

# Material Safety Data Sheet

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
 	Flammable material; avoid heat and sources of ignition. Irritating to skin, eyes, and the respiratory system. Store under nitrogen.	   

## Section I. Chemical Product and Company Identification

Chemical Name	<b>n-Valeraldehyde</b>		
Catalog Number	V0001	Supplier	TGI America 9211 N. Harborgate St. Portland OR 1-800-423-8616
Synonym	n-Pentanal		
Chemical Formula	CH <sub>3</sub> (CH <sub>2</sub> ) <sub>3</sub> CHO		
CAS Number	110-62-3	In case of Emergency Call	<b>Chemtrec®</b> <b>(800) 424-9300 (U.S.)</b> <b>(703) 527-3887 (International)</b>

## Section II. Composition and Information on Ingredients

Chemical Name	CAS Number	Percent (%)	TLV/PEL	Toxicology Data
n-Valeraldehyde	110-62-3	Min. 95.0(T)	Not available.	Rat LC <sub>50</sub> (inhalation) 14000mg/m <sup>3</sup> Rat LD <sub>50</sub> (oral) 5660ul/kg Rabbit LD <sub>50</sub> (dermal) 5ml/kg

## Section III. Hazards Identification

Acute Health Effects	Irritating to eyes and skin on contact. Inhalation causes irritation of the lungs and respiratory system. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.
Chronic Health Effects	<b>CARCINOGENIC EFFECTS</b> : Not available. <b>MUTAGENIC EFFECTS</b> : Not available. <b>TERATOGENIC EFFECTS</b> : Not available. <b>DEVELOPMENTAL TOXICITY</b> Not available. Repeated or prolonged exposure to this compound is not known to aggravate existing medical conditions.

## Section IV. First Aid Measures

Eye Contact	Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.
Skin Contact	In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.
Inhalation	If the victim is not breathing, perform mouth-to-mouth resuscitation. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, oxygen can be administered. Seek medical attention if respiration problems do not improve.
Ingestion	INDUCE VOMITING by sticking finger in throat. Lower the head so that the vomit will not reenter the mouth and throat. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive.

## Section V. Fire and Explosion Data

Flammability	Flammable.	Auto-Ignition	220°C (428°F)
Flash Points	12°C (53.6°F).	Flammable Limits	LOWER: ~2.1%
Combustion Products	These products are toxic carbon oxides (CO, CO <sub>2</sub> ).		
Fire Hazards	Not available.		
Explosion Hazards	Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.		
Fire Fighting Media and Instructions	Flammable liquid. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use alcohol foam, water spray or fog. Consult with local fire authorities before attempting large scale fire-fighting operations.		

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Emergency phone number (800) 424-9300

**Section VI. Accidental Release Measures**

Spill Cleanup Instructions Flammable liquid. Irritating material. Store under nitrogen. Keep away from heat. Mechanical exhaust required. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. DO NOT touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Consult federal, state, and/or local authorities for assistance on disposal.

**Section VII. Handling and Storage**

Handling and Storage Information FLAMMABLE. IRRITANT. STORE UNDER NITROGEN. Keep away from heat. Mechanical exhaust required. Avoid excessive heat and light. Do not breathe gas/fumes/ vapor/spray. Always store away from incompatible compounds such as oxidizing agents, reducing agents, alkalis (bases).

**Section VIII. Exposure Controls/Personal Protection**

Engineering Controls Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash station and safety shower is proximal to the work-station location.

Personal Protection Splash goggles. Lab coat. Vapor respirator. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product. Be sure to use a MSHA/NIOSH approved respirator or equivalent.



Exposure Limits Not available.

**Section IX. Physical and Chemical Properties**

Physical state @ 20°C	Liquid. (Colorless.)	Solubility	1.35% in water. Miscible with many organic solvents. Soluble in ethanol, ether, propylene, glycol, oils.
Specific Gravity	0.82 (water=1)	Partition Coefficient	Not available.
Molecular Weight	86.13	Vapor Pressure	3.5 kPa (@ 20°C)
Boiling Point	102 to 103°C (215.6 to 217.4°F)	Vapor Density	3.0 (Air = 1)
Melting Point	-92°C (-133.6°F)	Volatility	Not available.
Refractive Index	1.3944	Odor	Powerful, acrid, pungent odor.
Critical Temperature	Not available.	Taste	Not available.
Viscosity	Not available.		

**Section X. Stability and Reactivity Data**

Stability This material is stable if stored under proper conditions. (See Section VII for instructions)

Conditions of Instability Avoid excessive heat and light.

Incompatibilities Reactive with oxidizing agents, strong reducing agents, strong alkalis (bases).

**Section XI. Toxicological Information**

RTECS Number YV3600000

Routes of Exposure Eye Contact. Ingestion. Inhalation.

Toxicity Data  
Rat LC<sub>50</sub> (inhalation) 14000mg/m<sup>3</sup>/4H  
Rat LD<sub>50</sub> (oral) 5660µl/kg  
Rabbit LD<sub>50</sub> (dermal) 5ml/kg

Chronic Toxic Effects  
**CARCINOGENIC EFFECTS** : Not available.  
**MUTAGENIC EFFECTS** : Not available.  
**TERATOGENIC EFFECTS** : Not available.  
**DEVELOPMENTAL TOXICITY** Not available.  
Repeated or prolonged exposure to this compound is not known to aggravate existing medical conditions.

Acute Toxic Effects Irritating to eyes and skin on contact. Inhalation causes irritation of the lungs and respiratory system. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.

**Section XII. Ecological Information**

Ecotoxicity Not available.

Environmental Fate Pentanal is a natural product and is emitted into the atmosphere by plants and microorganisms and from animal wastes and forest fires. Pentanal may also be released to the environment during its production, use as a chemical intermediate, and during its transport, storage and disposal. Anthropogenic sources include emissions from gasoline, diesel, turbine engines, burning logs, and some building products such as carpet-covered pressed board and polyurethane-coated plywood. Pentanal has a high Henry's Law constant, high vapor pressure, and a very low soil adsorptivity and if released on soil, it would readily volatilize as well as leach into the ground. If release in water, pentanal will be lost to the atmosphere by volatilization. Its estimated volatilization half-life from a model river is 8.3 hr. It may also undergo direct photolysis in surface waters. Based on laboratory biodegradability tests and the behavior of similar chemicals, pentanal would be expected to readily biodegrade both in soil and water. In the atmosphere, pentanal will react with photochemically-produced hydroxyl radicals. It's half-life resulting from its reaction with hydroxyl radicals is 13.5 hr. Direct photolysis is also expected to be an important degradative process in the atmosphere. However, pentanal's rate of direct photolysis is unknown. The general population may be exposed to pentanal in both indoor and outdoor air via inhalation and by ingesting food in which pentanal naturally occurs. (HSDB)

**Section XIII. Disposal Considerations**

Waste Disposal Recycle to process, if possible. Consult your local regional authorities. You may be able to dissolve or mix material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber system. Observe all federal, state and local regulations when disposing of the substance.

**Section XIV. Transport Information**

DOT Classification CLASS 3: Flammable liquid.

PIN Number UN2058

Proper Shipping Name Valeraldehyde

Packing Group (PG) II

DOT Pictograms

**Section XV. Other Regulatory Information and Pictograms**

TSCA Chemical Inventory (EPA) This compound is **ON** the EPA Toxic Substances Control Act (TSCA) inventory list.

WHMIS Classification (Canada) CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F).

EINECS Number (EEC) 203-784-4

EEC Risk Statements  
R10- Flammable.  
R18- In use, may form flammable/explosive vapor-air mixture.  
R36/37/38- Irritating to eyes, respiratory system and skin.

Japanese Regulatory Data Not available.

**Section XVI. Other Information**

**Version 1.0**  
**Validated on 12/15/2003.**  
**Printed 2/23/2005.**

**Notice to Reader**

TCI laboratory chemicals are for research purposes only and are NOT intended for use as drugs, food additives, households, or pesticides. The information herein is believed to be correct, but does not claim to be all inclusive and should be used only as a guide. Neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All chemical reagents must be handled with the recognition that their chemical, physiological, toxicological, and hazardous properties have not been fully investigated or determined. All chemical reagents should be handled only by individuals who are familiar with their potential hazards and who have been fully trained in proper safety, laboratory, and chemical handling procedures. Although certain hazards are described herein, we can not guarantee that these are the only hazards which exist. Our MSDS sheets are based only on data available at the time of shipping and are subject to change without notice as new information is obtained. Avoid long storage periods since the product is subject to degradation with age and may become more dangerous or hazardous. It is the responsibility of the user to request updated MSDS sheets for products that are stored for extended periods. Disposal of unused product must be undertaken by qualified personnel who are knowledgeable in all applicable regulations and follow all pertinent safety precautions including the use of appropriate protective equipment (e.g. protective goggles, protective clothing, breathing equipment, facial mask, fume hood). For proper handling and disposal, always comply with federal, state, and local regulations.