

MATERIAL SAFETY DATA SHEET

1 Identification of substance:

Product Name: Ethyl trans-4-oxo-2-butenolate
Catalog Number: sc-269187
Supplier: Santa Cruz Biotechnology, Inc.
2145 Delaware Avenue
Santa Cruz, California 95060
800.457.3801 or 831.457.3800
Emergency: ChemWatch
Within the US & Canada: 877-715-9305
Outside the US & Canada: +800 2436 2255
(1-800-CHEMCALL) or call +613 9573 3112

2 Hazards identification

Classification of the substance or mixture



GHS06 Skull and crossbones

H300 Fatal if swallowed.



GHS05 Corrosion

H314 Causes severe skin burns and eye damage.

H318 Causes serious eye damage.



GHS07

H317 May cause an allergic skin reaction.

H227 Combustible liquid.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC



T; Toxic

R25: Toxic if swallowed.



C; Corrosive

R34: Causes burns.



Xi; Irritant

R43: May cause sensitization by skin contact.

Label elements

Labelling according to EU guidelines:

Code letter and hazard designation of product:

T Toxic

Risk phrases:

25 Toxic if swallowed.

34 Causes burns.

43 May cause sensitization by skin contact.

Safety phrases:

20 When using do not eat or drink.

26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

45 In case of accident or if you feel unwell, seek medical advice immediately.

Hazard description:
WHMIS classification



Classification system
HMIS ratings (scale 0-4)
(Hazardous Materials Identification System)

HEALTH	2
FIRE	2
REACTIVITY	1

Health (acute effects) = 2
Flammability = 2
Reactivity = 1

Other hazards

Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

3 Composition/information on ingredients

Chemical characterization: Substances

(CAS#) Description:

Ethyl trans-4-oxo-2-butenate (CAS# 2960-66-9): 100%

4 First aid measures

Description of first aid measures

General information

Immediately remove any clothing soiled by the product.

In case of irregular breathing or respiratory arrest provide artificial respiration.

After inhalation

Supply fresh air and to be sure call for a doctor.

Supply fresh air. If required, provide artificial respiration. Keep patient warm.

Seek immediate medical advice.

After skin contact

Immediately wash with water and soap and rinse thoroughly.

Seek immediate medical advice.

After eye contact

Rinse opened eye for several minutes under running water. Then consult a doctor.

After swallowing

Do not induce vomiting; immediately call for medical help.

Seek immediate medical advice.

5 Firefighting measures

Extinguishing media

Suitable extinguishing agents

Carbon dioxide, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

Special hazards arising from the substance or mixture

In case of fire, the following can be released:

Carbon monoxide and carbon dioxide

Advice for firefighters

Protective equipment:

Wear self-contained respirator.

Wear fully protective impervious suit.

6 Accidental release measures

Personal precautions, protective equipment and emergency procedures

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

Environmental precautions:

Do not allow material to be released to the environment without proper governmental permits.

Methods and material for containment and cleaning up:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Use neutralizing agent.

Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
Reference to other sections
See Section 7 for information on safe handling
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

Handling

Precautions for safe handling

Keep container tightly sealed.
Store in cool, dry place in tightly closed containers.
Ensure good ventilation at the workplace.

Information about protection against explosions and fires: Keep ignition sources away.

Conditions for safe storage, including any incompatibilities

Storage Store at room temperature.

Requirements to be met by storerooms and receptacles: No special requirements.

Information about storage in one common storage facility:

Store away from oxidizing agents.
Store away from strong bases.

Further information about storage conditions:

Keep container tightly sealed.
Store in cool, dry conditions in well sealed containers.

8 Exposure controls/personal protection

Additional information about design of technical systems:

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

Control parameters

Components with limit values that require monitoring at the workplace: Not required.

Additional information: No data

Exposure controls

Personal protective equipment

General protective and hygienic measures

The usual precautionary measures for handling chemicals should be followed.
Keep away from foodstuffs, beverages and feed.
Remove all soiled and contaminated clothing immediately.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.

Breathing equipment: Use suitable respirator when high concentrations are present.

Protection of hands:

Impervious gloves
Check protective gloves prior to each use for their proper condition.

Material of gloves

The selection of suitable gloves not only depends on the material, but also on quality.
Quality will vary from manufacturer to manufacturer.

Eye protection:

Safety glasses
Tightly sealed goggles
Full face protection

Body protection: Protective work clothing.

9 Physical and chemical properties

Information on basic physical and chemical properties

General Information

Appearance:

Form:	Liquid
Formula:	C6H8O3
Weight:	128.13

pH-value:	Not determined.
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Change in condition

Melting point/Melting range:	-9°C (16 °F)
Boiling point/Boiling range:	184-188°C (363-370 °F)

Sublimation temperature / start:	Not determined
Flash point:	68°C (154 °F)
Flammability (solid, gaseous)	Not applicable.
Ignition temperature:	Not determined
Decomposition temperature:	Not determined
Auto igniting:	Not determined.
Danger of explosion:	Product does not present an explosion hazard.
Explosion limits:	
Lower:	Not determined
Upper:	Not determined
Vapor pressure:	Not determined
Density at 20°C (68 °F):	1.063 g/cm ³ (8.871 lbs/gal)
Relative density	Not determined.
Vapour density	Not determined.
Evaporation rate	Not determined.
Segregation coefficient (n-octanol/water):	Not determined.
Viscosity:	
dynamic:	Not determined.
kinematic:	Not determined.
Other information	No further relevant information available.

10 Stability and reactivity

Reactivity

Chemical stability

Thermal decomposition / conditions to be avoided:

Decomposition will not occur if used and stored according to specifications.

Possibility of hazardous reactions No dangerous reactions known

Incompatible materials:

Oxidizing agents

Bases

Hazardous decomposition products: Carbon monoxide and carbon dioxide

11 Toxicological information

Information on toxicological effects

Acute toxicity:

LD/LC50 values that are relevant for classification:		
Oral	LD50	25-200 mg/kg (rat)

Primary irritant effect:

on the skin:

Corrosive effect on skin and mucous membranes.

Irritant to skin and mucous membranes.

on the eye:

Strong corrosive effect.

Irritating effect.

Sensitization: Sensitization possible through skin contact.

Subacute to chronic toxicity:

Corrosive materials are acutely destructive to the respiratory tract, eyes, skin and digestive tract. Eye contact may result in permanent damage and complete vision loss. Inhalation may result in respiratory effects such as inflammation, edema, and chemical pneumonitis. May cause coughing, wheezing, laryngitis, shortness of breath, headache, nausea and vomiting. Ingestion may cause damage to the mouth, throat and esophagus. May cause skin burns or irritation depending on the severity of the exposure.

Additional toxicological information:

To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

Swallowing will lead to a strong corrosive effect on mouth and throat and to the danger of perforation of esophagus and stomach.

No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

12 Ecological information

Toxicity

Acquatic toxicity: No further relevant information available.

Persistence and degradability No further relevant information available.

Behavior in environmental systems:

Bioaccumulative potential No further relevant information available.

Mobility in soil No further relevant information available.

Additional ecological information:

General notes:

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

Do not allow material to be released to the environment without proper governmental permits.

Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

Other adverse effects No further relevant information available.

13 Disposal considerations

Waste treatment methods

Recommendation Consult state, local or national regulations to ensure proper disposal.

Uncleaned packagings:

Recommendation: Disposal must be made according to official regulations.

14 Transport information

DOT regulations:



Hazard class:

8

Identification number:

UN2922

Packing group:

III

Proper shipping name (technical name): CORROSIVE LIQUID, TOXIC, N.O.S. (Ethyl trans-4-oxo-2-butenolate)

Label

8+6.1

Land transport ADR/RID (cross-border)



ADR/RID class:

8 (CT1) Corrosive substances

Danger code (Kemler):

86

UN-Number:

2922

Packaging group:

III

UN proper shipping name:

2922 CORROSIVE LIQUID, TOXIC, N.O.S. (Ethyl trans-4-oxo-2-butenolate)

Maritime transport IMDG:



IMDG Class:

8

UN Number:

2922

Label

8+6.1

Packaging group:

III

Marine pollutant:

No

Proper shipping name:	CORROSIVE LIQUID, TOXIC, N.O.S. (Ethyl trans-4-oxo-2-butenate)
Air transport ICAO-TI and IATA-DGR:	
	
ICAO/IATA Class:	8
UN/ID Number:	2922
Label	8+6.1
Packaging group:	III
Proper shipping name:	CORROSIVE LIQUID, TOXIC, N.O.S. (Ethyl trans-4-oxo-2-butenate)

UN "Model Regulation": UN2922, CORROSIVE LIQUID, TOXIC, N.O.S., 8 (6.1), III

Special precautions for user Warning: Corrosive substances

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable.

15 Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture

Product related hazard informations:

Hazard symbols:

T Toxic

Risk phrases:

25 Toxic if swallowed.

34 Causes burns.

43 May cause sensitization by skin contact.

Safety phrases:

20 When using do not eat or drink.

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36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

45 In case of accident or if you feel unwell, seek medical advice immediately.

National regulations

This product is not listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical Substance Inventory. Use of this product is restricted to research and development only.

Some or all of the components of this product are not listed on the Canadian Domestic Substances List (DSL) or the Canadian Non-Domestic Substances List (NDSL).

Information about limitation of use: For use only by technically qualified individuals.

Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information:

The above information is believed to be correct but does not purport to be complete and should be used only as a guide. The burden of safe use of this material rests entirely with the user.

12/13/2013