

Material Safety Data Sheet

Date Printed: 21/APR/2005

Date Updated: 12/MAR/2004

Version 1.3

According to 91/155/EEC

Classified as Hazardous according to the criteria of EU Annex 1 and NOHSC.

1 - Product and Company Information

Product Name	VALERALDEHYDE, 97%
Product Number	110132
Company	Sigma-Aldrich Pty, Ltd Unit 2, 14 Anella Avenue Castle Hill NSW 1765 Australia
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2 - Composition/Information on Ingredients

Product Name	CAS #	EC no	Annex I Index Number
N-VALERALDEHYDE	110-62-3	203-784-4	None

Formula	C5H10O
Molecular Weight	86.13 AMU
Synonyms	Amyl aldehyde * Butyl formal * Pentanal * n-Pentanal * Valeric aldehyde * Valeral * n-Valeraldehyde (ACGIH) * Valerianic aldehyde * Valeric acid aldehyde * n-Valeric aldehyde * Valerylaldehyde

3 - Hazards Identification

SPECIAL INDICATION OF HAZARDS TO HUMANS AND THE ENVIRONMENT
Highly flammable. Irritating to skin. Risk of serious damage to eyes.

4 - First Aid Measures

AFTER INHALATION

If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

AFTER SKIN CONTACT

In case of contact, immediately wash skin with soap and copious amounts of water.

AFTER EYE CONTACT

In case of contact, immediately flush eyes with copious amounts of water for at least 15 minutes.

AFTER INGESTION

If swallowed, wash out mouth with water provided person is

conscious. Call a physician.

5 - Fire Fighting Measures

EXTINGUISHING MEDIA

Suitable: Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.

SPECIAL RISKS

Specific Hazard(s): Flammable liquid. Emits toxic fumes under fire conditions.

Explosion Hazards: Vapor may travel considerable distance to source of ignition and flash back. Container explosion may occur under fire conditions. Forms explosive mixtures in air.

SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

SPECIFIC METHOD(S) OF FIRE FIGHTING

Use water spray to cool fire-exposed containers.

6 - Accidental Release Measures

PERSONAL PRECAUTION PROCEDURES TO BE FOLLOWED IN CASE OF LEAK OR SPILL

Evacuate area. Shut off all sources of ignition.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear respirator, chemical safety goggles, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP

Cover with dry-lime, sand, or soda ash. Place in covered containers using non-sparking tools and transport outdoors. Ventilate area and wash spill site after material pickup is complete.

7 - Handling and Storage

HANDLING

Directions for Safe Handling: Avoid breathing vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure.

STORAGE

Conditions of Storage: Keep container closed. Keep away from heat, sparks, and open flame. Store in a cool dry place. Store under nitrogen.

8 - Exposure Controls / Personal Protection

ENGINEERING CONTROLS

Safety shower and eye bath. Use nonsparking tools. Mechanical exhaust required.

GENERAL HYGIENE MEASURES

Wash thoroughly after handling. Wash contaminated clothing before reuse.

EXPOSURE LIMITS - DENMARK

Source	Type	Value
OEL	TWA	175 mg/m ³

50 ppm

EXPOSURE LIMITS - GERMANY

Source	Type	Value
TRGS 900	OEL	175 mg/m3

Remarks: NL

EXPOSURE LIMITS - NORWAY

Source	Type	Value
	OEL	90 mg/m3
		25 ppm

EXPOSURE LIMITS - SWITZERLAND

Source	Type	Value
OEL	OEL	175 mg/m3
		50 ppm

PERSONAL PROTECTIVE EQUIPMENT

Respiratory Protection: Government approved respirator.

Hand Protection: Compatible chemical-resistant gloves.

Eye Protection: Chemical safety goggles.

9 - Physical and Chemical Properties

Appearance	Physical State: Clear liquid Color: Colorless	
Property	Value	At Temperature or Pressure
pH	N/A	
BP/BP Range	100 - 103 °C	
MP/MP Range	-92 °C	
Flash Point	4 °C	Method: closed cup
Flammability	N/A	
Autoignition Temp	205 °C	
Oxidizing Properties	N/A	
Explosive Properties	N/A	
Explosion Limits	Lower: 1.7 % Upper: 6.8 %	
Vapor Pressure	36 mbar	20 °C
SG/Density	0.81 g/cm3	
Partition Coefficient	Log Kow: 1.4	
Viscosity	500 Pas	20 °C
Vapor Density	N/A	
Saturated Vapor Conc.	N/A	
Evaporation Rate	N/A	
Bulk Density	N/A	
Decomposition Temp.	N/A	
Solvent Content	N/A	
Water Content	N/A	
Surface Tension	N/A	
Conductivity	N/A	
Miscellaneous Data	N/A	
Solubility	Solubility in Water: Soluble.	

10 - Stability and Reactivity

STABILITY

Stable: Stable.

Materials to Avoid: Oxidizing agents, Strong bases, Strong reducing agents.

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide.

HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

11 - Toxicological Information

RTECS NUMBER: YV3600000

ACUTE TOXICITY

LD50
Oral
Rat
5660 UL/KG

LD50
Intraperitoneal
Rat
400 MG/KG
Remarks: Behavioral:Muscle weakness. Behavioral:Ataxia.

LD50
Oral
Mouse
6400 mg/kg

LD50
Intraperitoneal
Mouse
200 MG/KG
Remarks: Behavioral:Somnolence (general depressed activity).
Behavioral:Muscle weakness. Behavioral:Ataxia.

LD50
Skin
Rabbit
5 ML/KG
Remarks: Skin and Appendages:Skin: After systemic exposure:
Dermatitis, other

LD50
Skin
Guinea pig
20000 mg/kg

IRRITATION DATA

Skin
Rabbit
500 mg
24H
Remarks: Moderate irritation effect

Eyes
Rabbit
100 mg
24H
Remarks: Severe irritation effect

Skin

Guinea pig
100 %
Remarks: Severe irritation effect

SIGNS AND SYMPTOMS OF EXPOSURE

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

ROUTE OF EXPOSURE

Skin Contact: Causes skin irritation.
Skin Absorption: May be harmful if absorbed through the skin.
Eye Contact: Causes severe eye irritation.
Inhalation: May be harmful if inhaled. Material may be irritating to mucous membranes and upper respiratory tract.
Ingestion: May be harmful if swallowed.

CHRONIC EXPOSURE - MUTAGEN

Rat
3 UMOL/L
Cell Type: liver
Unscheduled DNA synthesis

Hamster
10 MMOL/L
Cell Type: lung
Mutation in mammalian somatic cells.

12 - Ecological Information

No data available.

13 - Disposal Considerations

SUBSTANCE DISPOSAL

Contact a licensed professional waste disposal service to dispose of this material. Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Observe all federal, state, and local environmental regulations.

14 - Transport Information

RID/ADR

UN#: 2058
Class: 3
PG: II
Proper Shipping Name: Valeraldehyde

IMDG

UN#: 2058
Class: 3
PG: II
Proper Shipping Name: VALERALDEHYDES
Marine Pollutant: No
Severe Marine Pollutant: No

IATA

UN#: 2058
Class: 3
PG: II
Proper Shipping Name: Valeraldehyde

15 - Regulatory Information

CLASSIFICATION AND LABELING ACCORDING TO EU DIRECTIVES

INDICATION OF DANGER: F Xi

Highly Flammable. Irritant.

R-PHRASES: 11 38 41

Highly flammable. Irritating to skin. Risk of serious damage to eyes.

S-PHRASES: 16 26 33 39

Keep away from sources of ignition - no smoking. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Take precautionary measures against static discharges. Wear eye/face protection.

COUNTRY SPECIFIC INFORMATION

Germany

WGK: 1

SWITZERLAND

SWISS POISON CLASS: 4

NORWAY

Labelling for organic solvents where the package is 1liter or more.

YL-tall m3/l: 12600

YL-group: 5

Risk phrases: 20

Harmful by inhalation.

Safety phrases: 38 42 210

In case of insufficient ventilation, wear suitable respiratory equipment. During fumigation/spraying wear suitable respiratory equipment. Use compressed air- or fresh air line breathing apparatus in confined spaces.

16 - Other Information

WARRANTY

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2005 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.

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