Safety Data Sheet (SDS)
International (GHS)

Revision date: 1/19/2022

SECTION 1: Identification

Product identifiers:

Product trade name: Kalama* Cinnamic Alcohol, FCC
Company product number: CNALCFCC
Other means of identification: Cinnamyl alcohol, 3-Phenyl-2-propen-1-ol, Styryl carbinol

Recommended use of the chemical and restrictions on use:

Uses: Flavor and fragrance ingredient
Restrictions on use: None identified

Details of the supplier:

Manufacturer/Supplier:
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

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 2, H315
Skin Sensitizer, category 1, H317
Hazardous to the aquatic environment, Acute, category 2, H401

Label elements:

Hazard pictogram(s):

Signal word:
Warning

Hazard statements:
H303 May be harmful if swallowed.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H401 Toxic to aquatic life.

Precautionary statements:
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P264 Wash skin thoroughly after handling.
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.
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:

CAS-No.	Chemical Name	Weight%
000104-54-1	Cinnamyl alcohol	99-100
000104-55-2	Cinnamaldehyde	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. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Call a POISON CENTER or doctor/physician if you feel unwell.

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. Pre-existing skin problems may be aggravated by prolonged or repeated contact. 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: Carbon dioxide, dry chemical, foam, water fog.

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.

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

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

Methods and materials for containment and cleaning up: Contain spill. Wear proper personal protective clothing and equipment. Sweep up carefully and place into container for reuse or disposal. Avoid causing dust. Place into labeled, closed

container; store in safe location to await disposal. Change contaminated clothing and launder before reuse.

SECTION 7: Handling and storage

Precautions for safe handling: As with any chemical product, use good laboratory/workplace procedures. 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 breathing dust. 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. 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. Product can easily oxidize. It is recommended that opened containers be padded with nitrogen.

SECTION 8: Exposure controls / personal protection

Control parameters:

Occupational exposure limits (OEL):

Chemical Name	ACGIH - TWA/Ceiling		ACGIH - STEL	
Cinnamyl alcohol	N/E		N/E	
Cinnamaldehyde	N/E		N/E	
Chemical Name	**Australia**	**New Zealand**	**Philippines**	**Singapore**
Cinnamyl alcohol	N/E	N/E	N/E	N/E
Cinnamaldehyde	N/E	N/E	N/E	N/E
Chemical Name	**Japan ISHL**	**Japan JSOH**	**Taiwan**	**Malaysia**
Cinnamyl alcohol	N/E	N/E	N/E	N/E
Cinnamaldehyde	N/E	N/E	N/E	N/E

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 dust 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: In case of insufficient ventilation, wear suitable respiratory equipment. 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

Form:	Crystalline mass (solid)	**pH:**	4.7 (1% solution)
Appearance:	White to slight yellow	**Relative density:**	1.044 (25°C)
Odor:	Floral	**Partition coefficient (n-octanol/water):**	1.452 (OECD 117)
Odor threshold:	Not Available	**% Volatile by weight:**	100%
Solubility in water:	2542 mg/L @ 25°C	**VOC:**	100%
Evaporation rate:	<1	**Boiling point °C:**	234 °C
Vapor pressure:	0.358 Pa @ 25 °C	**Boiling point °F:**	453 °F
Vapor density:	4.6 (Air=1)	**Flash point:**	>93.3 °C (>200 °F) Pensky-Marten Closed Cup
Viscosity:	27.449 mm2/s @ 40°C; 14.482 mPa.s @ 40°C	**Auto-ignition temperature:**	Not Available
Melting point/Freezing point:	31 °C (88 °F) (solidification point)	**Flammability (solid, gas):**	Not flammable
Oxidizing properties:	Not oxidizing	**Flammability or explosive limits:**	LFL/LEL: Not Available
Explosive properties:	Not explosive		UFL/UEL: Not Available
Decomposition temperature:	Not Available	**Surface tension:**	42.6 mN/m @ 20°C (calculated)

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

SECTION 10: Stability and reactivity

Reactivity: Oxidizes when exposed to air.

Chemical stability: This product is stable.

Possibility of hazardous reactions: Hazardous polymerization will not occur.

Conditions to avoid: Avoid exposure to air, moisture, ignition sources and elevated temperatures.

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: Solid particles on the eye (powder/dust) may cause pain and be accompanied by irritation.

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

Inhalation: Dust inhalation may cause respiratory irritation. Chronic exposure may cause headache, dizziness, tiredness, nausea and vomiting.

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

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

Chemical Name	Inhalation LC50	Species	Oral LD50	Species	Dermal LD50	Species
Cinnamyl alcohol	N/E	N/E	2675 mg/kg	Mouse	>5000 mg/kg	Rabbit/ adult
Cinnamaldehyde	757 mg/L (4 hours, vapor, estimated)	Rat/ adult	2220 mg/kg	Rat/ adult	1160 mg/kg	Guinea Pig/ adult

Skin corrosion/irritation: Causes skin irritation - Category 2.

Chemical Name	Skin irritation	Species
Cinnamyl alcohol	Irritant	Guinea pig/ adult
Cinnamaldehyde	Moderate irritant	Rabbit/ adult

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

Chemical Name	Eye irritation	Species
Cinnamyl alcohol	Non-irritant	Rabbit & Guinea Pig
Cinnamaldehyde	Moderate irritant	Rabbit/ adult

Respiratory or skin sensitization: Skin sensitization - Category 1.

Chemical Name	Skin sensitisation	Species
Cinnamyl alcohol	Sensitizer	Guinea pig and Human
Cinnamaldehyde	Sensitizer	Guinea Pig/ adult

Carcinogenicity: Not classified (no relevant information found).

Germ cell mutagenicity: Not classified (based on available data, the classification criteria are not met). CINNAMYL ALCOHOL: Negative results were observed in Ames tests with and without activation (in-vitro). Ames testing showed no mutagenic activity and mixed results both positive (at doses approaching cytotoxic levels) and negative were observed from other in-vitro genotoxicity assays. The weight of the evidence indicates this material is not mutagenic or clastogenic.

Reproductive toxicity: Not classified (based on available data, the classification criteria are not met). CINNAMYL ALCOHOL: Reproductive toxicity, oral study in rats: NOAEL (no-observed adverse-effect-level) = 535 mg/kg bw/day. Developmental toxicity oral study, rats: NOAEL, developmental toxicity=53.5 mg/kg bw/day.

Specific target organ toxicity (STOT) - single exposure: Not classified (based on available data, the classification criteria are not met).

Specific target organ toxicity (STOT) - repeated exposure: Not classified (based on available data, the classification criteria are not met). CINNAMYL ALCOHOL: Repeated dose study, oral, 4 months, rat: NOAEL (no-observed-adverse-effect-level) = 53.5 mg/kg bw/day (no adverse effects observed). Additional animal study data: Repeated dose study, oral, 17 weeks, rat: LOAEL (Lowest-Observed-Adverse-Effect-Level) = 6366 mg/kg bw/day (blood (changes in serum composition) and biochemical (enzyme) effects were observed); READ-ACROSS (trans-cinnamaldehyde): Repeated dose study, oral, 14 weeks: NOAEL (rat) = 275-300 mg/kg bw/day, NOAEL (mouse) = 625-650 mg/kg bw/day.

Aspiration hazard: Not classified (based on available data, the classification criteria are not met).

Other toxicity information: No additional information available.

SECTION 12: Ecological information

Ecotoxicity:

Chemical Name	Species	Acute	Acute	Chronic
Cinnamyl alcohol	Fish	LC50 9 mg/L (96 hours)	LC50 4.15 mg/L(96 hours)	N/E
Cinnamyl alcohol	Invertebrates	EC50 7.7 mg/L (48 hours)	N/E	N/E
Cinnamyl alcohol	Algae	EC50 19.7 mg/L (72 hours)	N/E	N/E
Cinnamyl alcohol	Micro-organisms	IC50 161.27 mg/L (48 hours) (population growth rate)		
Cinnamaldehyde	Fish	LC50 >3.5 mg/L (96 hours)	LC100 2.35-3.93 mg/L(24 hours)	N/E
Cinnamaldehyde	Invertebrates	EC50 1.20-7.05 mg/L (48 hours)	EC50 3.1 mg/L(24 hours)	N/E
Cinnamaldehyde	Algae	EC50 6.87 mg/L (72 hours)	EC50 7.55 mg/L(96 hours)	N/E
Cinnamaldehyde	Micro-organisms	EC50 71 mg/L (3 hours)		

Persistence and degradability:

Chemical Name	Biodegradation
Cinnamyl alcohol	Readily biodegradable (OECD 301C)
Cinnamaldehyde	Readily biodegradable (weight of evidence)

Bioaccumulative potential:

Chemical Name	Bioconcentration Factor (BCF)	Log Kow
Cinnamyl alcohol	4.989 L/kg (calculated)	1.452 (OECD 117)
Cinnamaldehyde	8.3 (estimated)	1.83 @ 27°C

Mobility in soil:

Chemical Name	Mobility in soil (Koc/Kow)
Cinnamyl alcohol	116.9 (log KOC=2.068)
Cinnamaldehyde	29.456 L/kg @ 20°C (estimated)

Other adverse effects: No additional information available.

SECTION 13: Disposal considerations

Dispose of unused contents (incineration or landfill) 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: N/A

UN proper shipping name:

Not regulated - See Bill of Lading for Details

Transport hazard class(es):

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

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

Packing group: N/A

Environmental hazards:

Marine pollutant: Not Applicable
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

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	Category
No subject chemicals	

Japan Fire Service Law:

Chemical name	Category
Cinnamaldehyde	Group 4 - Flammable liquids

Japan Poisonous and Deleterious Substances:

Chemical name	Category	Threshold
No subject chemicals		

Japan Prevention of Marine Pollution and Disaster:

Chemical name	Category
Cinnamaldehyde	Noxious Category Y

Japan Chemical Substances Control Law:

Chemical name	Category	Notes
No subject chemicals		

Other regulations: No Additional Information

Chemical inventories:

Regulation	Status
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):	Y
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: 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. EU REACH is only relevant to substances either manufactured or imported into the EU. Emerald Kalama Chemical has met its obligations under the EU REACH regulation. EU REACH information regarding this product is provided for informational purposes only. Each Legal Entity may have differing EU REACH obligations, depending on their place in the supply chain. Emerald's compliance with EU REACH does not imply automatic coverage for Downstream Users located in the EU. 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

Legend:
* : Trademark owned by Emerald Kalama Chemical, 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.

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