZARDS IDENTIFICATION**Classification in accordance with paragraph (d) of 29 CFR 1910.1200.**

Flammable Liquids - Category 1

Acute Toxicity - Oral - Category 4

Skin Corrosion/Irritation - Category 2

Serious Eye Damage/Eye Irritation - Category 2A

Reproductive Toxicity - Category 2

Specific target organ toxicity - Single exposure - Category 3

GHS Label Elements**Symbol(s)****Signal Word**

Danger

Hazard Statement(s)

Extremely flammable liquid and vapor.

Harmful if swallowed.

Causes skin irritation.

Causes serious eye irritation.

Suspected of damaging fertility or the unborn child.

May cause respiratory tract irritation.

May cause drowsiness and dizziness.

Precautionary Statement(s)



Safety Data Sheet

Material Name: ETHYL ETHER

SDS ID: MAT08980

Prevention

Keep away from heat, sparks, open flame, and hot surfaces - No smoking.
 Keep container tightly closed.
 Ground/Bond container and receiving equipment.
 Use explosion-proof electrical/ventilating/lighting equipment.
 Use only non-sparking tools.
 Take precautionary measures against static discharge.
 Obtain special instructions before use.
 Do not handle until all safety precautions have been read and understood.
 Use Personal Protective equipment as required.
 Avoid breathing vapor or mist.
 Use only outdoors or in a well-ventilated area.
 Wear protective gloves and eye/face protection.
 Wash thoroughly after handling.
 Do not eat, drink or smoke when using this product.

Response

In case of fire, use media appropriate for extinction.
 IF exposed or concerned: Get medical advice/attention.
 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
 Call a POISON CENTER or doctor/physician if you feel unwell.
 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
 If skin irritation occurs: Get medical advice/attention.
 Wash contaminated clothing before reuse.
 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.
 Continue rinsing.
 If eye irritation persists: Get medical advice/attention.
 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
 Rinse mouth.

Storage

Store in a well-ventilated place.
 Keep container tightly closed.
 Keep cool.
 Store locked up.

Disposal

Dispose in accordance with all applicable regulations.

Statement(s) of Unknown Acute Toxicity

Oral 0% of the mixture consists of ingredient(s) of unknown acute toxicity.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS		
CAS	Component Name	Percent
60-29-7	ETHYL ETHER	100

Section 4 - FIRST AID MEASURES

Inhalation

If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.

Skin



Safety Data Sheet

Material Name: ETHYL ETHER**SDS ID: MAT08980**

Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.

Eyes

Flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Then get immediate medical attention.

Ingestion

Do NOT induce vomiting. If vomiting occurs, keep head lower than hips to help prevent aspiration. Get medical attention immediately. Give artificial respiration if not breathing.

Most Important Symptoms/Effects**Acute**

respiratory tract irritation, skin irritation, eye irritation, central nervous system depression, lung damage (from aspiration)

Delayed

Reproductive Effects

Note to Physicians

For inhalation, consider oxygen.

Section 5 - FIRE FIGHTING MEASURES

Extinguishing Media**Suitable Extinguishing Media**

regular dry chemical, carbon dioxide, water spray, alcohol-resistant foam, Large fires: water spray or fog, alcohol-resistant foam

Unsuitable Extinguishing Media

Do not use high-pressure water streams.

Special Hazards Arising from the Chemical

Severe fire hazard. Severe explosion hazard. Electrostatic charges may be generated by flow, agitation, etc.

Vapor/air mixtures are explosive. May form explosive peroxides. The vapor is heavier than air. Vapors or gases may ignite at distant ignition sources and flash back.

Hazardous Combustion Products

Oxides of carbon

Fire Fighting Measures

Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. For fires in cargo or storage area: Cool containers with water from unmanned hose holder or monitor nozzles until well after fire is out. If this is impossible then take the following precautions: Keep unnecessary people away, isolate hazard area and deny entry. Let the fire burn. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. For tank, rail car or tank truck: Evacuation radius: 800 meters (1/2 mile). Water may be ineffective.

Special Protective Equipment and Precautions for Firefighters

Wear full protective fire fighting gear including self contained breathing apparatus (SCBA) for protection against possible exposure.

Section 6 - ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

Wear personal protective clothing and equipment, see Section 8.

Methods and Materials for Containment and Cleaning Up

Avoid heat, flames, sparks and other sources of ignition. Eliminate all ignition sources if safe to do so. All equipment used when handling the product must be grounded. Do not touch spilled material. Stop leak if possible without personal risk. Prevent entry into waterways, sewers, basements, or confined areas. Reduce vapors with water spray. Absorb with sand or other non-combustible material. Collect spilled material in appropriate container for disposal. Dike for later disposal. Keep unnecessary people away, isolate hazard area and deny entry. Stay upwind



Safety Data Sheet

Material Name: ETHYL ETHER

SDS ID: MAT08980

and keep out of low areas. Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. SARA Section 304). If release occurs in the U.S. and is reportable under CERCLA Section 103, notify the National Response Center at (800)424-8802 (USA) or (202)426-2675 (USA).

Environmental Precautions

Avoid release to the environment.

Section 7 - HANDLING AND STORAGE

Precautions for Safe Handling

Keep away from heat, sparks, open flame, and hot surfaces - No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharges. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use Personal Protective equipment as required. Avoid breathing vapor or mist. Use only outdoors or in a well-ventilated area. Wear protective gloves/eye protection/face protection. Wash hands thoroughly after handling. Do not eat, drink, or smoke when using this product.

Conditions for Safe Storage, Including any Incompatibilities

Store in a well-ventilated place.

Keep container tightly closed.

Keep cool.

Store locked up.

Store and handle in accordance with all current regulations and standards. Store in a well-ventilated area. Keep container tightly closed. Keep cool. Keep locked up. Protect from physical damage. Store outside or in a detached building. Store with flammable liquids. Avoid contact with light. Grounding and bonding required. Provide fire protection and spill control systems suitable for the hazards of the material. May form peroxides during prolonged storage. Keep separated from incompatible substances.

Incompatible Materials

peroxides, combustible materials, halogens, oxidizing materials, metal salts, Acids, bases

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Component Exposure Limits

ETHYL ETHER	60-29-7
ACGIH:	400 ppm TWA
	500 ppm STEL
NIOSH:	1900 ppm IDLH (10% LEL)
Europe:	100 ppm TWA ; 308 mg/m3 TWA
	200 ppm STEL ; 616 mg/m3 STEL
OSHA (US):	400 ppm TWA ; 1200 mg/m3 TWA
Mexico:	400 ppm TWA VLE-PPT ; 1200 mg/m3 TWA VLE-PPT
	500 ppm STEL [PPT-CT] ; 1500 mg/m3 STEL [PPT-CT]

ACGIH - Threshold Limit Values - Biological Exposure Indices (BEI)



Safety Data Sheet

Material Name: ETHYL ETHER**SDS ID: MAT08980**

There are no biological limit values for any of this product's components.

Engineering Controls

Ventilation equipment should be explosion-resistant if explosive concentrations of material are present. Provide local exhaust or process enclosure ventilation system. Ensure compliance with applicable exposure limits.

Individual Protection Measures, such as Personal Protective Equipment**Eye/face protection**

Wear splash resistant safety goggles with a faceshield. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

Skin Protection

Wear appropriate chemical resistant clothing.

Respiratory Protection

The following respirators and maximum use concentrations are drawn from NIOSH and/or OSHA. 1900 ppm. Any air-purifying half-mask respirator equipped with organic vapor cartridge(s). Any air-purifying full-facepiece respirator (gas mask) with a chin-style, front-mounted or back-mounted organic vapor canister. Any powered, air-purifying respirator with organic vapor cartridge(s). Any supplied-air respirator. Any self-contained breathing apparatus with a full facepiece. Emergency or planned entry into unknown concentrations or IDLH conditions -. Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode. Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode. Escape -. Any air-purifying full-facepiece respirator (gas mask) with a chin-style, front-mounted or back-mounted organic vapor canister. Any appropriate escape-type, self-contained breathing apparatus.

Glove Recommendations

Wear appropriate chemical resistant gloves.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Colorless liquid	Physical State	liquid
Odor	sweet odor ,pungent odor	Color	colorless
Odor Threshold	0.33 ppm	pH	Not available
Melting Point	-123 °C (-189 °F)	Boiling Point	35 °C (95 °F)
Boiling Point Range	Not available	Freezing point	Not available
Evaporation Rate	37.5 (Butyl acetate = 1)	Flammability (solid, gas)	Not available
Autoignition Temperature	180 °C (356 °F)	Flash Point	-45 °C Closed Cup (-49 °F)
Lower Explosive Limit	1.9 %	Decomposition temperature	Not available
Upper Explosive Limit	48 %	Vapor Pressure	442 mmHg @ 20 °C
Vapor Density (air=1)	2.6	Specific Gravity (water=1)	0.7



Safety Data Sheet

Material Name: ETHYL ETHER

SDS ID: MAT08980

Water Solubility	6.9 %	Partition coefficient: n-octanol/water	Not available
Viscosity	0.2448 cp	Kinematic viscosity	Not available
Solubility (Other)	Not available	Density	Not available
Henry's Law Constant	0.00123 atm-m ³ /mole	KOC	73 (Estimated)
Log KOW	0.89	Physical Form	volatile liquid
Taste	burning taste sweet taste	Molecular Formula	C ₄ H ₁₀ O
Molecular Weight	74.12	OSHA Flammability Class	IA

Solvent Solubility**Soluble**

alcohol, acetone, Benzene, chloroform, naphtha

Section 10 - STABILITY AND REACTIVITY**Reactivity**

May form explosive peroxides.

Chemical Stability

May form explosive peroxides. Avoid prolonged storage or contact with air, light or storage and use above room temperature.

Possibility of Hazardous Reactions

Will not polymerize.

Conditions to Avoid

Avoid heat, flames, sparks and other sources of ignition. Containers may rupture or explode if exposed to heat.

Incompatible Materials

peroxides, combustible materials, halogens, oxidizing materials, metal salts, Acids, bases

Hazardous decomposition products

Oxides of carbon

Section 11 - TOXICOLOGICAL INFORMATION**Information on Likely Routes of Exposure****Inhalation**

irritation, nausea, vomiting, headache, drowsiness, dizziness, loss of coordination

Skin Contact

irritation

Eye Contact

irritation

Ingestion

nausea, vomiting, headache, drowsiness, dizziness, loss of coordination

Acute and Chronic Toxicity**Component Analysis - LD50/LC50**

The components of this material have been reviewed in various sources and the following selected endpoints are published:



Safety Data Sheet

Material Name: ETHYL ETHER

SDS ID: MAT08980

ETHYL ETHER (60-29-7)

Oral LD50 Rat 1215 mg/kg

Product Toxicity Data

Acute Toxicity Estimate

No data available.

Immediate Effects

respiratory tract irritation, skin irritation, eye irritation, central nervous system depression, lung damage (from aspiration)

Delayed Effects

Reproductive Effects

Irritation/Corrosivity Data

respiratory tract irritation, skin irritation, eye irritation

Respiratory Sensitization

No data available.

Dermal Sensitization

No data available.

Component Carcinogenicity

None of this product's components are listed by ACGIH, IARC, NTP, DFG or OSHA

Germ Cell Mutagenicity

No data available.

Tumorigenic Data

No data available

Reproductive Toxicity

Available data characterizes components of this product as reproductive hazards.

Specific Target Organ Toxicity - Single Exposure

central nervous system, Respiratory system

Specific Target Organ Toxicity - Repeated Exposure

No data available.

Aspiration hazard

May cause aspiration hazard.

Medical Conditions Aggravated by Exposure

respiratory disorders, skin disorders and allergies

Additional Data

Alcohol may enhance the toxic effects.

Section 12 - ECOLOGICAL INFORMATION

Component Analysis - Aquatic Toxicity

ETHYL ETHER	60-29-7
Fish:	LC50 96 h Pimephales promelas 2560 mg/L [flow-through]; LC50 96 h Lepomis macrochirus >10000 mg/L [static]

Persistence and Degradability

Estimated to have a slow rate of biodegradation.

Bioaccumulative Potential

Bioconcentration potential in aquatic organisms is low based on a BCF value of 0.9-9.1.

Mobility

Expected to have high mobility in soil.



Safety Data Sheet

Material Name: ETHYL ETHER

SDS ID: MAT08980

Section 13 - DISPOSAL CONSIDERATIONS

Disposal Methods

Dispose in accordance with all applicable regulations.

Component Waste Numbers

ETHYL ETHER	waste number U117 (Ignitable waste)
--------------------	--------------------------------------

Section 14 - TRANSPORT INFORMATION

Component Marine Pollutants (IMDG)

Not a marine pollutant.

US DOT Information:

Shipping Name: DIETHYL ETHER

Hazard Class: 3

UN/NA #: UN1155

Packing Group: I

Required Label(s): 3

IMDG Information:

Shipping Name: DIETHYL ETHER

Hazard Class: 3

UN#: UN1155

Packing Group: I

Required Label(s): 3

International Bulk Chemical Code

This material contains one or more of the following chemicals required by the IBC Code to be identified as dangerous chemicals in bulk.

ETHYL ETHER	60-29-7
IBC Code:	Category Z

Section 15 - REGULATORY INFORMATION

U.S. Federal Regulations

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), and/or require an OSHA process safety plan.

ETHYL ETHER	60-29-7
CERCLA:	100 lb final RQ ; 45.4 kg final RQ

SARA Section 311/312 (40 CFR 370 Subparts B and C) 2016 reporting categories

Acute Health: Yes **Chronic Health:** Yes **Fire:** Yes **Pressure:** No **Reactivity:** No

SARA Section 311/312 (40 CFR 370 Subparts B and C) 2017 reporting categories

Flammable; Acute toxicity; Reproductive Toxicity; Skin Corrosion/Irritation; Serious Eye Damage/Eye Irritation; Specific Target Organ Toxicity

U.S. State Regulations

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA
-----------	-----	----	----	----	----	----



Safety Data Sheet

Material Name: ETHYL ETHER**SDS ID: MAT08980**

ETHYL ETHER	60-29-7	Yes	Yes	Yes	Yes	Yes
--------------------	----------------	-----	-----	-----	-----	-----

Not listed under California Proposition 65**Canada Regulations****Canadian WHMIS Ingredient Disclosure List (IDL)**

Components of this material have been checked against the Canadian WHMIS Ingredients Disclosure List. The List is composed of chemicals which must be identified on MSDSs if they are included in products which meet WHMIS criteria specified in the Controlled Products Regulations and are present above the threshold limits listed on the IDL

ETHYL ETHER	60-29-7
	1 %

WHMIS Classification

B

Component Analysis - Inventory**ETHYL ETHER (60-29-7)**

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR KECI - Annex 1	KR KECI - Annex 2	KR - REACH CCA	CN	NZ	MX	TW
Yes	DSL	EIN	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes

Section 16 - OTHER INFORMATION**NFPA Ratings**

Health: 2 Fire: 4 Reactivity: 1

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

Summary of Changes

Updated: 05/01/2015

Key / Legend

ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CA/MA/MN/NJ/PA - California/Massachusetts/Minnesota/New Jersey/Pennsylvania*; CAS - Chemical Abstracts Service; CFR - Code of Federal Regulations (US); CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CLP - Classification, Labelling, and Packaging; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSD - Dangerous Substance Directive; DSL - Domestic Substances List; EC - European Commission; EEC - European Economic Community; EIN - European Inventory of (Existing Commercial Chemical Substances); EINECS - European Inventory of Existing Commercial Chemical Substances; ENCS - Japan Existing and New Chemical Substance Inventory; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; ISHL - Japan Industrial Safety and Health Law; IUCLID - International Uniform Chemical Information Database; JP - Japan; Kow - Octanol/water partition coefficient; KR KECI Annex 1 - Korea Existing Chemicals Inventory (KECI) / Korea Existing Chemicals List (KECL); KR KECI Annex 2 - Korea Existing Chemicals Inventory (KECI) / Korea Existing Chemicals List (KECL) , KR - Korea; LD50/LC50 - Lethal Dose/ Lethal Concentration; LEL - Lower Explosive Limit; LLV - Level Limit Value; LOLI - List Of Lists™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; MX - Mexico; NDSL - Non-Domestic Substance List (Canada); NFPA - National Fire



MATHESON

ask . . The Gas Professionals™

Safety Data Sheet

Material Name: ETHYL ETHER

SDS ID: MAT08980

Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PEL- Permissible Exposure Limit; PH - Philippines; RCRA - Resource Conservation and Recovery Act; REACH- Registration, Evaluation, Authorisation, and restriction of Chemicals; RID - European Rail Transport; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-term Exposure Limit; TCCA – Korea Toxic Chemicals Control Act; TDG - Transportation of Dangerous Goods; TLV - Threshold Limit Value; TSCA - Toxic Substances Control Act; TW – Taiwan; TWA - Time Weighted Average; UEL - Upper Explosive Limit; UN/NA - United Nations /North American; US - United States; VLE - Exposure Limit Value (Mexico); WHMIS - Workplace Hazardous Materials Information System (Canada).

Other Information

Disclaimer:

Matheson Tri-Gas, Inc. makes no express or implied warranties, guarantees or representations regarding the product or the information herein, including but not limited to any implied warranty or merchantability or fitness for use. Matheson Tri-Gas, Inc. shall not be liable for any personal injury, property or other damages of any nature, whether compensatory, consequential, exemplary, or otherwise, resulting from any publication, use or reliance upon the information herein.