

Safety Data Sheet

In accordance with REACH Regulation EC No.1907/2006

Section 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name:	Clove Bud Essential Oil
CAS number:	84961-50-2
EINECS number:	904-912-8
Other names:	Eugenia Caryophyllus Extract, Eugenia Caryophyllata Extract, Syzygium Aromaticum Bud Oil, Reaction mass of 4-allyl-2-methoxyphenyl acetate and caryophyllene and eugenol, Complex Substance of 4,11,11-trimethyl-8-methylenebicyclo[7.2.0]undec-4-ene and 4-allyl-2-methoxyphenol and 4-allyl-2-methoxyphenyl acetate
INCI name:	Eugenia Caryophyllus Bud Oil

1.2. Relevant identified uses of the substance or mixture and uses advised against

Industrial use:	Washing, cleaning and disinfecting products; metal surface treatment products; fragranced end-products.
Professional use:	Washing, cleaning and disinfecting products; polishes and wax blends; fragranced end-products.
Consumer use:	Washing and cleaning products; polishes and wax blends; cosmetics; biocides; air care products; tobacco products.

1.3. Details of the supplier of the safety data sheet

Company name:	Bath and Body Base Ltd 2A Laurel Way Bishop Auckland Co. Durham DL14 7NF
Tel:	07493 064263
Email:	technical@bathandbodybase.com

1.4. Emergency telephone number

Emergency tel:	07493 064263
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Section 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 [CLP]:	Acute Tox. 4 – H302 Asp. Tox. 1 – H304 Acute Tox. 4 – H312 Skin Irrit. 2 – H315 Skin Sens. 1 – H317 Eye Irrit. 2 – H319
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2.2. Label elements

Label elements labelling according to Regulation (EC) No 1272/2008 [CLP]

Hazard statements:

H302: Harmful if swallowed.
 H304: May be fatal if swallowed and enters airways.
 H312: Harmful in contact with skin.
 H315: Causes skin irritation.
 H317: May cause an allergic skin reaction.
 H319: Causes serious eye irritation.

Signal words:

WARNING

Hazard pictograms:


GHS07

GHS08

Precautionary statements (prevention):

P261: Avoid breathing dust/fume/gas/mist/vapours/spray.
 P264: Wash hands thoroughly after handling.
 P270: Do not eat, drink or smoke when using this product.
 P272: Contaminated work clothing should not be allowed out of the workplace.
 P273: Avoid release to the environment.
 P280: Wear protective gloves/clothing/eye-protection/face protection.

Precautionary statements (response):

P301+P316: IF SWALLOWED: Get emergency medical help immediately.
 P330: Rinse mouth.
 P331: DO NOT induce vomiting.
 P302+P352, IF ON SKIN: wash with plenty of water.
 P317: Get emergency medical help.
 P362+P364: Take off contaminated clothing and wash it before reuse.
 P333+P317: IF SKIN irritation or rash occurs: Get medical help.
 P272: Contaminated work clothing should not be allowed out of the workplace.
 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+P317: IF EYE irritation persists: Get medical help.
 P391: Collect spillage.

Precautionary statements (storage):

P405: Store locked up.

Precautionary statements (disposal):

P501: Dispose of contents/container in accordance with local/regional/national/international regulations. Manufacturer/supplier or the competent authority to specify whether disposal requirements apply to contents, container or both.

2.3. Other hazards

Other hazards:

All essential oils are highly concentrated so have strong aromas and colour that can stain.

Clove bud oil is not identified as having endocrine disrupting properties according to Regulation (EU) 2017/2100.

Clove bud oil does not meet the criteria for vPvB and PBT according to Regulation (EC) No 1907/2006, Annex XIII.

Section 3: Composition/information on ingredients
3.1. Chemical identity of the substance

Chemical identity:	Complex Substance of 4,11,11-trimethyl-8-methylenebicyclo [7.2.0] undec-4-ene and 4-allyl-2-methoxyphenol and 4-allyl-2-methoxyphenyl acetate.
Common names(s), synonym(s):	Clove Bud Oil, Clove Bud Essential Oil, Eugenia Caryophyllus Bud Oil, Eugenia Caryophyllus Extract.

3.2. Substances

Mixture/Natural Complex Substance (NCS):	This is a Natural Complex Substance (NCS). The substance has a natural variability in its composition. It is obtained by steam distillation of the buds of Eugenia Caryophyllus (syn. Syzygium aromaticum (L.)).
Chemical Identity of ingredients:	<p>Classification according to COMMISSION REGULATION (EU) 2017/542 of 22 March 2017 amending Regulation (EC) No 1272/2008</p> <p>Major components of this natural complex substance are:</p> <p>75 to 85% Eugenol – CAS 97-53-0, EC 202-589-1: Asp. Tox. 1, H304; Skin Sens. 1B, H317; Eye Irrit. 2, H319</p> <p>2 to 10% β-Caryophyllene – CAS 87-44-5, EC 201-746-1: Asp. Tox. 1, H304; Skin Sens. 1B, H317</p> <p>4 to 12 % Eugenyl acetate – CAS 93-28-7, EC 202-235-6: Acute Tox. 4, H302; Skin Sens. 1B, H317</p> <p>0 to 5% Humulene – CAS 6753-98-6, EC 229-816-7: Skin Irrit. 2, H315; Eye Irrit. 2, H319; STOT SE 3, H335 (not provided)</p> <p>< 0.4% Methyl Eugenol – CAS 93-15-2, EC 202-223-0: Acute Tox. 4, H302; Muta. 2, H341; Carc. 2, H351; Aquatic Acute 2, H401</p>

Section 4: First aid measures
4.1. Description of first aid measures

General advice:	Depending on the level/type of exposure, small levels can be treated by first aider. Larger contact, or if symptoms persist, seek medical help immediately.
Skin contact:	Wash with large quantities of water. If irritation persists, obtain medical advice.
Eye contact:	Rinse with plenty of water for a least ten minutes. If irritation persists, seek medical advice.
Swallowed:	Seek medical attention immediately.
Inhalation:	Remove the patient to fresh air and keep at rest. Obtain medical attention immediately.
Self-protection of First Aider:	Use personal protective equipment as described in Section 8 if substance is present.

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

Most important symptoms and effects:	No specific data available.
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4.3. Indication of any immediate medical attention and special treatment needed

Immediate/special treatment: No specific data available.

Section 5: Fire-fighting measures**5.1. Extinguishing media**

Suitable extinguishing media: Water spray, carbon dioxide, dry chemical powder or appropriate/alcohol-free foam.

Unsuitable extinguishing media: Full water jet.

5.2. Special hazards arising from the substance or mixture

Hazardous combustion products: May produce fumes of carbon monoxide and carbon dioxide, smoke and soot.

5.3. Advice for fire-fighters

Advice for fire-fighters: Avoid inhalation of smoke and fumes. In case of insufficient ventilation, wear suitable respiratory equipment. Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus.

5.4. Emergency action code

Emergency action code: 3[Y] (Foam + BA & Fire Kit)

Section 6: Accidental release measures**6.1. Personal precautions, protective equipment and emergency procedures**

For non-emergency personnel: Adequate protective gloves should be worn when handling spillages. Avoid skin contamination and inhalation of vapour. Shut off all sources of ignition. Individual washing routines should be followed after any potential contact. Ensure adequate ventilation in working areas following accidental releases.

For emergency responders: As per non-emergency personnel. Wear an appropriate NIOSH/MSHA approved respirator if mist, vapour or aerosol is generated.

6.2. Environmental precautions

Environmental precautions: Do not allow material to be released to the environment/surface - or ground water/drains/sewers.

6.3. Methods and material for containment and cleaning up

Clean-up procedures: Clean up spillage promptly. Remove ignition sources. Provide adequate ventilation. For small spills, wash area with detergent and water. For large spills, contain with earth, sand or similar inert absorbent material and both liquids and solids transferred to salvage containers and arrange disposal by disposal company. Wash spilled area thoroughly with water and detergent.

6.4. Reference to other sections

Reference to other sections: Take hazard and precautionary phrases (Section 2) and Sections 7, 8 and 13 into account.

Section 7: Handling and storage

7.1. Precautions for safe handling

Protective measures: Avoid formation of mist and aerosols. Provide appropriate exhaust ventilation at places where mist/aerosols/excessive vapours are formed. Normal measures for preventive fire protection. Safety glasses and chemical-resistant gloves should be worn.

Advice on general occupational hygiene: Do not eat, drink and smoke in work areas. Wash hands after use. Remove contaminated clothing and protective equipment before entering eating areas.

7.2. Conditions for safe storage, including any incompatibilities

Storage: Keep container tightly closed in a cool, dry and well-ventilated place.

Packaging: Refer to Section 16 for safe packaging information.

Incompatibilities: Refer to Section 10.

7.3. Specific end use(s)

Recommendations: None specified (as per REACH dossier).

Section 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits: Contains no substances with occupational exposure limit values.

Additional exposure limits under the conditions of use: Not available.

DNEL/DMEL and PNEC-Values: Not available.

8.2. Exposure controls



Engineering controls:

It is recommended that facilities storing or utilising this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low. Handle and store in accordance with good industrial hygiene and safety practices. Wear appropriate PPE according to Directive 89/686/EEC.

PPE – General:	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, using the bathroom and/or smoking, before breaks and at the end of workday. When using do not eat, drink or smoke. Routinely wash work clothing and protective equipment to remove contaminants.
PPE – Eye/face:	Where information is available - eye wash bottle with pure water. Tightly fitted safety goggles according to EN166. Wear face shield for abnormal processing problems.
PPE – Skin:	<p>Hand:</p> <p>Chemical-resistant, impervious gloves complying with an approved standard should be worn if a risk assessment indicates skin contact is possible. The quality of the protective gloves resistant to chemicals and the breakthrough time must be chosen as a function of the specific working place concentration and quantity of hazardous substances. The suitability for a specific workplace should be discussed with the producers of the protective gloves.</p> <p>Other:</p> <p>Wear impervious, protective clothing according to that recommended by the risk assessment for the product's use. Choose body protection according to the amount and concentration of the dangerous substance at the workplace.</p>
PPE – Respiratory:	Respiratory protection may be required if excessive airborne contamination occurs.
Environmental exposure control:	Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities. Refer to additional information provided in Sections 6 and 7 regarding safe handling and storage to prevent exposure to individuals and/or to the environment. Refer to official regulations (local, government).

Section 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	Clear mobile liquid
Colour:	Yellow liquid
Odour:	Clove. Spicy character
Relative density:	@ 25°C: 1.030 to 1.063
Refractive index:	@ 25°C: 1.528 to 1.537
Optical rotation:	@ 23.3°C: -1.7° to +1.7°
Solubility:	@ 25°C: eugenol - moderate-low water solubility (2,463mg/L)
Boiling point:	@ 101 325 Pa: 251°C
Vapour pressure:	@ 25°C: 12200 mPa
Freezing point:	No data available (REACH dossier).
Flash point:	117°C (Pensky Martens Closed Cup method)
Flammability:	The study does not need to be conducted because the substance is known to be stable in contact with air at room temperature for prolonged periods of time (days) and it does not contain metals or metalloids hence the classification procedure does not need to be applied.
Explosiveness:	The study does not need to be conducted because there are no chemical groups present in the molecule which are associated with explosive properties.
Auto-ignition temperature:	No data available (REACH dossier).

Kinematic viscosity:	No data available (REACH dossier).
Partition coefficient n-octanol/water (log value):	No data available for clove oil (REACH dossier); Eugenol logKow = 1.83 @ 30°C; Caryophyllene logKow = 6.23 @ 25°C; Eugenyl acetate logKow = 2.8 @ 25°C
Relative vapour density:	No data available (REACH dossier).

9.2. Other information

Information with regard to physical hazard classes:	Categories not relevant for the safe use of this substance.
Other safety characteristics:	Categories not relevant for the safe use of this substance.

Section 10: Stability and reactivity

10.1. Reactivity

Reactivity:	No data available.
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10.2. Chemical stability

Chemical stability:	No data available.
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10.3. Possibility of hazardous reactions

Hazardous reactions:	No data available.
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10.4. Conditions to avoid

Conditions to avoid:	Excessive heat, open flames or other sources of ignition.
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10.5. Incompatible materials

Materials to avoid:	Not known. Avoid contact with strong acids, alkali or oxidizing agents.
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10.6. Hazardous decomposition product

Haz. decomp. products:	May produce carbon monoxide and carbon dioxide upon decomposition.
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Section 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity, oral:	Classified Acute Tox. 4, H302 - rat LD50 = 1370mg/kg (eugenyl acetate LD50 = 1670mg/kg bw)
Acute toxicity, inhalation:	Not classified but may cause breathing difficulties, particularly young children.
Acute toxicity, dermal:	Classified Acute Tox. 2, H312 (REACH); rabbit LD50 = 1200mg/kg
Eye irritation:	Classified Eye Irrit. 2, H319
Skin irritation:	Classified Skin Irrit. 2, H315
Skin sensitivity:	Classified Skin Sens. 2, H317

Mutagenicity/carcinogenicity:	Not classified as mutagenic (Ames test).
Fertility/reproduction:	Not classified: NOAEL maternal toxicity \geq 600mg/kg bw/day; NOAEL developmental toxicity 250mg/kg bw/day (NB results may not be directly related).
STOT-single exposure:	Conclusive but not sufficient for classification (ECHA C&L).
STOT-repeated exposure:	Conclusive but not sufficient for classification (ECHA C&L).
Aspiration hazard:	Classified Asp. Tox. 1, H304 – may cause lung damage if liquid enters airways (due to low viscosity of hydrocarbon content).
Repeat dose toxicity, oral:	NOEL rat: male, 600mg/kg bw; female, 1250mg/kg bw

11.2. Information on other hazard classes which relates to endocrine disrupting properties

Other hazards:	No information on other hazard classes specified.
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Section 12: Ecological information

12.1. Toxicity

Fish:	Danio rerio: Eugenol - 96hr LC50 = 13mg/L; Rainbow Trout – Clove bud oil - 96hr LC50 = 7.5mg/L
Algae:	Scenedesmus subspicatus: Clove oil - EC50 = 41mg/L; Pseudokirchneriella subcapitata: Eugenol - 72hr EC50 = 24mg/L; Caryophyllene - 72hr ErC10 and ErC50 = $>$ 0.033mg/L
Aquatic invertebrates:	Daphnia magna: Clove oil - EC50/LC50 1.9mg/L; Eugenol - 48hr EC50 = 1.13mg/L; Caryophyllene - 48hr EC50 = $>$ 0.17mg/L
Microorganisms:	No data, substance considered readily biodegradable.
Terrestrial arthropods:	Dermatophagoides (mite) LD50 of 0.48kg/ha
Plants:	Johnsongrass and burning nettle - 10kg/ha = 50% foliar damage

12.2. Persistence and degradability

Persistence and degradability:	Readily biodegradable.
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12.3. Bioaccumulative potential

Bioaccumulative potential:	Not generally considered to be bioaccumulative (log Kow Eugenol = \leq 3).
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12.4. Mobility in soil

Mobility:	No data available (REACH) but likely to have a low potential for adsorption due to properties of main components (Eugenol and Eugenyl acetate); Eugenol Koc @ 20°C - 159
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12.5. Results of PBT and vPvB assessment

PBT identification:	Considered not to be PBT or vPvB.
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12.6. Endocrine disrupting properties**Endocrine disrupting properties:**

Clove bud oil is not on the ED-list (<https://edlists.org/the-ed-lists>) of endocrine disruptors meaning that it is not a substance identified as an endocrine disruptor at EU level (List I), a substance under evaluation for endocrine disruption under an EU legislation (List II) nor a substance considered, by the evaluating National Authority, to have endocrine disrupting properties (List III).

12.7. Other adverse effects**Other adverse effects:**

No data available (REACH).

Section 13: Disposal considerations**13.1. Waste treatment methods****Product/packaging disposal:**

If empty container retains product residues, all label precautions must be observed. Empty remaining contents and dispose of as unused product. Do not re-use empty containers. Do not contaminate ponds, waterways or ditches with chemical or used container.

Waste treatment – relevant information:

Send to a licensed waste management company. Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

Sewage disposal – relevant information:

Waste should not be disposed of by release to sewers.

13.2. Special precautions for landfill and incineration**Special precautions for landfill and incineration:**

Waste is suitable for incineration.

Section 14: Transport information**UN number:**

Not regulated.

UN proper shipping name:

Not regulated.

Transport hazard class(es):

Not regulated.

Packaging group:

Not regulated.

Transport labels:

Not regulated.

Environmental hazards:

Not regulated.

Special precautions for user:

Not regulated.

Maritime transport in bulk according to IMO instruments:

Not regulated.

Section 15: Regulatory information**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture****Specific regulations:**

The Chemicals (Hazard Information and Packaging for Supply) Regulations 2009 (SI 2009 No 716).

15.2. Chemical Safety Assessment

Chemical safety assessment: No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

Section 16: Other information
16.1. Other information
Packaging:

Type	Suitability
Glass	Yes
Steel	Yes
Aluminium	Yes
F/HDPE	Yes
Stainless steel drum	Yes

Shelf life:

60 months when stored within advised conditions, re-test every 12 months thereafter for a possible further 24 months.

Other information:

* Indicates text in the SDS which has changed since the last revision.

Legal disclaimer:

This information is provided for documentation purposes only.

The complete range of conditions or methods of use are beyond our control therefore we do not assume any responsibility and expressly disclaim any liability for any use of this product.

Information contained herein is believed to be true and accurate however, all statements or suggestions are made without warranty, expressed or implied, regarding accuracy of the information, the hazards connected with the use of the material or the results to be obtained from the use thereof.

Compliance with all appropriate local regulations remains the responsibility of the user.

This safety sheet cannot cover all possible situations which the user may experience during processing.

Each aspect of your operation should be examined to determine if, or where, additional precautions may be necessary.

All health and safety information contained in this document should be provided to your employees or customers.