

# Vanillin SDS/MSDS (Safety Data Sheet)

## 1. PRODUCT AND COMPANY IDENTIFICATION

Product identifier

- \* Product Name: Vanillin
- \* Catalog Number: S3071
- \* CAS Number: 121-33-5
- \* IUPAC Name: Benzaldehyde, 4-hydroxy-3-methoxy-

Relevant identified uses and uses advised against

- \* Identified uses: For research and development use only; laboratory chemicals; manufacture of substances.
- \* Uses advised against: Not for pharmaceutical, household, or other unapproved uses.

Details of the supplier

- \* Company: Selleck Chemicals
- \* TollFree: +1 877 796-6397
- \* Tel: +1 832 582-8158
- \* Fax: +1 832 582-8590

Emergency telephone number

- \* Emergency phone #: +1 832 582-8158

## 2. HAZARDS IDENTIFICATION

### 2.1 GHS classification in accordance with 29 CFR 1910 (OSHA HCS):

- Acute toxicity (oral): Category 4. H302
- Skin sensitization: Category 1. H317
- Serious eye irritation: Category 2. H319
- Eye irritation: Category 2. H320
- Acute aquatic toxicity: Category 3. H402
- Chronic aquatic toxicity: Category 2. H411
- Chronic aquatic toxicity: Category 3. H412

### 2.2 GHS Label elements, including precautionary statements

Hazard Pictogram(s)



Signal Word

Warning

Hazard statement(s)

- H302: Harmful if swallowed
- H317: May cause an allergic skin reaction
- H319: Causes serious eye irritation
- H320: Causes eye irritation
- H402: Harmful to aquatic life
- H411: Toxic to aquatic life with long lasting effects
- H412: Harmful to aquatic life with long lasting effects

|                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Precautionary statement(s)</b> | None.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Prevention</b>                 | <p>P261: Avoid breathing dust/fume/gas/mist/vapors/spray.</p> <p>P264: Wash hands thoroughly after handling.</p> <p>P264+P265: Wash hands thoroughly after handling. Do not touch eyes.</p> <p>P270: Do not eat, drink or smoke when using this product.</p> <p>P272: Contaminated work clothing should not be allowed out of the workplace.</p> <p>P273: Avoid release to the environment.</p> <p>P280: Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.</p>                                                                                                                                   |
| <b>Response</b>                   | <p>P301+P317: IF SWALLOWED: Get medical help.</p> <p>P302+P352: IF ON SKIN: wash with plenty of water.</p> <p>P305+P351: IF IN EYES: Rinse cautiously with water for several minutes.</p> <p>P321: Specific treatment (see information on this label and safety datasheet)).</p> <p>P330: Rinse mouth.</p> <p>P333+P317: If skin irritation or rash occurs: Get medical help.</p> <p>P337+P317: If eye irritation persists: Get medical help.</p> <p>P338: Remove contact lenses, if present and easy to do. Continue rinsing.</p> <p>P362+P364: Take off contaminated clothing and wash it before reuse.</p> <p>P391: Collect spillage.</p> |
| <b>Disposal</b>                   | P501: P501 Dispose of contents/ container to an approved waste disposal plant.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

### 2.3 Other hazards

None.

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1 Substances

Product name: Vanillin  
CAS Number: 121-33-5  
PubChem CID: 1183

### 3.2 Mixtures

Not applicable (pure substance).

## 4. FIRST-AID MEASURES

### 4.1 Description of first aid measures

Inhalation: Fresh air, rest.

Skin contact: Rinse and then wash skin with water and soap.

Eye contact: Rinse with plenty of water (remove contact lenses if easily possible).

Ingestion: Rinse mouth.

### 4.2 Most important symptoms and effects, both acute and delayed

See Section 11 (Toxicological Information).

#### **4.3 Indication of any immediate medical attention and special treatment needed**

Treat symptomatically. Contact a poison control center or physician for severe exposure.

### **5. FIRE-FIGHTING MEASURES**

#### **5.1 Extinguishing media**

Suitable: Water spray, dry chemical, carbon dioxide (CO<sub>2</sub>), alcohol-resistant foam.

Unsuitable: None known.

#### **5.2 Specific hazards arising from the substance or mixture**

Fires involving this material can be controlled with a dry chemical, carbon dioxide or Halon extinguisher. (NTP, 1992)

Use water spray, foam, powder, carbon dioxide.

Advice for firefighters: Wear self-contained breathing apparatus for firefighting if necessary.

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

#### **5.3 Advice for firefighters**

Wear self-contained breathing apparatus (SCBA) and full protective clothing.

Fight fire from upwind. Cool containers with water spray until fire is extinguished.

Flash point: 153 °C (307 °F) - closed cup

### **6. ACCIDENTAL RELEASE MEASURES**

#### **6.1 Personal precautions, protective equipment and emergency procedures**

Wear appropriate personal protective equipment (see Section 8).

Avoid breathing dust/vapor. Ensure adequate ventilation.

Evacuate personnel to safe areas. Keep people away from and upwind of spill.

#### **6.2 Environmental precautions**

Prevent product from entering drains, waterways, or soil.

Contain spill with inert absorbent material.

#### **6.3 Methods and materials for containment and cleaning up**

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations.

Accidental release measures. Personal precautions, protective equipment and emergency procedures: Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Avoid breathing dust. Environmental precautions: Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided. Methods and materials for containment and cleaning up: Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

SORPTION OCCURRED ON DISSOCIATED MG IONS, FORMING INSOL CHEMISORB PRODUCTS. SORPTION OF VANILLIN & VANILLIC ALC DIFFER DUE TO DIFFERENCE IN ELECTRON TRANSFERENCE.

SRP: Recycle any unused portion of the material for its approved use or return it to the manufacturer or supplier.

Ultimate disposal of the chemical must consider: the material's impact on air quality; potential migration in air, soil or water; effects on animal, aquatic and plant life; and conformance with environmental and public health regulations. If

it is possible or reasonable use an alternative chemical product with less inherent propensity for occupational harm/injury/toxicity or environmental contamination.

Product: Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Contaminated packaging: Dispose of as unused product.

Precautions for safe handling: Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed.

SRP: The scientific literature for the use of contact lenses by industrial workers is inconsistent. The benefits or detrimental effects of wearing contact lenses depend not only upon the substance, but also on factors including the form of the substance, characteristics and duration of the exposure, the uses of other eye protection equipment, and the hygiene of the lenses. However, there may be individual substances whose irritating or corrosive properties are such that the wearing of contact lenses would be harmful to the eye. In those specific cases, contact lenses should not be worn. In any event, the usual eye protection equipment should be worn even when contact lenses are in place.

Appropriate engineering controls: Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

## **7. HANDLING AND STORAGE**

### **7.1 Precautions for safe handling**

SMALL SPILLS AND LEAKAGE: Should a spill occur while you are handling this chemical, FIRST REMOVE ALL SOURCES OF IGNITION, then you should dampen the solid spill material with ethanol and transfer the dampened material to a suitable container. Use absorbent paper dampened with ethanol to pick up any remaining material. Seal the absorbent paper, and any of your clothes, which may be contaminated, in a vapor-tight plastic bag for eventual disposal. Solvent wash all contaminated surfaces with ethanol followed by washing with a soap and water solution. Do not reenter the contaminated area until the Safety Officer (or other responsible person) has verified that the area has been properly cleaned.

STORAGE PRECAUTIONS: You should protect this material from exposure to light, and store it in a refrigerator. (NTP, 1992)

Separated from strong oxidants, strong bases and halogens.

Conditions for safe storage, including any incompatibilities: Keep container tightly closed in a dry and well-ventilated place. Air, light, and moisture sensitive.

PRESERVE IN TIGHT, LIGHT-RESISTANT CONTAINERS.

### **7.2 Conditions for safe storage, including any incompatibilities**

Separated from strong oxidants, strong bases and halogens.

Conditions for safe storage, including any incompatibilities: Keep container tightly closed in a dry and well-ventilated place. Air, light, and moisture sensitive.

PRESERVE IN TIGHT, LIGHT-RESISTANT CONTAINERS.

Store away from incompatible materials (see Section 10).

[Note: Specific storage temperature not available in public databases. Refer to supplier Certificate of Analysis (COA) for exact storage conditions.]

## **8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

## 8.1 Exposure controls

### 8.1.1 Occupational exposure limits (OEL)

OSHA PEL: Not established.

ACGIH TLV: Not established.

NIOSH REL: Not established.

No occupational exposure limit values are established for this substance.

Use the lowest feasible exposure level (ALARA principle).

### 8.1.2 Appropriate engineering controls

Use in a well-ventilated area. Chemical fume hood recommended for powder handling.

## 8.2 Individual protection measures

### 8.2.1 Eye/face protection

Wear chemical safety goggles.

### 8.2.2 Skin protection

Wear protective gloves. Recommended material: Nitrile rubber.

Wear suitable protective clothing (lab coat).

### 8.2.3 Respiratory protection

Respiratory protection usually not required under normal use with adequate ventilation.

Use N95 respirator for large-scale powder handling.

### 8.2.4 Thermal hazards

Not applicable.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

- a) Appearance: Vanillin appears as white or very slightly yellow needles.
- b) Odor: Sweetish smell
- c) Odor threshold: No data available
- d) pH: Solutions are acid to litmus
- e) Melting point/freezing point: 178 to 181 °F (NTP, 1992)
- f) Initial boiling point and boiling range: 545 °F at 760 mmHg (NTP, 1992)
- g) Flash point: 153 °C (307 °F) - closed cup
- h) Evaporation rate: No data available
- i) Flammability (solid, gas): No data available
- j) Upper/lower flammability or explosive limits: No data available
- k) Vapor pressure: 1 mmHg at 225 °F (NTP, 1992)
- l) Vapor density: No data available
- m) Relative density: 1.056 at 68 °F (NTP, 1992) - Denser than water; will sink
- n) Water solubility: Slightly soluble (NTP, 1992)
- o) Partition coefficient: n-octanol/water: Log P: No data available
- p) Auto-ignition temperature: >400 °C
- q) Decomposition temperature: No data available
- r) Viscosity: No data available
- s) Explosive properties: No data available

t) Oxidizing properties: No data available

## 9.2 Other information

# 10. STABILITY AND REACTIVITY

## 10.1 Reactivity

No specific reactivity hazards identified under normal handling conditions.

## 10.2 Chemical stability

Stable under recommended storage conditions.

## 10.3 Possibility of hazardous reactions

No hazardous reactions under normal conditions.

## 10.4 Conditions to avoid

Avoid heat, sparks, open flames, direct sunlight, and moisture.

## 10.5 Incompatible materials

A VIOLENT REACTION OCCURRED WHEN SMALL AMT OF VANILLIN WAS ADDED TO THALLIUM TRINITRATE TRIHYDRATE (UP TO 50%) IN 90% FORMIC ACID.

Can react violently with Br<sub>2</sub>; HClO<sub>4</sub>; potassium-tert-butoxide; tert-chlorobenzene + NaOH; formic acid + thallium nitrate.

## 10.6 Hazardous decomposition products

No data available.

See also Section 5 (Fire-fighting measures) for combustion products.

# 11. TOXICOLOGICAL INFORMATION

## 11.1 Information on toxicological effects

### Acute toxicity:

No acute toxicity data available.

### Skin corrosion/irritation:

No data available.

### Serious eye damage/eye irritation:

Causes serious eye irritation (H319).

### Respiratory or skin sensitization:

May cause an allergic skin reaction (H317).

### Germ cell mutagenicity:

No data available.

### Carcinogenicity:

No data available.

### Reproductive toxicity:

No data available.

### Specific target organ toxicity (single exposure):

No data available.

**Specific target organ toxicity (repeated exposure):**

No data available.

**Aspiration hazard:**

No data available.

## 11.2 Additional information

**Carcinogen classification:**

No indication of carcinogenicity to humans (not listed by IARC).

**Signs and symptoms of exposure:**

Cough.

Redness.

Data source: Hazardous Substances Data Bank (HSDB) via PubChem.

## 12. ECOLOGICAL INFORMATION

### 12.1 Toxicity

EC50; Species: Pimephales promelas (Fathead Minnow) age 29 days, length 20 mm, weight 0.131 g; Conditions: freshwater, flow through, 24.0 (23.0-25.1) °C, pH 7.0, hardness 51.0 mg/L CaCO<sub>3</sub>, alkalinity 40.5 mg/L CaCO<sub>3</sub>, dissolved oxygen 85.6% (66.9-95.6%); Concentration: 109000 ug/L for 24 hr; Effect: behavior, distance moved, change in direct movement, stopped schooling

EC50; Species: Pimephales promelas (Fathead Minnow) age 29 days, length 20 mm, weight 0.131 g; Conditions: freshwater, flow through, 24.0 (23.0-25.1) °C, pH 7.0, hardness 51.0 mg/L CaCO<sub>3</sub>, alkalinity 40.5 mg/L CaCO<sub>3</sub>, dissolved oxygen 85.6% (66.9-95.6%); Concentration: 65000 ug/L for 48 hr; Effect: behavior, distance moved, change in direct movement, stopped schooling

LC50; Species: Pimephales promelas (Fathead Minnow) age 29 days, length 20 mm, weight 0.131 g; Conditions: freshwater, flow through, 24.0 (23.0-25.1) °C, pH 7.0, hardness 51.0 mg/L CaCO<sub>3</sub>, alkalinity 40.5 mg/L CaCO<sub>3</sub>, dissolved oxygen 85.6% (66.9-95.6%); Concentration: 112000 ug/L for 24 hr

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/OTHER TOXICITY INFORMATION/ The white-rot shiitake mushroom, Lentinula edodes, was used to degrade an environmentally hazardous compound, 2,4-dichlorophenol (DCP), using vanillin as

### 12.2 Persistence and degradability

No data available.

### 12.3 Bioaccumulative potential

No data available.

### 12.4 Mobility in soil

No data available.

### 12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available.

### 12.6 Other adverse effects

This substance is classified as hazardous to the aquatic environment.

## **13. DISPOSAL CONSIDERATIONS**

### **13.1 Waste treatment methods**

Waste Treatment Methods: Waste material must be disposed of in accordance with national and local regulations. Leave chemicals in original containers and do not mix with other waste. Handle uncleaned containers in the same manner as the product itself.

## **14. TRANSPORT INFORMATION**

### **14.1 UN number**

Not regulated as dangerous goods (research quantities typically exempt).

### **14.2 UN proper shipping name**

Not subject to transport regulations (small quantities for research use).

### **14.3 Transport hazard class(es)**

Not classified as dangerous goods for transport (research quantities).

### **14.4 Packing group**

Not applicable (not regulated as dangerous goods in typical research quantities).

### **14.5 Environmental hazards**

Marine pollutant: Yes (classified as environmentally hazardous per GHS).

### **14.6 Special precautions for user**

Transport in original packaging. Ensure containers are tightly sealed.

For bulk or commercial quantities, consult applicable transport regulations (DOT, IATA, IMDG).

### **14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

Not applicable.

## **15. REGULATORY INFORMATION**

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

US EPA / TSCA: Subject to EPA TSCA regulations

EU ECHA / REACH: Registered (REACH Active)

#### **SARA 302 Components:**

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

#### **SARA 313 Components:**

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

#### **SARA 311/312 Hazards:**

Acute (short-term) health hazard

Environmental hazard

#### **Massachusetts Right To Know Components:**

This material contains components subject to the Massachusetts Right to Know Act. See Section 2 for hazard classification.

**Pennsylvania Right To Know Components:**

This material contains components subject to the Pennsylvania Right to Know Act. See Section 2 for hazard classification.

**New Jersey Right To Know Components:**

This material contains components subject to the New Jersey Right to Know Act. See Section 2 for hazard classification.

**California Prop. 65 Components:**

This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

**Other regulatory listings:**

- The Australian Inventory of Industrial Chemicals: Chemical: Benzaldehyde, 4-hydroxy-3-methoxy-
  - California Safe Cosmetics Program (CSCP) Reportable Ingredient: Hazard Traits - Fragrance Allergen Authoritative List - Annex III of the EU Cosmetics Regulation No. 1223/2009 - Fragrance Allergens Report - if present in a rinse-off cosmetic product at a concentration of 100 mg/kg or more
  - EFSA Legal Basis: Regulation (EC) No 178/2002 (amended)
  - TSCA Requirements: Section 8(a) of TSCA requires manufacturers of this chemical substance to report preliminary assessment information concerned with production, exposure, and use to EPA as cited in the preamble in 51 FR 41329. Effective date: 9/30/91; Reporting date: 11/27/91.
- Pursuant to section 8(d) of TSCA, EPA pr
- FIFRA Requirements: Unless specifically excluded, residues resulting from the use of the following substance as either an inert or an active ingredient in a pesticide chemical formulation, including antimicrobial pesticide chemicals, is exempted from the requirement of a tolerance under FFDCA section 408, if such use i

**15.2 Chemical safety assessment**

A chemical safety assessment has not been carried out for this substance.

For research-use-only compounds, no CSA is required under REACH Annex I.

**16. OTHER INFORMATION**

Revision Date: 2026/09/09

Further Information: The information provided is believed to be correct but is not exhaustive and should be used only as a guideline based on current knowledge. It does not represent a guarantee of the properties of the product.

Selleck Chemicals Corporation and its Affiliates shall not be held liable for any damage resulting from handling or contact with the product.