

Creation Date 13-Apr-2009

Revision Date 13-Apr-2009

Revision Number 1

## 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

**Product Name** **2-Butanone**  
**Cat No.** **149670000; 149670010; 149670025; 149670051; 149670250; 149670251**  
**Synonyms** Methyl ethyl ketone; Mek  
**Recommended Use** No information available.

**Company** Acros Organics BVBA  
 Janssen Pharmaceuticaaan 3a  
 2440 Geel, Belgium

**Emergency Telephone Number** For information in the US, call: 800-ACROS-01  
 For information in Europe, call: +32 14 57 52 11

Emergency Number, Europe: +32 14 57 52 99  
 Emergency Number, US: 201-796-7100

CHEMTREC Phone Number, US: 800-424-9300  
 CHEMTREC Phone Number, Europe: 703-527-3887

## 2. HAZARDS IDENTIFICATION

The product is classified as dangerous in accordance with Directive 1999/45/EC or 67/548/EEC.



**R -phrase(s)**  
 R11 - Highly flammable  
 R36 - Irritating to eyes  
 R66 - Repeated exposure may cause skin dryness or cracking  
 R67 - Vapors may cause drowsiness and dizziness

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

**Haz/Non-haz**

Component	Weight %	EC No.	Classification
Methyl ethyl ketone 78-93-3	100	EEC No. 201-159-0	F;R11 Xi;R36 R66 R67

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For the full text of the R phrases mentioned in this Section, see Section 16

#### 4. FIRST AID MEASURES

<b>Eye Contact</b>	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.
<b>Skin Contact</b>	Wash off immediately with plenty of water for at least 15 minutes. Obtain medical attention.
<b>Ingestion</b>	Do not induce vomiting. Obtain medical attention.
<b>Inhalation</b>	Move to fresh air. If breathing is difficult, give oxygen. Obtain medical attention.
<b>Notes to Physician</b>	Treat symptomatically.

#### 5. FIRE-FIGHTING MEASURES

**Suitable Extinguishing Media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Cool closed containers exposed to fire with water spray.

**Extinguishing media which must not be used for safety reasons**

No information available.

**Specific Hazards Arising from the Chemical**

Flammable. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back.

**Protective Equipment and Precautions for Firefighters**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

<b>Flash Point</b>	-7°C / 19.4°F
<b>Method</b>	No information available.
<b>Autoignition Temperature</b>	404°C / 759.2°F
<b>Explosion Limits</b>	
Lower	1.8 Vol%
Upper	11.5 Vol%

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**6. ACCIDENTAL RELEASE MEASURES**

**Personal Precautions** Use personal protective equipment. Remove all sources of ignition. Take precautionary measures against static discharges.

**Environmental Precautions** Should not be released into the environment.

**Methods for Containment and Clean Up** Soak up with inert absorbent material Keep in suitable and closed containers for disposal  
Remove all sources of ignition Use spark-proof tools and explosion-proof equipment

**7. HANDLING AND STORAGE**

**Handling** Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. Use explosion-proof equipment. Take precautionary measures against static discharges.

**Storage** Keep containers tightly closed in a dry, cool and well-ventilated place. Flammables area. Keep away from heat and sources of ignition.

**Specific use(s)** No information available.

**8. EXPOSURE CONTROLS / PERSONAL PROTECTION**
**Exposure limits**

The product does not contain any hazardous materials with occupational exposure limits established.

Component	European Union	The United Kingdom	France	Spain	Germany
Methyl ethyl ketone	TWA: 200 ppm TWA: 600 mg/m <sup>3</sup> STEL: 900 mg/m <sup>3</sup> STEL: 300 ppm		VME: 200 ppm VME: 600 mg/m <sup>3</sup> VLCT: 300 ppm VLCT: 900 mg/m <sup>3</sup>	VLA-EC: 300 ppm VLA-EC; 900 mg/m <sup>3</sup> VLA-EC VLA-ED: 200 ppm VLA-ED; 600 mg/m <sup>3</sup> VLA-ED	

Component	Italy	Portugal	The Netherlands	Finland	Austria
Methyl ethyl ketone	TWA: 200 ppm TWA: 600 mg/m <sup>3</sup> STEL: 300 ppm STEL: 900 mg/m <sup>3</sup>	STEL: 300 ppm TWA: 200 ppm Skin notation	Skin STEL: 300 ppm STEL; 900 mg/m <sup>3</sup> STEL MAC: 200 ppm MAC; 590 mg/m <sup>3</sup> MAC	STEL: 300 mg/m <sup>3</sup> STEL: 100 ppm Skin	Skin STEL: 200 ppm STEL (4 X 30 min); 590 mg/m <sup>3</sup> STEL (4 X 30 min) MAK: 100 ppm MAK; 295 mg/m <sup>3</sup> MAK

Component	Switzerland	Poland	Norway	Ireland	Denmark
Methyl ethyl ketone	Skin STEL: 200 ppm STEL (15 min); 590 mg/m <sup>3</sup> STEL (15 min) MAK: 200 ppm MAK; 590 mg/m <sup>3</sup> MAK	NDSch: 900 mg/m <sup>3</sup> NDS: 450 mg/m <sup>3</sup>	TWA: 220 mg/m <sup>3</sup> TWA: 75 ppm	TWA: 200 ppm TWA: 600 mg/m <sup>3</sup> STEL: 300 ppm STEL: 900 mg/m <sup>3</sup> Skin	TWA: 50 ppm TWA: 145 mg/m <sup>3</sup> Skin

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**Occupational exposure controls**
**Engineering Measures**

Ensure that eyewash stations and safety showers are close to the workstation location Ensure adequate ventilation, especially in confined areas Use explosion-proof electrical/ventilating/lighting/equipment

**Personal Protective Equipment**
**Respiratory Protection**

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

**Eye Protection**

Tightly fitting safety goggles

**Skin and body protection**

Wear appropriate protective gloves and clothing to prevent skin exposure.

**Hand Protection**

Protective gloves

**Hygiene Measures**

Handle in accordance with good industrial hygiene and safety practice

**Environmental exposure controls**

No information available.

**9. PHYSICAL AND CHEMICAL PROPERTIES**
**Physical State**

Liquid

**Appearance**

Colorless

**Odor**

characteristic - sweet

**pH**

No information available.

**Vapor Pressure**

105 mbar @ 20 °C

**Vapor Density**

2.41 (Air = 1.0)

**Viscosity**

0.42 mPa.s @ 15°C

**Boiling Point/Range**

80°C / 176°F

**Melting Point/Range**

-87°C / -124.6°F

**Flash Point**

-7°C / 19.4°F

**Explosion Limits**
**Lower**

1.8 Vol%

**Upper**

11.5 Vol%

**Evaporation Rate**

3.7 (Butyl Acetate = 1.0)

**Water Solubility**

290 g/L (20°C)

**Specific Gravity**

0.806

**Partition Coefficient (n-octanol/water)**

0.29

**Molecular Formula**

C<sub>4</sub> H<sub>8</sub> O

**Molecular Weight**

72.11

**10. STABILITY AND REACTIVITY**
**Stability**

Stable under normal conditions.

**Conditions to Avoid**

Incompatible products. Excess heat. Keep away from open flames, hot surfaces and sources of ignition.

**Incompatible Materials**

Oxidizing agents, Strong reducing agents, Ammonia, copper, Amines

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**Hazardous Decomposition Products** Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>)

**Hazardous Polymerization** Hazardous polymerization does not occur.

**Hazardous Reactions .** None under normal processing..

**11. TOXICOLOGICAL INFORMATION**
Acute Toxicity
**Component Information**

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Methyl ethyl ketone	2737 mg/kg ( Rat )	6480 mg/kg ( Rabbit )	32 g/m <sup>3</sup> ( Mouse ) 4 h

Chronic Toxicity
**Carcinogenicity** There are no known carcinogenic chemicals in this product

**Sensitization** No information available.

**Neurological Effects** No information available.

**Mutagenic Effects** Not mutagenic in AMES Test

**Reproductive Effects** Experiments have shown reproductive toxicity effects on laboratory animals.

**Developmental Effects** Developmental effects have occurred in experimental animals.

**Teratogenicity** Teratogenic effects have occurred in experimental animals.

**Target Organs** Skin, Eyes, Central nervous system (CNS), Liver, Kidney.

**Other Adverse Effects** See actual entry in RTECS for complete information.

**12. ECOLOGICAL INFORMATION**
Ecotoxicity

Do not empty into drains.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Methyl ethyl ketone		LC50= 1690 mg/L Lepomis macrochirus 96 h LC50= 3220 mg/L Pimephales promelas 96 h	EC50 = 3403 mg/L 30 min EC50 = 3426 mg/L 5 min	EC50 = 5091 mg/L 48 h EC50 = 520 mg/L 48 h

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**Persistence and Degradability**      Readily biodegradable.  
**Bioaccumulative Potential**        No information available.  
**Mobility**                                No information available.

Component	log Pow
Methyl ethyl ketone	0.29

### 13. DISPOSAL CONSIDERATIONS

**Waste from Residues / Unused Products**      Dispose of in accordance with local regulations  
**Contaminated Packaging**                    Empty containers should be taken for local recycling, recovery or waste disposal

### 14. TRANSPORT INFORMATION

#### IMDG/IMO

**UN-No**    UN1193  
**Hazard Class**                                3  
**Packing Group**                              II  
**Proper Shipping Name**                  Ethyl methyl ketone (Methyl ethyl ketone)

#### ADR

**UN-No**    UN1193  
**Hazard Class**                                3  
**Packing Group**                              II  
**Proper Shipping Name**                  Ethyl methyl ketone (Methyl ethyl ketone)

#### IATA

**UN-No**    UN1193  
**Hazard Class**                                3  
**Packing Group**                              II  
**Proper Shipping Name**                  Methyl ethyl ketone

### 15. REGULATORY INFORMATION

The product is classified as dangerous in accordance with Directive 1999/45/EC or 67/548/EEC

#### Labelling

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**Symbol(s)**

Xi - Irritant F - Highly flammable

Xi



F



**R -phrase(s)**

R11 - Highly flammable  
R36 - Irritating to eyes  
R66 - Repeated exposure may cause skin dryness or cracking  
R67 - Vapors may cause drowsiness and dizziness

**S -phrase(s)**

S16 - Keep away from sources of ignition. No smoking  
S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice  
S37/39 - Wear suitable gloves and eye/face protection

**International Inventories**

Component	EINECS	ELINCS	NLP	TSCA	DSL	NDSL	PICCS	ENCS	CHINA	AICS	KECL
Methyl ethyl ketone	201-159-0	-		Present	X	-	X	X	X	X	KE-24094 X

**16. OTHER INFORMATION**

**Text of R phrases mentioned in Section 2-3**

R11 - Highly flammable  
R36 - Irritating to eyes  
R66 - Repeated exposure may cause skin dryness or cracking  
R67 - Vapors may cause drowsiness and dizziness

**Prepared By** Regulatory Affairs  
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**Revision Summary** "\*\*\*\*", and red text indicates revision  
**Restrictions on use** No information available.

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**Training advice** No information available.

**Literary reference** No information available.

Disclaimer

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**End of Safety Data Sheet**