SAFETY DATA SHEET
2-Buten-1-ol, 3-methyl-

According to Appendix D, OSHA Hazard Communication Standard 29 CFR §1910.1200

1. Identification

Product identifier

Product name	*2-Buten-1-ol, 3-methyl-*
Product number	*W1341*
Synonyms; trade names	*3-Methyl-2-butenol Prenol 3-Methylbut-2-en-1-ol 3-Methyl-2-buten-1-ol But-2-en-1-ol, 3-methyl-*
CAS number	*556-82-1*

Recommended use of the chemical and restrictions on use

Application	*Laboratory chemicals, Manufacture of substances.*
Uses advised against	*No specific uses advised against are identified.*

Details of the supplier of the safety data sheet

Supplier	*Synerzine* *5340 Highway 42* *Ellenwood, GA 30294* *(404) 524-6744* *info@synerzine.com*
Contact Person	*James Elliott*

Emergency telephone number

Emergency telephone	*INFOTRAC 1-800-535-5053 (Reference Contract # 102471)*

2. Hazard(s) identification

Classification of the substance or mixture

Physical hazards	*Flam. Liq. 3 - H226*
Health hazards	*Acute Tox. 4 - H302 Skin Corr. 1C - H314 Eye Dam. 1 - H318*
Environmental hazards	*Aquatic Acute 3 - H402 Aquatic Chronic 3 - H412*

Label elements

Hazard symbols

Signal word	*Danger*
Hazard statements	*H226 Flammable liquid and vapor.* *H302 Harmful if swallowed.* *H314 Causes severe skin burns and eye damage.* *H412 Harmful to aquatic life with long lasting effects.*

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Precautionary statements	*P210 Keep away from heat, sparks, open flames and hot surfaces. No smoking.* *P233 Keep container tightly closed.* *P240 Ground/ bond container and receiving equipment.* *P241 Use explosion-proof electrical equipment.* *P242 Use only non-sparking tools.* *P243 Take precautionary measures against static discharge.* *P260 Do not breathe vapor/ spray.* *P264 Wash contaminated skin thoroughly after handling.* *P270 Do not eat, drink or smoke when using this product.* *P273 Avoid release to the environment.* *P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.* *P301+P312 If swallowed: Call a poison center/ doctor if you feel unwell.* *P301+P330+P331 If swallowed: Rinse mouth. Do NOT induce vomiting.* *P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.* *P304+P340 If inhaled: Remove person to fresh air and keep comfortable for breathing.* *P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.* *P310 Immediately call a poison center/ doctor.* *P321 Specific treatment (see medical advice on this label).* *P363 Wash contaminated clothing before reuse.* *P370+P378 In case of fire: Use foam, carbon dioxide, dry powder or water fog to extinguish.* *P403+P235 Store in a well-ventilated place. Keep cool.* *P405 Store locked up.* *P501 Dispose of contents/ container in accordance with national regulations.*

Other hazards

This substance is not classified as PBT or vPvB according to current EU criteria.

3. Composition/information on ingredients

Substances

Product name	*2-Buten-1-ol, 3-methyl-*
CAS number	*556-82-1*
Chemical formula	*C5H10O*
Composition comments	*Named component present at ≤100%.*

4. First-aid measures

Description of first aid measures

General information	*Get medical attention immediately. Show this Safety Data Sheet to the medical personnel. Chemical burns must be treated by a physician.*
Inhalation	*Remove affected person from source of contamination. Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Maintain an open airway. Loosen tight clothing such as collar, tie or belt. When breathing is difficult, properly trained personnel may assist affected person by administering oxygen. Place unconscious person on their side in the recovery position and ensure breathing can take place.*
Ingestion	*Rinse mouth thoroughly with water. Give a few small glasses of water or milk to drink. Stop if the affected person feels sick as vomiting may be dangerous. Do not induce vomiting unless under the direction of medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Place unconscious person on their side in the recovery position and ensure breathing can take place. Maintain an open airway. Loosen tight clothing such as collar, tie or belt.*
Skin Contact	*It is important to remove the substance from the skin immediately. Take off immediately all contaminated clothing. Rinse immediately with plenty of water. Continue to rinse for at least 15 minutes and get medical attention. Chemical burns must be treated by a physician.*

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Eye contact	*Rinse immediately with plenty of water. Remove any contact lenses and open eyelids wide apart. Continue to rinse for at least 10 minutes.*
Protection of first aiders	*First aid personnel should wear appropriate protective equipment during any rescue. If it is suspected that volatile contaminants are still present around the affected person, first aid personnel should wear an appropriate respirator or self-contained breathing apparatus. Wash contaminated clothing thoroughly with water before removing it from the affected person, or wear gloves. It may be dangerous for first aid personnel to carry out mouth-to-mouth resuscitation.*

Most important symptoms and effects, both acute and delayed

General information	*See Section 11 for additional information on health hazards. The severity of the symptoms described will vary dependent on the concentration and the length of exposure.*
Inhalation	*A single exposure may cause the following adverse effects: Severe irritation of nose and throat. Symptoms following overexposure may include the following: Corrosive to the respiratory tract.*
Ingestion	*May cause chemical burns in mouth, esophagus and stomach. Symptoms following overexposure may include the following: Severe stomach pain. Nausea, vomiting.*
Skin contact	*Causes severe burns. Symptoms following overexposure may include the following: Pain or irritation. Redness. Blistering may occur.*
Eye contact	*Causes serious eye damage. Symptoms following overexposure may include the following: Pain. Profuse watering of the eyes. Redness.*

Indication of immediate medical attention and special treatment needed

Notes for the doctor	*Treat symptomatically.*

5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media	*The product is flammable. Extinguish with alcohol-resistant foam, carbon dioxide, dry powder or water fog. Use fire-extinguishing media suitable for the surrounding fire.*
Unsuitable extinguishing media	*Do not use water jet as an extinguisher, as this will spread the fire.*

Special hazards arising from the substance or mixture

Specific hazards	*Containers can burst violently or explode when heated, due to excessive pressure build-up. Flammable liquid and vapour. Vapors may be ignited by a spark, a hot surface or an ember. Vapors may form explosive mixtures with air. Fire-water run-off in sewers may create fire or explosion hazard. This product is toxic. Severe corrosive hazard. Water used for fire extinguishing, which has been in contact with the product, may be corrosive.*
Hazardous combustion products	*Thermal decomposition or combustion products may include the following substances: Very toxic or corrosive gases or vapors.*

Advice for firefighters

Protective actions during firefighting	*Avoid breathing fire gases or vapors. Evacuate area. Keep upwind to avoid inhalation of gases, vapors, fumes and smoke. Cool containers exposed to heat with water spray and remove them from the fire area if it can be done without risk. Cool containers exposed to flames with water until well after the fire is out. If a leak or spill has not ignited, use water spray to disperse vapors and protect men stopping the leak. Avoid discharge to the aquatic environment. Control run-off water by containing and keeping it out of sewers and watercourses. If risk of water pollution occurs, notify appropriate authorities.*
Special protective equipment for firefighters	*Regular protection may not be safe. Wear chemical protective suit. Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing. Standard Firefighter's clothing including helmets, protective boots and gloves will provide a basic level of protection for chemical incidents.*

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

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Personal precautions	*No action shall be taken without appropriate training or involving any personal risk. Keep unnecessary and unprotected personnel away from the spillage. Wear protective clothing as described in Section 8 of this safety data sheet. Follow precautions for safe handling described in this safety data sheet. Wash thoroughly after dealing with a spillage. Ensure procedures and training for emergency decontamination and disposal are in place. Do not touch or walk into spilled material. Evacuate area. Provide adequate ventilation. No smoking, sparks, flames or other sources of ignition near spillage. Promptly remove any clothing that becomes contaminated. Avoid inhalation of vapors and spray/mists. Use suitable respiratory protection if ventilation is inadequate. Avoid contact with skin and eyes. Avoid contact with contaminated tools and objects.*

Environmental precautions

Environmental precautions	*Avoid discharge into drains or watercourses or onto the ground. Avoid discharge to the aquatic environment. Large Spillages: Inform the relevant authorities if environmental pollution occurs (sewers, waterways, soil or air).*

Methods and material for containment and cleaning up

Methods for cleaning up	*Wear protective clothing as described in Section 8 of this safety data sheet. Clear up spills immediately and dispose of waste safely. Eliminate all ignition sources if safe to do so. No smoking, sparks, flames or other sources of ignition near spillage. Do not allow material to enter confined spaces, due to the risk of explosion. This product is corrosive. Provide adequate ventilation. Approach the spillage from upwind. Small Spillages: If the product is soluble in water, dilute the spillage with water and mop it up. Alternatively, or if it is not water-soluble, absorb the spillage with an inert, dry material and place it in a suitable waste disposal container. Large Spillages: If leakage cannot be stopped, evacuate area. Flush spilled material into an effluent treatment plant, or proceed as follows. Contain and absorb spillage with sand, earth or other non-combustible material. Place waste in labeled, sealed containers. Clean contaminated objects and areas thoroughly, observing environmental regulations. The contaminated absorbent may pose the same hazard as the spilled material. Flush contaminated area with plenty of water. Wash thoroughly after dealing with a spillage. Dangerous for the environment. Do not empty into drains. Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority.*
Reference to other sections	*For personal protection, see Section 8. See Section 11 for additional information on health hazards. See Section 12 for additional information on ecological hazards. For waste disposal, see Section 13.*

7. Handling and storage

Precautions for safe handling

Usage precautions	*Read and follow manufacturer's recommendations. Wear protective clothing as described in Section 8 of this safety data sheet. Keep away from food, drink and animal feeding stuffs. Handle all packages and containers carefully to minimize spills. Keep container tightly sealed when not in use. Avoid the formation of mists. The product is flammable. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. In use may form flammable/explosive vapour-air mixture. Vapors may accumulate on the floor and in low-lying areas. Use explosion-proof electrical, ventilating and lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharges. This product is corrosive. Immediate first aid is imperative. Avoid discharge to the aquatic environment. Do not handle until all safety precautions have been read and understood. Do not handle broken packages without protective equipment. Do not reuse empty containers.*
Advice on general occupational hygiene	*Wash promptly if skin becomes contaminated. Take off contaminated clothing and wash before reuse. Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Wash at the end of each work shift and before eating, smoking and using the toilet. Change work clothing daily before leaving workplace.*

Conditions for safe storage, including any incompatibilities

Storage precautions	*Store away from incompatible materials (see Section 10). Store in accordance with local regulations. Eliminate all sources of ignition. Take precautionary measures against static discharges. Ground container and transfer equipment to eliminate sparks from static electricity. Keep away from oxidizing materials, heat and flames. Keep only in the original container. Keep container tightly closed, in a cool, well ventilated place. Keep containers upright. Protect containers from damage. Utilize retaining walls to prevent soil and water pollution in the event of spillage. The storage area floor should be leak-tight, jointless and not absorbent.*

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Storage class	*Flammable liquid storage.*

Specific end uses(s)

Specific end use(s)	*The identified uses for this product are detailed in Section 1.*

8. Exposure controls/Personal protection

Ingredient comments	*No exposure limits known for ingredient(s).*

Exposure controls

Protective equipment

Appropriate engineering controls	*Provide adequate ventilation. Personal, workplace environment or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Use process enclosures, local exhaust ventilation or other engineering controls as the primary means to minimize worker exposure. Personal protective equipment should only be used if worker exposure cannot be controlled adequately by the engineering control measures. Ensure control measures are regularly inspected and maintained. Ensure operatives are trained to minimize exposure. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilating equipment.*
Eye/face protection	*Eyewear complying with an approved standard should be worn if a risk assessment indicates eye contact is possible. Personal protective equipment for eye and face protection should comply with OSHA 1910.133. Wear tight-fitting, chemical splash goggles or face shield. If inhalation hazards exist, a full-face respirator may be required instead.*
Hand protection	*Chemical-resistant, impervious gloves complying with an approved standard should be worn if a risk assessment indicates skin contact is possible. The most suitable glove should be chosen in consultation with the glove supplier/manufacturer, who can provide information about the breakthrough time of the glove material. To protect hands from chemicals, gloves should comply with OSHA 1910.138 and be demonstrated to be impervious to the chemical and resist degradation. Considering the data specified by the glove manufacturer, check during use that the gloves are retaining their protective properties and change them as soon as any deterioration is detected. Frequent changes are recommended.*
Other skin and body protection	*Appropriate footwear and additional protective clothing complying with an approved standard should be worn if a risk assessment indicates skin contamination is possible.*
Hygiene measures	*Provide eyewash station and safety shower. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse. Clean equipment and the work area every day. Good personal hygiene procedures should be implemented. Wash at the end of each work shift and before eating, smoking and using the toilet. When using do not eat, drink or smoke. Preventive industrial medical examinations should be carried out. Warn cleaning personnel of any hazardous properties of the product.*
Respiratory protection	*Respiratory protection complying with an approved standard should be worn if a risk assessment indicates inhalation of contaminants is possible. Ensure all respiratory protective equipment is suitable for its intended use and is NIOSH approved. Check that the respirator fits tightly and the filter is changed regularly. Gas and combination filter cartridges should comply with OSHA 1910.134. Full face mask respirators with replaceable filter cartridges should comply with OSHA 1910.134. Half mask and quarter mask respirators with replaceable filter cartridges should comply with OSHA 1910.134.*
Environmental exposure controls	*Keep container tightly sealed when not in use. Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.*

9. Physical and chemical properties

Information on basic physical and chemical properties

Appearance	*Clear liquid.*

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Color	*Colorless.*
Odor	*Fresh Fruity.*
Odor threshold	*Not available.*
pH	*Not available.*
Melting point	*Not available.*
Initial boiling point and range	*140°C*
Flash point	*43°C/110°F Method: Closed cup.*
Evaporation rate	*Not available.*
Upper/lower flammability or explosive limits	*Not available. Lower flammable/explosive limit: 2.7% Upper flammable/explosive limit: 16.3%*
Vapor pressure	*Not available.*
Vapor density	*Not available.*
Relative density	*Not available.*
Solubility(ies)	*Not available.*
Partition coefficient	*log Pow: 0.91 @ 25°C*
Auto-ignition temperature	*Not available.*
Decomposition Temperature	*Not available.*
Viscosity	*Not available.*
Explosive properties	*Not available.*
Oxidizing properties	*Not available.*
Molecular weight	*86.13 g/mol*

10. Stability and reactivity

Reactivity	*See the other subsections of this section for further details.*
Stability	*Stable at normal ambient temperatures and when used as recommended. Stable under the prescribed storage conditions.*
Possibility of hazardous reactions	*The following materials may react strongly with the product: Oxidizing agents.*
Conditions to avoid	*Avoid heat, flames and other sources of ignition. Containers can burst violently or explode when heated, due to excessive pressure build-up. Static electricity and formation of sparks must be prevented. Do not pressurize, cut, weld, drill, grind or otherwise expose containers to heat or sources of ignition.*
Materials to avoid	*Oxidizing materials. Acids - oxidizing.*
Hazardous decomposition products	*Does not decompose when used and stored as recommended. Thermal decomposition or combustion products may include the following substances: Corrosive gases or vapors.*

11. Toxicological information

Information on toxicological effects

Acute toxicity - oral

Summary	*Harmful if swallowed.*
ATE oral (mg/kg)	*500.0*

Acute toxicity - dermal

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Summary	*Based on available data the classification criteria are not met.*

Acute toxicity - inhalation

Summary	*Based on available data the classification criteria are not met.*

Skin corrosion/irritation

Summary	*Causes severe skin burns and eye damage.*

Serious eye damage/irritation

Summary	*Causes serious eye damage.*

Respiratory sensitization

Summary	*Based on available data the classification criteria are not met.*

Skin sensitization

Summary	*Based on available data the classification criteria are not met.*

Germ cell mutagenicity

Summary	*Based on available data the classification criteria are not met.*

Carcinogenicity

Summary	*Based on available data the classification criteria are not met.*

Reproductive toxicity

Summary	*Based on available data the classification criteria are not met.*

Specific target organ toxicity - single exposure

Summary	*Based on available data the classification criteria are not met.*

Specific target organ toxicity - repeated exposure

Summary	*Based on available data the classification criteria are not met.*

Aspiration hazard

Summary	*Based on available data the classification criteria are not met.*

General information	*The severity of the symptoms described will vary dependent on the concentration and the length of exposure.*
Inhalation	*Corrosive to the respiratory tract. Symptoms following overexposure may include the following: Severe irritation of nose and throat.*
Ingestion	*May cause chemical burns in mouth, esophagus and stomach. Symptoms following overexposure may include the following: Severe stomach pain. Nausea, vomiting.*
Skin Contact	*Causes severe burns. Symptoms following overexposure may include the following: Pain or irritation. Redness. Blistering may occur.*
Eye contact	*Causes serious eye damage. Symptoms following overexposure may include the following: Pain. Profuse watering of the eyes. Redness.*
Route of exposure	*Ingestion Inhalation Skin and/or eye contact*
Target Organs	*No specific target organs known.*
Medical considerations	*Skin disorders and allergies.*

12. Ecological information

Acute aquatic toxicity

Acute toxicity - fish	*LC_{50}, 96 hours: 46.4 mg/l, Leuciscus idus (Golden orfe)*
Acute toxicity - aquatic invertebrates	*EC_{50}, 48 hours: 144 mg/l, Daphnia magna*
Acute toxicity - aquatic plants	*EC_{50}, 72 hours: >500 mg/l, Desmodesmus subspicatus*

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Chronic aquatic toxicity

Summary	*Harmful to aquatic life with long lasting effects.*

Persistence and degradability

Persistence and degradability	*The product is readily biodegradable. The product is more than 80% biodegradable.*
Biodegradation	*The substance is readily biodegradable.*

Bioaccumulative potential

Bio-Accumulative Potential	*No data available on bioaccumulation.*
Partition coefficient	*log Pow: 0.91 @ 25°C*

Mobility in soil

Mobility	*No data available.*

Other adverse effects

Other adverse effects	*None known.*

13. Disposal considerations

Waste treatment methods

General information	*The generation of waste should be minimized or avoided wherever possible. Reuse or recycle products wherever possible. This material and its container must be disposed of in a safe way. Disposal of this product, process solutions, residues and by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any local authority requirements. When handling waste, the safety precautions applying to handling of the product should be considered. Care should be taken when handling emptied containers that have not been thoroughly cleaned or rinsed out. Empty containers or liners may retain some product residues and hence be potentially hazardous.*
Disposal methods	*Do not empty into drains. Dispose of surplus products and those that cannot be recycled via a licensed waste disposal contractor. Waste, residues, empty containers, discarded work clothes and contaminated cleaning materials should be collected in designated containers, labeled with their contents. Incineration or landfill should only be considered when recycling is not feasible. Vapor from residual product may create a highly flammable or explosive atmosphere inside the container. Containers should be thoroughly emptied before disposal because of the risk of an explosion. Do not cut or weld used containers unless they have been thoroughly cleaned internally.*

14. Transport information

UN Number

UN No. (TDG)	*2924*
UN No. (IMDG)	*2924*
UN No. (ICAO)	*2924*
UN No. (DOT)	*UN2924*

UN proper shipping name

Proper shipping name (TDG)	*FLAMMABLE LIQUID, CORROSIVE, N.O.S. (2-Buten-1-ol, 3-methyl-)*
Proper shipping name (IMDG)	*FLAMMABLE LIQUID, CORROSIVE, N.O.S. (2-Buten-1-ol, 3-methyl-)*
Proper shipping name (ICAO)	*FLAMMABLE LIQUID, CORROSIVE, N.O.S. (2-Buten-1-ol, 3-methyl-)*
Proper shipping name (DOT)	*FLAMMABLE LIQUIDS, CORROSIVE, N.O.S. (2-Buten-1-ol, 3-methyl-)*

Transport hazard class(es)

DOT hazard class	*3*
DOT subsidiary risk	*8*
DOT hazard label	*3*

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TDG class	*3*
TDG subsidiary risk	*8*
TDG label(s)	*3*
IMDG Class	*3*
IMDG subsidiary risk	*8*
ICAO class/division	*3*
ICAO subsidiary risk	*8*

Transport labels

DOT transport labels

Packing group

TDG Packing Group	*III*
IMDG packing group	*III*
ICAO packing group	*III*
DOT packing group	*III*

Environmental hazards

Environmentally Hazardous Substance
No.

Special precautions for user

EmS	*F-E, S-C*
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	*Not applicable.*

15. Regulatory information

Regulatory References *OSHA Hazard Communication Standard 29 CFR §1910.1200*

Inventories

Canada - DSL/NDSL
DSL

US - TSCA
Present.

16. Other information

Classification abbreviations and acronyms

Flam. Liq. = Flammable liquid
Acute Tox. = Acute toxicity
Eye Dam. = Serious eye damage
Skin Corr. = Skin corrosion
Aquatic Chronic = Hazardous to the aquatic environment (chronic)

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Training advice	*Read and follow manufacturer's recommendations. Only trained personnel should use this material.*
Revision comments	*NOTE: Lines within the margin indicate significant changes from the previous revision.*
Revision date	*8/27/2019*
Revision	*5*
Supersedes date	*4/8/2019*
SDS No.	*755*
Hazard statements in full	*H226 Flammable liquid and vapor.* *H302 Harmful if swallowed.* *H314 Causes severe skin burns and eye damage.* *H318 Causes serious eye damage.* *H402 Harmful to aquatic life.* *H412 Harmful to aquatic life with long lasting effects.*

End of Safety Data Sheet