

## SECTION 1: Identification

### Product identifiers:

**Product trade name:** Kalama\* Hexyl Cinnamic Aldehyde  
**Company product number:** HCA  
**Other means of identification:** AHCA; HCA,  $\alpha$ -n Hexyl Cinnamic Aldehyde;  $\alpha$ -Hexylcinnamaldehyde;  $\alpha$ -n-Hexyl- $\beta$ -Phenylacrolein; Octanal, 2-(phenylmethylene)

### Recommended use of the chemical and restrictions on use:

**Uses:** Organic liquid  
**Restrictions on use:** None identified

### Details of the supplier:

**Manufacturer/Supplier:** Emerald Performance Materials, LLC  
Emerald Kalama Chemical, LLC  
1296 NW Third Street  
Kalama, WA 98625 United States  
Telephone: +1-360-673-2550

1499 SE Tech Center Place, Suite 300  
Vancouver, WA 98683 United States  
Telephone: +1-360-954-7100

**For further information about this SDS:** Email: [product.compliance@emeraldmaterials.com](mailto:product.compliance@emeraldmaterials.com)

### Emergency telephone number:

ChemTel (24 hours): 1-800-255-3924 (USA); +1-813-248-0585 (outside USA);  
1-300-954-583 (Australia); 000-800-100-4086 (India).

## SECTION 2: Hazard(s) identification

### Classification of the substance or mixture:

Acute Toxicity, Oral, category 5, H303  
Skin Irritation, category 3, H316  
Skin Sensitizer, category 1, H317  
Hazardous to the aquatic environment, Acute, category 1, H400  
Hazardous to the aquatic environment, Chronic, category 2, H411

### Label elements:

#### Hazard pictogram(s):



#### Signal word:

Warning

#### Hazard statements:

H303 May be harmful if swallowed.  
H316 Causes mild skin irritation.  
H317 May cause an allergic skin reaction.  
H400 Very toxic to aquatic life.  
H411 Toxic to aquatic life with long lasting effects.

#### Precautionary statements:

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.  
P272 Contaminated work clothing should not be allowed out of the workplace.  
P273 Avoid release to the environment.  
P280 Wear protective gloves.  
P302+P352 IF ON SKIN: Wash with plenty of soap and water.  
P312 Call a POISON CENTRE/doctor if you feel unwell.  
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.  
P362+P364 Take off contaminated clothing and wash it before reuse.

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P391 Collect spillage.

P501 Dispose of contents/container in accordance with local, regional and international regulations.

**Supplemental information:** No Additional Information

Classification and hazards statements are listed according to the United Nations Globally Harmonized System of Classification and Labelling of Chemicals (GHS). Regulations in individual countries/regions may determine which classifications and hazard statements are applicable based on adopted hazard classes and categories. Precautionary statements are listed according to the United Nations Globally Harmonized System of Classification and Labelling of Chemicals (GHS) - Annex III. Regulations in individual countries/regions may determine which statements are required on the product label. See product label for specifics.

**Other hazards:** No Additional Information

See Section 11 for toxicological information.

### SECTION 3: Composition/information on ingredients

**Substance:**

<u>CAS-No.</u>	<u>Chemical Name</u>	<u>Weight%</u>
000101-86-0	$\alpha$ -Hexylcinnamaldehyde	97-100
0000128-37-0	2,6-Di-tert-butyl-p-cresol (Butylated hydroxytoluene (BHT))	0.1-<1.0

Amounts specified are typical and do not represent a specification. Remaining components are proprietary, non-hazardous, and/or present at amounts below reportable limits.

### SECTION 4: First-aid measures

**Description of first aid measures:**

**General:** If irritation or other symptoms occur or persist from any route of exposure, remove the affected individual from the area: see a physician/get medical attention.

**Eye contact:** Any material that contacts the eye should be washed out immediately with water. Get medical attention if symptoms occur.

**Skin contact:** Immediately remove contaminated clothing and shoes. Wash the affected area with plenty of soap and water until no evidence of the chemical remains (at least 15-20 minutes). Launder clothing before reuse. If skin irritation occurs: Get medical advice/attention.

**Inhalation:** If affected, remove to fresh air. Get medical attention if symptoms occur.

**Ingestion:** Do not induce vomiting. Never give anything by mouth to an unconscious person. Rinse out the mouth with water. Get medical attention immediately.

**Protection of first aid responders:** Wear proper personal protective clothing and equipment.

**Most important symptoms and effects, both acute and delayed:** Irritation. Preexisting sensitization, skin and/or respiratory disorders or diseases may be aggravated. See section 11 for additional information.

**Indication of any immediate medical attention and special treatment needed, if necessary:** Treat symptomatically.

### SECTION 5: Fire-fighting measures

**Extinguishing media:**

**Suitable:** Use water spray, ABC dry chemical, foam or carbon dioxide. Water or foam may cause frothing. Use water to keep fire-exposed containers cool. Water spray may be used to flush spills away from exposures.

**Unsuitable:** None known.

**Special hazards arising From the chemical:**

**Unusual fire/explosion hazards:** Product is not considered a fire hazard, but will burn if ignited. Closed container may rupture (due to build up in pressure) when exposed to extreme heat.

**Hazardous combustion products:** Irritating or toxic substances may be emitted upon burning, combustion or decomposition. See section 10 (Hazardous decomposition products) for additional information.

**Special protective equipment and precautions for fire-fighters:** Wear self-contained breathing apparatus (SCBA) equipped with a full facepiece and operated in a pressure-demand mode (or other positive pressure mode) and approved protective clothing. Personnel without suitable respiratory protection must leave the area to prevent significant exposure to hazardous gases from combustion, burning or decomposition. In an enclosed or poorly ventilated area, wear SCBA during cleanup immediately after a fire as well as during the attack phase of firefighting operations.

See section 9 for additional information.

### SECTION 6: Accidental release measures

**Personal precautions, protective equipment and emergency procedures:** See Section 8 for recommendations on the use of

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personal protective equipment. If spilled in an enclosed area, ventilate. Eliminate ignition sources. Personal Protective Equipment must be worn.

**Environmental precautions:** Do not flush liquid into public sewer, water systems or surface waters.

**Methods and materials for containment and cleaning up:** Contain by diking with sand, earth or other non-combustible material. Wear proper personal protective clothing and equipment. Absorb spill with an inert material. Place into labeled, closed container; store in safe location to await disposal. Change contaminated clothing and laundry before reuse.

## SECTION 7: Handling and storage

**Precautions for safe handling:** As with any chemical product, use good laboratory/workplace procedures. Do not cut, puncture, or weld on or near the container. Wash thoroughly after handling this product. Always wash up before eating, smoking or using the facilities. Use under well-ventilated conditions. Avoid eye and skin contact. Avoid inhalation of aerosol, mist, spray, fume or vapor. Avoid drinking, tasting, swallowing or ingesting this product. Wash contaminated clothing before reuse. Provide eyewash fountains and safety showers in the work area.

**Conditions for safe storage, including any incompatibilities:** Store cool and dry, under well-ventilated conditions. Keep away from heat, sparks and open flames. Store this material away from incompatible substances (see section 10). Do not store in open, unlabeled or mislabeled containers. Keep container closed when not in use. Do not reuse empty container without commercial cleaning or reconditioning. Empty container contains residual product which may exhibit hazards of product. Product can easily oxidize. It is recommended that opened containers be padded with nitrogen. Protect from light.

## SECTION 8: Exposure controls / personal protection

**Control parameters:**

### Occupational exposure limits (OEL):

<u>Chemical Name</u>	<u>ACGIH - TWA/Ceiling</u>	<u>ACGIH - STEL</u>		
$\alpha$ -Hexylcinnamaldehyde	N/E	N/E		
2,6-Di-tert-butyl-p-cresol (Butylated hydroxytoluene (BHT))	2 mg/m <sup>3</sup> TWA (inhalable fraction and vapor)	N/E		
<u>Chemical Name</u>	<u>Australia</u>	<u>New Zealand</u>	<u>Korea</u>	<u>Indonesia</u>
$\alpha$ -Hexylcinnamaldehyde	N/E	N/E	N/E	N/E
2,6-Di-tert-butyl-p-cresol (Butylated hydroxytoluene (BHT))	10 mg/m <sup>3</sup> TWA	10 mg/m <sup>3</sup> TWA	2 mg/m <sup>3</sup> TWA	10 mg/m <sup>3</sup> TWA
<u>Chemical Name</u>	<u>Japan ISHL</u>	<u>Japan JSOH</u>	<u>Taiwan</u>	<u>Malaysia</u>
$\alpha$ -Hexylcinnamaldehyde	N/E	N/E	N/E	N/E
2,6-Di-tert-butyl-p-cresol (Butylated hydroxytoluene (BHT))	N/E	N/E	N/E	10 mg/m <sup>3</sup> TWA
<u>Chemical Name</u>	<u>Philippines</u>	<u>Singapore</u>		
$\alpha$ -Hexylcinnamaldehyde	N/E	N/E		
2,6-Di-tert-butyl-p-cresol (Butylated hydroxytoluene (BHT))	N/E	10 mg/m <sup>3</sup> PEL		

N/E=Not established (no exposure limits established for the listed substances for listed country/region/organization).

**Exposure controls:**

**Appropriate engineering controls:** Always provide effective general and, when necessary, local exhaust ventilation to draw spray, aerosol, fume, mist and vapor away from workers to prevent routine inhalation. Ventilation must be adequate to maintain the ambient workplace atmosphere below the exposure limit(s) outlined in the SDS.

**Individual protection measures, such as personal protective equipment:**

**Eye/face protection:** Wear eye protection.

**Skin and body protection:** Wear chemical resistant (impervious) gloves. Use good laboratory/workplace procedures including personal protective clothing: labcoat, safety glasses and protective gloves.

**Respiratory protection:** Wear an approved respirator (e.g., an organic vapor respirator, a full face air purifying respirator for organic vapors, or a self-contained breathing apparatus) whenever exposure to aerosol, mist, spray, fume or vapor exceed the applicable exposure limit(s) of any chemical substance listed in this SDS.

**Further information:** Eyewash fountains and safety showers are recommended in the work area.

## SECTION 9: Physical and chemical properties

<b>Form:</b>	Liquid	<b>pH:</b>	Not Available
<b>Appearance:</b>	Pale yellow	<b>Relative density:</b>	0.95-0.96 (25 °C)
<b>Odor:</b>	Jasmine	<b>Partition coefficient (n-octanol/water):</b>	5.3 (24 °C)
<b>Odor threshold:</b>	Not Available	<b>% Volatile by weight:</b>	100%
<b>Solubility in water:</b>	1.62 mg/L @ 20 °C	<b>VOC:</b>	100%
<b>Evaporation rate:</b>	< 0.01	<b>Boiling point °C:</b>	305-311 °C
<b>Vapor pressure:</b>	<0.02 mm Hg (20 °C)	<b>Boiling point °F:</b>	581-591 °F

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**Vapor density:** Not Available

**Flash point:** >100 °C (>212 °F) Tag Closed Cup

**Viscosity:** Not Available

**Auto-ignition temperature:** 236 °C (456 °F)

**Melting point/Freezing point:** 4 °C (39 °F)

**Flammability (solid, gas):** Not Applicable (liquid)

**Oxidizing properties:** Not oxidizing

**Flammability or explosive limits:** LFL/LEL: Not Available

**Explosive properties:** Not explosive

UFL/UEL: Not Available

**Decomposition temperature:** Not Available

**Other information:** Amounts specified are typical and do not represent a specification.

## SECTION 10: Stability and reactivity

**Reactivity:** None known.

**Chemical stability:** This product is stable.

**Possibility of hazardous reactions:** Hazardous polymerization will not occur.

**Conditions to avoid:** Excessive heat and ignition sources.

**Incompatible materials:** Avoid contact with strong oxidizing agents.

**Hazardous decomposition products:** Carbon dioxide and carbon monoxide.

## SECTION 11: Toxicological information

**Information on likely routes of exposure:**

**General:** Caution must be exercised through the prudent use of protective equipment and handling procedures to minimize exposure.

**Eyes:** May cause eye irritation.

**Skin:** May cause allergic skin reaction. Causes mild skin irritation.

**Inhalation:** High airborne concentrations of vapors resulting from heating, misting or spraying may cause irritation of the respiratory tract and mucous membranes.

**Ingestion:** May be harmful if swallowed. Ingestion may cause irritation.

**Acute toxicity information:** May be harmful if swallowed - Category 5.

<b>Chemical Name</b>	<b>Inhalation LC50</b>	<b>Species</b>	<b>Oral LD50</b>	<b>Species</b>	<b>Dermal LD50</b>	<b>Species</b>
$\alpha$ -Hexylcinnamaldehyde	>2.12 mg/L (aerosol, measured, 4 hours)	Rat/ adult	3100 mg/kg	Rat/ adult male	>3000 mg/kg	Rabbit/ adult
2,6-Di-tert-butyl-p-cresol (Butylated hydroxytoluene (BHT))	N/E	N/E	>2930 mg/kg	Rat/ adult	>2000 mg/kg	Rabbit/ adult

**Skin corrosion/irritation:** Causes mild skin irritation - Category 3. ALPHA-HEXYLCINNAMALDEHYDE: Skin irritation, rabbit: score = >2 - <2.3; Moderate irritant.

<b>Chemical Name</b>	<b>Skin irritation</b>	<b>Species</b>
$\alpha$ -Hexylcinnamaldehyde	Mild-moderate irritant	Rabbit/ adult
2,6-Di-tert-butyl-p-cresol (Butylated hydroxytoluene (BHT))	Mild irritant	Rabbit/ adult

**Serious eye damage/irritation:** Not classified (based on available data, the classification criteria are not met).

<b>Chemical Name</b>	<b>Eye irritation</b>	<b>Species</b>
$\alpha$ -Hexylcinnamaldehyde	Slight irritant	Rabbit/ adult
2,6-Di-tert-butyl-p-cresol (Butylated hydroxytoluene (BHT))	Mild irritant	Rabbit/ adult

**Respiratory or skin sensitization:** Skin sensitization - Category 1.

<b>Chemical Name</b>	<b>Skin sensitisation</b>	<b>Species</b>
$\alpha$ -Hexylcinnamaldehyde	Sensitizer	Mouse/Local lymph node assay
2,6-Di-tert-butyl-p-cresol (Butylated hydroxytoluene (BHT))	Non-sensitizer	Human

**Carcinogenicity:** Not classified (no relevant information found).

**Germ cell mutagenicity:** Not classified (based on available data, the classification criteria are not met). ALPHA-HEXYLCINNAMALDEHYDE: Alpha-hexylcinnamaldehyde was not mutagenic in in-vivo and in-vitro studies.

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**Reproductive toxicity:** Not classified (based on available data, the classification criteria are not met). BHT (Butylated Hydroxytoluene): The NOAEL (no-observed-adverse-effect-level) for reproductive toxicity was 25 mg/kg/day based on lower numbers of litters of ten or more pups. From studies with mice and rats, there is no evidence of teratogenic effects - the NOEL (no-observed-effect-level) for developmental toxicity was 800 mg/kg/day. ALPHA-HEXYLCINNAMALDEHYDE: Reproductive and Developmental toxicity screening test (gavage) found a NOAEL  $\geq$  100 mg/kg/day for reproductive and developmental toxicity.

**Specific target organ toxicity (STOT) - single exposure:** Not classified (no relevant information found).

**Specific target organ toxicity (STOT) - repeated exposure:** Not classified (based on available data, the classification criteria are not met). ALPHA-HEXYLCINNAMALDEHYDE: Repeated dose study, 14 day oral gavage, rat: NOAEL (no-observed-adverse-effect-level) = 150-500 mg/kg bw/day (local effects). Repeated dose study, 90-day dermal, rat: LOAEL (Lowest-observable-adverse-effect-level) 125 mg/kg bw/day (local effects);  $>$ 125 mg/kg bw/day (systemic effects).

**Aspiration hazard:** Not classified.

**Other toxicity information:** No additional information available.

## SECTION 12: Ecological information

**Ecotoxicity:** ALPHA-HEXYLCINNAMALDEHYDE: This substance showed no toxicity to fish at the solubility limit.

<u>Chemical Name</u>	<u>Species</u>	<u>Acute</u>	<u>Acute</u>	<u>Chronic</u>
$\alpha$ -Hexylcinnamaldehyde	Fish	LC50 1.7 mg/L (96 hours)	N/E	N/E
$\alpha$ -Hexylcinnamaldehyde	Invertebrates	EC50 0.247 mg/L (48 hours)	N/E	EC10 69 $\mu$ g/L (21 days)
$\alpha$ -Hexylcinnamaldehyde	Algae	EC50 $>$ 0.065 mg/L (72 hours) (mean measured test concentration)	N/E	N/E
2,6-Di-tert-butyl-p-cresol (Butylated hydroxytoluene (BHT))	Fish	LC50 $>$ 0.57 mg/L (96 hours)	LC50 0.199 mg/L(96 hours) (calculated)	NOEC 0.053 mg/L (30 days)
2,6-Di-tert-butyl-p-cresol (Butylated hydroxytoluene (BHT))	Invertebrates	EC50 $>$ 0.31 mg/L (48 hours)	EC50 0.61 mg/L(48 hours) (OECD 202)	NOEC 0.316 mg/L (21 days)
2,6-Di-tert-butyl-p-cresol (Butylated hydroxytoluene (BHT))	Algae	EC50 $>$ 0.42 mg/L (72 hours)	N/E	NOEC 0.4 mg/L(72 hours)

**Persistence and degradability:**

<u>Chemical Name</u>	<u>Biodegradation</u>
$\alpha$ -Hexylcinnamaldehyde	Readily biodegradable (OECD 301F)
2,6-Di-tert-butyl-p-cresol (Butylated hydroxytoluene (BHT))	Not readily biodegradable

**Bioaccumulative potential:** BHT (Butylated Hydroxytoluene): Material is considered to have a moderate to high bioaccumulation potential.

<u>Chemical Name</u>	<u>Bioconcentration Factor (BCF)</u>	<u>Log Kow</u>
$\alpha$ -Hexylcinnamaldehyde	N/E	5.3 (24°C)
2,6-Di-tert-butyl-p-cresol (Butylated hydroxytoluene (BHT))	230-2500	4.2-5.1

**Mobility in soil:**

<u>Chemical Name</u>	<u>Mobility in soil (Koc/Kow)</u>
$\alpha$ -Hexylcinnamaldehyde	15800 (OECD 121)
2,6-Di-tert-butyl-p-cresol (Butylated hydroxytoluene (BHT))	N/E

**Other adverse effects:** No additional information available.

## SECTION 13: Disposal considerations

Dispose of unused contents (incineration) in accordance with national and local regulations. Dispose of container in accordance with national and local regulations. Ensure the use of properly authorized waste management companies, where appropriate.

See Section 8 for recommendations on the use of personal protective equipment.

## SECTION 14: Transport information

The information below is provided to assist in documentation. It may supplement the information on the package. The package in your possession may carry a different version of the label depending on the date of manufacture. Depending on inner packaging quantities and packaging instructions, it may be subject to specific regulatory exceptions.

**UN number:** UN3082

**UN proper shipping name:**

Environmentally hazardous substance, liquid, n.o.s. (alpha-Hexylcinnamaldehyde)

**Transport hazard class(es):**

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U.S. DOT hazard class: N/A  
Canada TDG hazard class: N/A  
Europe ADR/RID hazard class: 9  
IMDG Code (ocean) hazard class: 9  
ICAO/IATA (air) hazard class: 9

A "N/A" listing for the hazard class indicates the product is not regulated for transport by that regulation.

Packing group: III

Environmental hazards:

Marine pollutant: Marine Pollutant (IMDG code 2.9.3).  
Hazardous substance (USA): Not Applicable

Special precautions for user: Not Applicable

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code:  
Not Applicable

Notes: For surface shipments within the United States: Not regulated.

## SECTION 15: Regulatory information

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

Japan regulations:

Japan Industrial Safety and Health Law:

**Chemical name**  
2,6-Di-tert-butyl-p-cresol (Butylated hydroxytoluene (BHT))

**Category**  
Notifiable substance, Harmful substance requiring name on label

Japan Fire Service Law:

**Chemical name**  
α-Hexylcinnamaldehyde

**Category**  
Group 4 - Flammable liquids

Japan Poisonous and Deleterious Substances:

**Chemical name**  
No subject chemicals

**Category** **Threshold**

Japan Prevention of Marine Pollution and Disaster:

**Chemical name**  
No subject chemicals

**Category**

Japan Chemical Substances Control Law:

**Chemical name**  
α-Hexylcinnamaldehyde  
2,6-Di-tert-butyl-p-cresol (Butylated hydroxytoluene (BHT))

**Category**  
Priority assessment chemical  
Priority assessment chemical

**Notes**  
Substance control number 199  
Substance control number 64

Other regulations: No Additional Information

Chemical inventories:

<u>Regulation</u>	<u>Status</u>
Australian Inventory of Industrial Chemicals (AIIC):	Y
Canadian Domestic Substances List (DSL):	Y
Canadian Non-Domestic Substances List (NDSL):	N
China Inventory of Existing Chemical Substances (IECSC):	Y
European EC Inventory (EINECS, ELINCS, NLP):	Y
Japan Existing and New Chemical Substances (ENCS):	N
Japan Industrial Safety and Health Law (ISHL):	Y
Korean Existing and Evaluated Chemical Substances (KECL):	Y
New Zealand Inventory of Chemicals (NZIoC):	Y
Philippines Inventory of Chemicals and Chemical Substances (PICCS):	Y
Taiwan Inventory of Existing Chemicals:	Y
U.S. Toxic Substances Control Act (TSCA) (Active):	Y

A "Y" listing indicates all intentionally added components are either listed or are otherwise compliant with the regulation. A "N" listing indicates that for one or more components: 1) there is no listing on the public inventory (or is not on the ACTIVE inventory for U.S. TSCA); 2) no information is available; or 3) the component has not been reviewed. A "Y" for New Zealand may mean that a qualified group standard may exist for the components in this product.

**Chemical inventory notes:** Japan ENCS: Contains <2% unlisted impurity. New Zealand: One or more components may be covered by a group standard.

**Europe REACH (EC) 1907/2006:** Applicable components are registered, exempt or otherwise compliant. For Europe REACH, CAS# 165184-98-5 (EC 639-566-4). REACH is only relevant to substances either manufactured or imported into the EU. Emerald Performance Materials has met its obligations under the REACH regulation. REACH information regarding this product is provided for informational purposes only. Each Legal Entity may have differing REACH obligations, depending on their place in the supply chain. For material manufactured outside of the EU, the importer of record must understand and meet their specific obligations under the regulation.

## SECTION 16: Other information

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**Legend:**

\* : Trademark owned by Emerald Performance Materials, LLC.

ACGIH: American Conference of Governmental Industrial Hygienists

N/A: Not Applicable

N/E: None Established

STEL: Short Term Exposure Limit

TWA: Time Weighted Average (exposure for 8-hour workday)

**Users Responsibility/Disclaimer of Liability:**

The information set forth herein is based on our current knowledge, and is intended to describe the product solely with respect to health, safety and the environment. As such, it must not be interpreted as a guarantee of any specific property of the product. As a result, the customer shall be solely responsible for deciding whether said information is suitable and beneficial.

Safety Data Sheet Preparer:

Product Compliance Department

Emerald Performance Materials, LLC

1499 SE Tech Center Place, Suite 300

Vancouver, WA 98683

United States