



SAFETY DATA SHEETS

1. Identification

1.1 GHS Product identifier

Product name Engenol

1.2 Other means of identification

Product number -
Other names 4-allyl-2-methoxyphenol

1.3 Recommended use of the chemical and restrictions on use

Identified uses For industry use only. Food additives -> Flavoring Agents
Uses advised against no data available

1.4 Supplier's details

Company Peak Supply Co
Address 5664 Cahuenga blvd. North Hollywood CA 91601
Telephone (818) 308-6227

1.5 Emergency phone number

Emergency phone number
Service hours Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

2. Hazard identification

2.1 Classification of the substance or mixture

Skin sensitization, Category 1B
Eye irritation, Category 2

2.2 GHS label elements, including precautionary statements

Pictogram(s)



Signal word Warning



Hazard statement(s)	H317 May cause an allergic skin reaction H319 Causes serious eye irritation
Precautionary statement(s)	
Prevention	P261 Avoid breathing dust/fume/gas/mist/vapours/spray. P272 Contaminated work clothing should not be allowed out of the workplace. P280 Wear protective gloves/protective clothing/eye protection/face protection. P264 Wash ... thoroughly after handling.
Response	P302+P352 IF ON SKIN: Wash with plenty of water/... P333+P313 If skin irritation or rash occurs: Get medical advice/attention. P321 Specific treatment (see ... on this label). P362+P364 Take off contaminated clothing and wash it before reuse. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337+P313 If eye irritation persists: Get medical advice/attention.
Storage	none
Disposal	P501 Dispose of contents/container to ...

2.3 Other hazards which do not result in classification

none

3. Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
Engenol	Engenol	97-53-0	none	100%

4. First-aid measures

4.1 Description of necessary first-aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Consult a physician.



In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms/effects, acute and delayed

SYMPTOMS: This compound is a primary irritant and sensitizer and can cause contact dermatitis. Irritation of the skin, eyes and respiratory tract occurs. Ingestion of this compound may cause gastroenteritis, vomiting and gastric secretion of mucin. It may also cause abdominal burning, nausea, diarrhea and convulsions. Ingestion of large amounts can cause liver damage and gastrointestinal damage. Inhalation of this compound can lead to bronchial irritation, dizziness, and rapid and shallow breathing. Skin contact may cause an inflammatory reaction on the skin. Prolonged or repeated skin contact may cause allergic dermatitis. Eye contact may cause burns. Skin sensitization may also occur. Symptoms of exposure to this type of compound include intense irritation of all tissues, circulatory collapse, dysuria, hematuria, unconsciousness, tachycardia, pulmonary edema, bronchial pneumonia, abortion and irreversible renal damage. **ACUTE/CHRONIC HAZARDS:** This compound may be harmful by ingestion or inhalation. It is a primary irritant and sensitizer. When heated to decomposition it emits acrid smoke, irritating fumes and toxic fumes of carbon monoxide and carbon dioxide.

4.3 Indication of immediate medical attention and special treatment needed, if necessary

Treatment is primarily supportive as there is no antidote. If mucosal burns are present, consider endoscopy to look for other ulcerations.

5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media

Fires involving this material can be controlled with a dry chemical, carbon dioxide or Halon extinguisher. A water spray may also be used.

5.2 Specific hazards arising from the chemical

This chemical is combustible.

5.3 Special protective actions for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures



Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

6.2 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.

6.3 Methods and materials for containment and cleaning up

Pick up and arrange disposal. Sweep up and shovel. Keep in suitable, closed containers for disposal.

7. Handling and storage

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Avoid exposure - obtain special instructions before use. Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Store in cool place. Keep container tightly closed in a dry and well-ventilated place.

8. Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

no data available

Biological limit values

no data available

8.2 Appropriate engineering controls

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

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Wear impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. Handle with gloves. 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. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Respiratory protection

Wear dust mask when handling large quantities.

Thermal hazards

no data available

9.Physical and chemical properties

Physical state	colourless to faintly yellow liquid with a strong odour of cloves
Colour	Colorless or pale yellow liquid
Odour	Odor of cloves
Melting point/ freezing point	230°C(lit.)
Boiling point or initial boiling point and boiling range	172°C(lit.)
Flammability	no data available
Lower and upper explosion limit / flammability limit	no data available
Flash point	127°C(lit.)
Auto-ignition temperature	no data available
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	7.817 centipoise at 20°C
Solubility	In water:slightly soluble
Partition coefficient n-octanol/water (log value)	log Kow = 2.49
Vapour pressure	0.01 mm Hg at 20°C ; 0.03 mm Hg at 25°C
Density and/or relative density	1.066
Relative vapour density	greater than 1.0 (Relative to Air)
Particle characteristics	no data available

10.Stability and reactivity

10.1Reactivity

no data available

10.2Chemical stability

Darkens and thickens on exposure to air.

10.3Possibility of hazardous reactions

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EUGENOL is incompatible with strong oxidizers. This includes ferric chloride and potassium permanganate. It reacts with strong alkalis. It is incompatible with iron and zinc.

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

/Incompatible with/ ferric chloride, potassium permanganate.

10.6 Hazardous decomposition products

When heated to decomposition it emits acrid smoke and irritating fumes.

11. Toxicological information

Acute toxicity

- Oral: LD50 Guinea pig oral 2130 mg/kg
- Inhalation: no data available
- Dermal: no data available

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

Classification of carcinogenicity: 1) evidence in humans: No adequate data. 2) evidence in animals: Limited evidence. Overall summary evaluation of carcinogenic risk to humans is Group 3: The agent is not classifiable as to its carcinogenicity to humans. /From table/

Reproductive toxicity

no data available

STOT-single exposure

no data available

STOT-repeated exposure



no data available

Aspiration hazard

no data available

12. Ecological information

12.1 Toxicity

- Toxicity to fish: LC50 *Oncorhynchus mykiss* (Rainbow trout, juvenile approximately 2-3 months old) 61.5 mg/L/24 hr; 60.8 mg/L/48, 72, 96 hr; static, 15 +/-1°C, mean hardness 95 mg/L CaCO₃, average fish loading density was 0.4 (0.3-0.5) g/L, within a bioassay test volume of 20 L.
- Toxicity to daphnia and other aquatic invertebrates: no data available
- Toxicity to algae: no data available
- Toxicity to microorganisms: no data available

12.2 Persistence and degradability

AEROBIC: At a concentration of 100 mg/L, isoeugenol (which is structurally similar to eugenol) was found to be readily biodegradable using a Manometric Respirometry Test (OECD Guideline 301F) in which isoeugenol reached 79% biodegradation after 28 days. The biodegradation started on day 2 and reached 79% at the end of the 10-day window period(1).

12.3 Bioaccumulative potential

An estimated BCF of 20 was calculated in fish for eugenol(SRC), using a log Kow of 2.49(1) and a regression-derived equation(2). According to a classification scheme(3), this BCF suggests the potential for bioconcentration in aquatic organisms is low(SRC).

12.4 Mobility in soil

The Koc of eugenol is estimated as 340(SRC), using a log Kow of 2.49(1) and a regression-derived equation(2). According to a classification scheme(3), these estimated Koc values suggest that eugenol is expected to have moderate to low mobility in soil.

12.5 Other adverse effects

no data available

13. Disposal considerations

13.1 Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

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Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

14. Transport information

14.1 UN Number

ADR/RID: UN3278

IMDG: UN3278

IATA: UN3278

14.2 UN Proper Shipping Name

ADR/RID: ORGANOPHOSPHORUS COMPOUND, LIQUID, TOXIC, N.O.S.

IMDG: ORGANOPHOSPHORUS COMPOUND, LIQUID, TOXIC, N.O.S.

IATA: ORGANOPHOSPHORUS COMPOUND, LIQUID, TOXIC, N.O.S.

14.3 Transport hazard class(es)

ADR/RID: 6.1

IMDG: 6.1

IATA: 6.1

14.4 Packing group, if applicable

ADR/RID: II

IMDG: II

IATA: II

14.5 Environmental hazards

ADR/RID: no

IMDG: no

IATA: no

14.6 Special precautions for user

no data available

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

no data available

15. Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
Engenol	Engenol	97-53-0	none
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Listed.
China Catalog of Hazardous chemicals 2015			Not Listed.
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.
Vietnam National Chemical Inventory			Not Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Listed.

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