



MATHESON

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Safety Data Sheet

Material Name: ISOBUTYL NITRATE

SDS ID: MAT11751

Section 1 - PRODUCT AND COMPANY IDENTIFICATION

Material Name

ISOBUTYL NITRATE

Synonyms

NITRIC ACID, 2-METHYLPROPYL ESTER; NITRIC ACID, ISOBUTYL ESTER; 2-METHYLPROPYL NITRATE; C₄H₉NO₃

Chemical Family

esters

Product Use

Industrial and Specialty Gas Applications.

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 2

Skin Corrosion/Irritation - Category 2

Serious Eye Damage/Eye Irritation - Category 2A

Specific target organ toxicity - Single exposure - Category 3

GHS Label Elements

Symbol(s)



Signal Word

Danger

Hazard Statement(s)

Highly flammable liquid and vapor.

Causes skin irritation.

Causes serious eye irritation.

May cause respiratory irritation.

Precautionary Statement(s)

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.



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Use only non-sparking tools.
Take precautionary measures against static discharge.
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.

Response

In case of fire, use media appropriate for extinction.
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.

Storage

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

Disposal

Dispose in accordance with all applicable regulations.

Other Hazards

May explode if exposed to shock, friction or heating.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

CAS	Component Name	Percent
543-29-3	ISOBUTYL NITRATE	100

Section 4 - FIRST AID MEASURES**Inhalation**

If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. Get immediate medical attention.

Skin

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

If swallowed, get medical attention.

Most Important Symptoms/Effects**Acute**

respiratory tract irritation, skin irritation, eye irritation

Delayed

no information on significant adverse effects.

Indication of any immediate medical attention and special treatment needed



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Treat symptomatically and supportively.

Section 5 - FIRE FIGHTING MEASURES

Extinguishing Media**Suitable Extinguishing Media**

regular dry chemical, carbon dioxide, water spray, alcohol resistant foam, Large fires: Use 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. Vapor/air mixtures are explosive above flash point.

Hazardous Combustion Products

Oxides of carbon, oxides of nitrogen

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). Do not attempt to extinguish fire unless flow of material can be stopped first. Flood with fine water spray. Do not scatter spilled material with high-pressure water streams. Apply water from a protected location or from a safe distance. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas.

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. All equipment used when handling the product must be grounded. Do not touch or walk through spilled material. Stop leak if possible without personal risk. Reduce vapors with water spray. Prevent entry into waterways, sewers, basements, or confined areas. Vapor-suppressing foam may be used to control vapors. Small spills: Absorb with sand or other non-combustible material. Collect spilled material in appropriate container for disposal. Large spills: Dike for later disposal. Remove sources of ignition. Keep unnecessary people away, isolate hazard area and deny entry. Stay upwind and keep out of low areas. Use non-sparking tools and equipment.

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. 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.

Conditions for Safe Storage, Including any Incompatibilities

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Store in a well-ventilated place.

Keep cool.

Keep container tightly closed.

Store locked up.

Store and handle in accordance with all current regulations and standards. Store in a well-ventilated area. Keep cool.

Keep container tightly closed. Keep locked up. Grounding and bonding required. Keep separated from incompatible substances. Subject to storage regulations: U.S. OSHA 29 CFR 1910.106.

Incompatible Materials

oxidizing materials

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION**Component Exposure Limits**

The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit. At this time, the other constituents have no known exposure limits.

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

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

Engineering Controls

Provide local exhaust ventilation system. Ventilation equipment should be explosion-resistant if explosive concentrations of material are present. 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

Under conditions of frequent use or heavy exposure, respiratory protection may be needed. Respiratory protection is ranked in order from minimum to maximum. Consider warning properties before use. Any chemical cartridge respirator with organic vapor cartridge(s). Any chemical cartridge respirator with a full facepiece and organic vapor cartridge(s). Any air-purifying respirator with a full facepiece and an organic vapor canister. 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. Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

Glove Recommendations

Wear appropriate chemical resistant gloves.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance	liquid	Physical State	liquid
Odor	Not available	Color	Not available
Odor Threshold	Not available	pH	Not available
Melting Point	Not available	Boiling Point	123 - 124 °C (253 - 255 °F)



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Boiling Point Range	Not available	Freezing point	Not available
Evaporation Rate	Not available	Flammability (solid, gas)	Not available
Autoignition Temperature	Not available	Flash Point	21 °C Closed Cup (70 °F)
Lower Explosive Limit	Not available	Decomposition temperature	Not available
Upper Explosive Limit	Not available	Vapor Pressure	Not available
Vapor Density (air=1)	Not available	Specific Gravity (water=1)	1.0152
Water Solubility	(Insoluble)	Partition coefficient: n-octanol/water	Not available
Viscosity	Not available	Kinematic viscosity	Not available
Solubility (Other)	Not available	Density	Not available
Physical Form	liquid	Molecular Formula	(C-H3)2-C-H-C-H2-O-N-O2
Molecular Weight	119.12	OSHA Flammability Class	IB

Solvent Solubility**Soluble**

alcohol, ether

Section 10 - STABILITY AND REACTIVITY**Chemical Stability**

May explode if exposed to shock, friction or heating.

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. Keep out of water supplies and sewers.

Incompatible Materials

oxidizing materials

Hazardous decomposition products

Oxides of carbon, oxides of nitrogen



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Section 11 - TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Inhalation

irritation

Skin Contact

irritation

Eye Contact

irritation

Ingestion

blood disorders

Acute and Chronic Toxicity

Component Analysis - LD50/LC50

The components of this material have been reviewed in various sources and no selected endpoints have been identified.

Product Toxicity Data

Acute Toxicity Estimate

No data available.

Immediate Effects

no information on significant adverse effects.

Delayed Effects

no information on significant adverse 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

No data available.

Specific Target Organ Toxicity - Single Exposure

Respiratory system

Specific Target Organ Toxicity - Repeated Exposure

No data available.

Aspiration hazard

No data available.

Medical Conditions Aggravated by Exposure

No data available.

Section 12 - ECOLOGICAL INFORMATION

Component Analysis - Aquatic Toxicity

No LOLI ecotoxicity data are available for this product's components.

Persistence and Degradability

No data available.

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No data available.

Mobility

No data available.

Section 13 - DISPOSAL CONSIDERATIONS**Disposal Methods**

Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262.

Hazardous Waste Number(s): D001, D003.

Component Waste Numbers

The U.S. EPA has not published waste numbers for this product's components.

Section 14 - TRANSPORT INFORMATION**US DOT Information:****Shipping Name:** ESTERS, N.O.S. , (Contains: ISOBUTYL NITRATE)**Hazard Class:** 3**UN/NA #:** UN3272**Packing Group:** II**Required Label(s):** 3**IMDG Information:****Shipping Name:** ESTERS, N.O.S. , (Contains: ISOBUTYL NITRATE)**Hazard Class:** 3**UN#:** UN3272**Packing Group:** II**Required Label(s):** 3**International Bulk Chemical Code**

This material does not contain any chemicals required by the IBC Code to be identified as dangerous chemicals in bulk.

Section 15 - REGULATORY INFORMATION**U.S. Federal Regulations**

None of this products components are listed under SARA Sections 302/304 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), or require an OSHA process safety plan.

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

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

U.S. State Regulations

None of this product's components are listed on the state lists from CA, MA, MN, NJ or PA.

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

The components of this product are either not listed on the IDL or are present below the threshold limit listed on the IDL.

Component Analysis - Inventory**ISOBUTYL NITRATE (543-29-3)**

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR KECI - Annex 1	KR KECI - Annex 2	KR - REACH CCA	CN	NZ	MX	TW	VN - NCI (Draft)
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No	No	EIN	No	No	No	No	No	No	No	No	No	No	No	No	No
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Section 16 - OTHER INFORMATION**NFPA Ratings**

Health: 2 Fire: 3 Reactivity: 3

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; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CFR - Code of Federal Regulations (US); 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 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); VN NCI (Draft) - Vietnam National Chemicals Inventory (NCI) (Draft); WHMIS - Workplace Hazardous Materials Information System (Canada) .

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