

# Safety Data Sheet

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Version 2

## 1. PRODUCT AND COMPANY IDENTIFICATION

**Product name** 4-Oxo-2-nonenal (4-ONE)

**UN/ID No** 1231

**Recommended use** For research use only

**Supplier Address** Abcam Inc  
1 Kendall Square, Ste 341  
Cambridge, MA 02139-1517  
USA  
Tel: (617)225-2272 or 888-77-ABCAM (22226) (US toll free)  
Fax: (866) 739-9884 or (866) 457-9616 (both US toll free)

**E-mail address** technical@abcam.com

**Emergency telephone** Tel: (617)225-2272 or 888-77-ABCAM (22226) (US toll free) - Monday-Friday 8am-9pm EST

## 2. HAZARDS IDENTIFICATION

### GHS - Classification

Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2
Specific target organ systemic toxicity (single exposure)	Category 3
Flammable liquids	Category 2

### GHS Label elements, including precautionary statements



**Signal Word**  
Danger

### Hazard statements

H225 - Highly flammable liquid and vapor  
H319 - Causes serious eye irritation  
H336 - May cause drowsiness or dizziness  
EUH066 - Repeated exposure may cause skin dryness or cracking

**Precautionary Statements - EU (§28, 1272/2008)**

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

P370 + P378 - In case of fire: Use foam for extinction

P304 + P340 - IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing

P303 + P361 + P353 - IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower

P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking

P280 - Wear protective gloves/ eye protection/ face protection

P261 - Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray

P264 - Wash face, hands and any exposed skin thoroughly after handling

P312 - Call a POISON CENTER or doctor/ physician if you feel unwell

P271 - Use only outdoors or in a well-ventilated area

P233 - Keep container tightly closed

P403 + P235 - Store in a well-ventilated place. Keep cool

P501 - Dispose of contents/ container to an approved waste disposal plant

P405 - Store locked up

**Other information**

Caution - substance not yet tested completely

**3. COMPOSITION/INFORMATION ON INGREDIENTS****3.1 Substances**

Chemical Name	CAS-No	Weight %	Classification (Reg. 1272/2008)
Methyl acetate	79-20-9	60-100	Flam Liq. 2 (H225) Eye Irrit. 2 (H319) (EUH066) STOT SE 3 (H336)

For the full text of the H-Statements mentioned in this Section, see Section 16

**4. FIRST AID MEASURES**

<b>General advice</b>	If symptoms persist, call a physician.
<b>Eye contact</b>	Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. If symptoms persist, call a physician.
<b>Skin contact</b>	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. If symptoms persist, call a physician.
<b>Inhalation</b>	Move to fresh air. If symptoms persist, call a physician.
<b>Ingestion</b>	Clean mouth with water. Drink plenty of water.
<b>Notes to physician</b>	Treat symptomatically.

**5. FIRE-FIGHTING MEASURES**

**Flammable properties** Not flammable.

<b>Flash point</b>	not determined
<b>Suitable extinguishing media</b>	Water spray. Alcohol-resistant foam. Dry chemical.
<b>Explosion Data</b>	
<b>Sensitivity to Mechanical Impact</b>	none.
<b>Sensitivity to Static Discharge</b>	none.
<b>Protective equipment and precautions for firefighters</b>	As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

**6. ACCIDENTAL RELEASE MEASURES**

<b>Personal precautions</b>	Use personal protective equipment. Avoid contact with the skin and the eyes. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.
<b>Environmental precautions</b>	Try to prevent the material from entering drains or water courses.
<b>Methods for containment</b>	Prevent further leakage or spillage if safe to do so.
<b>Methods for cleaning up</b>	Soak up with inert absorbent material. Pick up and transfer to properly labeled containers. After cleaning, flush away traces with water. Prevent product from entering drains. Dam up.
<b>Other information</b>	Refer to protective measures listed in sections 7 and 8.

**7. HANDLING AND STORAGE**

<b>Advice on safe handling</b>	Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Use only in area provided with appropriate exhaust ventilation. Prevent the formation of vapors, mists and aerosols. Keep away from open flames, hot surfaces and sources of ignition. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing before re-use.
<b>Technical measures/Storage conditions</b>	Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out of the reach of children. Keep in properly labeled containers.

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

**Exposure Guidelines** This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Methyl acetate 79-20-9	STEL: 250 ppm TWA: 200 ppm	TWA: 200 ppm TWA: 610 mg/m <sup>3</sup> (vacated) TWA: 200 ppm (vacated) TWA: 610 mg/m <sup>3</sup> (vacated) STEL: 250 ppm (vacated) STEL: 760 mg/m <sup>3</sup>	IDLH: 3100 ppm TWA: 200 ppm TWA: 610 mg/m <sup>3</sup> STEL: 250 ppm STEL: 760 mg/m <sup>3</sup>

NIOSH IDLH: Immediately Dangerous to Life or Health

**Other Exposure Guidelines** Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992).

**Engineering measures** Showers  
Eyewash stations  
Ventilation systems

**Personal protective equipment**

**Eye/face protection**

Tightly fitting safety goggles. Face-shield.

**Skin and body protection**

No special protective equipment required.

**Respiratory protection**

If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

**Hygiene measures** When using, do not eat, drink or smoke. Remove and wash contaminated clothing before re-use. Provide regular cleaning of equipment, work area and clothing.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

<b>Appearance</b>	No information available.	<b>Odor</b>	No information available.
<b>Odor Threshold</b>	No information available	<b>Physical State @20°C</b>	Liquid
<b>pH</b>	No information available	<b>Autoignition temperature</b>	No information available
<b>Flash point</b>	No information available	<b>Boiling point/boiling range</b>	No information available
<b>Decomposition temperature</b>	No information available	<b>Flammability Limits in Air</b>	No information available
<b>Melting point/range</b>	No information available	<b>solubility</b>	No information available.
<b>Explosion limits</b>	No information available	<b>Vapor density</b>	no data available
<b>Specific Gravity</b>	no data available		
<b>Evaporation rate</b>	No information available		
<b>VOC Content(%)</b>	99		

**10. STABILITY AND REACTIVITY**

**Stability** Stable under recommended storage conditions.

**Incompatible products** None known based on information supplied.

**Conditions to avoid** None known based on information supplied.

**Hazardous decomposition products** Carbon monoxide (CO). Carbon dioxide (CO<sub>2</sub>).

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

## 11. TOXICOLOGICAL INFORMATION

### Acute toxicity

<b>Product Information</b>	Irritating to skin, eyes and / or respiratory tract.
<b>Inhalation</b>	May cause drowsiness and dizziness based on components May cause irritation of respiratory tract
<b>Eye contact</b>	May cause irritation
<b>Skin contact</b>	May cause irritation

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Methyl acetate	> 5,000 mg/kg (Rat)	> 5,000 mg/kg (Rabbit)	16,000 ppm (Rat, 4 h)

### Chronic toxicity

<b>Chronic toxicity</b>	Avoid repeated exposure
<b>Target Organ Effects</b>	Central nervous system (CNS). Eyes. Respiratory system. Skin.

## 12. ECOLOGICAL INFORMATION

### Ecotoxicity

The environmental impact of this product has not been fully investigated.

Chemical Name	Toxicity to algae	Toxicity to fish	Toxicity to microorganisms	Toxicity to daphnia and other aquatic invertebrates
Methyl acetate	EC50 (Static) <i>Desmodesmus subspicatus</i> (Green algae): > 120 mg/l (72 h)	LC50 (Flow-through) <i>Pimephales promelas</i> (Fathead minnow): 320 mg/l (96 h)  LC50 (Static) <i>Brachydanio rerio</i> (Zebrafish): 250 mg/l (96 h)	EC50 (Static) <i>Pseudomonas putida</i> (Bacteria): 6,000 mg/l (16 h)  EC50 (Static) <i>Photobacterium phosphoreum</i> : 6,100 mg/l (16 h)	EC50 (Static) <i>Daphnia magna</i> (Water flea): 1,026.7 mg/l (48 h)
<b>Chemical Name</b>		<b>log Pow</b>		
Methyl acetate		0.18		

## 13. DISPOSAL CONSIDERATIONS

<b>Waste disposal methods</b>	This material, as supplied, is not a hazardous waste according to Federal regulations (40 CFR 261). This material could become a hazardous waste if it is mixed with or otherwise comes in contact with a hazardous waste, if chemical additions are made to this material, or if the material is processed or otherwise altered. Consult 40 CFR 261 to determine whether the altered material is a hazardous waste. Consult the appropriate state, regional, or local regulations for additional requirements.
<b>Contaminated packaging</b>	Do not re-use empty containers.

This product contains one or more substances that are listed with the State of California as a hazardous waste.

Chemical Name	California Hazardous Waste Status
Methyl acetate	Toxic Ignitable

**14. TRANSPORT INFORMATION**

**DOT** Excepted Quantity  
**Proper shipping name** Methyl Acetate  
**Hazard class** 3  
**UN/ID No** 1231  
**Packing group** II

**IATA** Excepted Quantity  
**UN/ID No** 1231  
**Proper shipping name** Methyl Acetate  
**Hazard class** 3  
**Packing group** II

**ADR** Excepted Quantity  
**Proper shipping name** Methyl Acetate  
**Hazard class** 3  
**UN/ID No** 1231  
**Packing group** II

**15. REGULATORY INFORMATION**

**U.S. Federal Regulations**

**SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

**SARA 311/312 Hazard Categories**

<b>Acute Health Hazard</b>	yes
<b>Chronic Health Hazard</b>	yes
<b>Fire Hazard</b>	no
<b>Sudden Release of Pressure Hazard</b>	no
<b>Reactive Hazard</b>	no

**Clean Water Act**

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

**CERCLA**

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

**U.S. State Regulations**

**California Proposition 65**

This product does not contain any Proposition 65 chemicals.

**U.S. State Right-to-Know Regulations**

Chemical Name	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Methyl acetate	X	X	X		X

**International Regulations**

Chemical Name	Carcinogen Status	Exposure limits
Methyl acetate		Mexico: TWA 200 ppm Mexico: TWA 610 mg/m <sup>3</sup> Mexico: STEL 250 ppm Mexico: STEL 760 mg/m <sup>3</sup>

**WHMIS Note:** This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

**16. OTHER INFORMATION**

**Full text of H-Statements referred to under sections 2 and 3**  
 H225 - Highly flammable liquid and vapor H319 - Causes serious eye irritation H336 - May cause drowsiness or dizziness EUH066 - Repeated exposure may cause skin dryness or cracking

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**Revision Note** No information available.

**Disclaimer**  
 The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

**End of MSDS**