



## Safety Data Sheet (SDS) North American (U.S. and Canada)

Revision date: 2019-08-21

### SECTION 1: Identification

**Product identifiers:**

**Product trade name:** Kalama\* Cinnamic Aldehyde, FCC  
**Company product number:** CINNALD  
**Other means of identification:** Cinnamal, Cinnamaldehyde, 3-Phenylpropenal

**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  
1499 SE Tech Center Place, Suite 300  
Vancouver, WA 98683  
United States  
Telephone: +1-360-954-7100  
FAX: +1-360-954-7201  
Email: product.compliance@emeraldmaterials.com

**For further information about this SDS:**

**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

Information in accordance with U.S. 29 CFR 1910.1200 (Hazcom 2012) and Canada Hazardous Products Regulations (WHMIS 2015):

**Classification of the product:**

Acute Toxicity, Dermal, category 4  
Skin Irritation, category 2  
Skin Sensitizer, category 1  
Eye Irritation, category 2

**Label elements:**

**Hazard pictogram(s):**



**Signal word:**

Warning

**Hazard statements:**

H312 Harmful in contact with skin.  
H315 Causes skin irritation.  
H317 May cause an allergic skin reaction.  
H319 Causes serious eye irritation.

**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.  
P280 Wear protective gloves/protective clothing/eye protection/face protection.

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P302+P352 IF ON SKIN: Wash with plenty of soap and water.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P312 Call a POISON CENTRE/doctor if you feel unwell.

P333+P313 If skin irritation or rash occurs: Get medical advice/attention.

P337+P313 If eye irritation persists: 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

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.

**Hazards not otherwise classified:**

**Physical hazards not otherwise classified:** No Additional Information

**Health hazards not otherwise classified:** 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>
000104-55-2	Cinnamaldehyde	99-100

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:** Immediately flush eyes with plenty of clean water for an extended time, not less than fifteen (15) minutes. Flush longer if there is any indication of residual chemical in the eye. Ensure adequate flushing of the eyes by separating the eyelids with fingers and roll eyes in a circular motion. If eye irritation persists: Get medical advice/attention.

**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

**NFPA flammability class:** IIIB

**Extinguishing media:**

**Suitable:** NFPA Class IIIB (Combustible liquid): 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. Combustion hazard: waste soaked with this product may heat to temperatures causing self-ignition if improperly discarded. Many aldehydes readily oxidize exothermically when exposed to air. Any clean up materials, like rags, towels, etc. should be washed with water with mild soap or laundered with mild detergent before proper disposal to avoid the potential temperature rise from oxidation.

**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. 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 launder before reuse. Combustion hazard: waste soaked with this product may heat to temperatures causing self-ignition if improperly discarded. Immediately after use, rags, steel wool or other waste should be wetted or cleaned with water with mild soap or laundered with mild detergent or placed into a water-filled metal container before proper disposal.

**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. Do not get in eyes, on skin or clothing. Wash thoroughly after handling this product. Always wash up before eating, smoking or using the facilities. Use under well-ventilated conditions. 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.

**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>		
Cinnamaldehyde	N/E			
<u>Chemical Name</u>	<u>OSHA - PEL</u>	<u>OSHA - STEL</u>	<u>OSHA - Ceiling</u>	<u>AIHA - WEEL</u>
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

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. (Ventilation guidelines/techniques may be found in publications such as Industrial Ventilation: American Conference of Governmental Industrial Hygienists, 1330 Kemper Meadow Drive, Cincinnati, OH, 45240-1634, USA.) (<http://www.acgih.org/home.htm>).

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

**Eye/face protection:** Safety glasses or goggles required.

**Skin and body protection:** Wear chemical resistant (impervious) gloves. Wear chemical resistant protective clothing. 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. Organic vapor filter (Type A). Use respirator in accordance with manufacturer's use limitations and OSHA standard 1910.134 (29CFR).

**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>	Clear, Pale yellow	<b>Relative density:</b>	1.046-1.050 (25°C)
<b>Odor:</b>	Cinnamon-like	<b>Partition coefficient (n-octanol/water):</b>	1.9
<b>Odor threshold:</b>	Not Available	<b>% Volatile by weight:</b>	100%
<b>Solubility in water:</b>	1084 mg/L @ 20°C	<b>VOC:</b>	100%
<b>Evaporation rate:</b>	<1	<b>Boiling point °C:</b>	252 °C
<b>Vapor pressure:</b>	0.03 mm Hg @ 20°C	<b>Boiling point °F:</b>	486 °F
<b>Vapor density:</b>	4.6 (Air=1)	<b>Flash point:</b>	110 °C (230 °F) Tag Closed Cup
<b>Viscosity:</b>	Not Available	<b>Auto-ignition temperature:</b>	Not Available
<b>Melting point/Freezing point:</b>	-7.5°C (18.5°F)	<b>Flammability (solid, gas):</b>	Not Applicable (liquid)
<b>Oxidizing properties:</b>	Not oxidizing	<b>Flammability or explosive limits:</b>	LFL/LEL: Not Available
<b>Explosive properties:</b>	Not explosive		UFL/UEL: Not Available
<b>Decomposition temperature:</b>	Not Available	<b>Surface tension:</b>	38.962 mN/m @ 25°C (estimated)

**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. Readily undergoes oxidation by air.

**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 strong bases and oxidizing agents. Avoid contact with amines. May ignite after a delay period in contact with sodium hydroxide.

**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.

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**Eyes:** Causes serious eye irritation.

**Skin:** Harmful in contact with skin. May cause allergic skin reaction. Causes skin irritation.

**Inhalation:** Inhalation may cause irritation of the respiratory tract and mucous membranes.

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

**Symptoms/effects, acute and delayed:** Irritation

**Acute toxicity information:** Harmful in contact with skin (Category 4).

<u>Chemical Name</u>	<u>Inhalation LC50</u>	<u>Species</u>	<u>Oral LD50</u>	<u>Species</u>	<u>Dermal LD50</u>	<u>Species</u>
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).

<u>Chemical Name</u>	<u>Skin irritation</u>	<u>Species</u>
Cinnamaldehyde	Moderate irritant	Rabbit/ adult

**Serious eye damage/irritation:** Causes serious eye irritation (Category 2A).

<u>Chemical Name</u>	<u>Eye irritation</u>	<u>Species</u>
Cinnamaldehyde	Moderate irritant	Rabbit/ adult

**Respiratory or skin sensitization:** Skin sensitization (Category 1).

<u>Chemical Name</u>	<u>Skin sensitisation</u>	<u>Species</u>
Cinnamaldehyde	Sensitizer	Guinea Pig/ adult

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

**Carcinogenic status:** Not listed or regulated by IARC (Group 1 or 2), NTP, OSHA, or ACGIH.

**Germ cell mutagenicity:** Not classified (based on available data, the classification criteria are not met). CINNAMALDEHYDE: Mostly negative results were obtained in bacterial test systems for mutagenic or genotoxic activity with some weakly positive results. Evidence of genotoxic activity was observed in isolated mammalian cells with the cinnamaldehyde producing chromosome aberrations and/or mutations in the respective test systems regardless of the presence or absence of metabolic activation. However, the in vitro activity did not translate into mutagenic, clastogenic, or genotoxic activity in vivo.

**Reproductive toxicity:** Not classified (based on available data, the classification criteria are not met). CINNAMALDEHYDE: Repeated exposure via the oral route indicate an effect on body weight and toxicity to multiple organs (forestomach in rats and mice and liver, kidney, testicular atrophy in rats). Developmental toxicity data suggest that rats are more sensitive than mice. Developmental effects in rats included decreased ossification of the cranium and tympanic bulla, increased evidence of dilated pelvis/reduced papilla in kidney, dilated ureter and incidences of hypoplastic/dysplastic kidneys.

**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). CINNAMALDEHYDE: Repeated dose toxicity study: LOAEL (Lowest-Observed-Adverse-Effect-Level), oral, rat - 470 mg/kg bw/day; LOAEL, dermal, mouse - 750 mg/kg bw/day. Repeated exposure via the oral route indicate an effect on body weight and toxicity to multiple organs (forestomach in rats and mice and liver, kidney, testicular atrophy in rats).

**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:**

<u>Chemical Name</u>	<u>Species</u>	<u>Acute</u>	<u>Acute</u>	<u>Chronic</u>
Cinnamaldehyde	Fish	LC50 >3.5 mg/L (96 hours)	N/E	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:**

<u>Chemical Name</u>	<u>Biodegradation</u>
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**Chemical Name**  
Cinnamaldehyde

**Biodegradation**  
Readily biodegradable (weight of evidence)

**Bioaccumulative potential:**

**Chemical Name**  
Cinnamaldehyde

**Bioconcentration Factor (BCF)**  
8.3 (estimated)

**Log Kow**  
1.83 @ 27°C

**Mobility in soil:**

**Chemical Name**  
Cinnamaldehyde

**Mobility in soil (Koc/Kow)**  
29.456 L/kg @ 20°C (estimated)

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

## SECTION 13: Disposal considerations

For waste disposal purposes, this product is not known to be defined or designated as hazardous by current provisions of the Federal (EPA) Resource Conservation and Recovery Act (RCRA, 40CFR261). Incinerate waste product when in liquid form (i.e., as supplied) in a properly permitted (approved) incineration facility in accordance with federal, state and local regulations. Liquids cannot be disposed of in a landfill. Federal, state and local regulations where the waste material is generated, treated, and/or disposed of must be examined to verify the appropriate waste classification.

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

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code:**

Not Applicable

**Special precautions for user:** Not Applicable

## SECTION 15: Regulatory information

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

**U.S. federal and state regulations/legislation:**

This SDS has been prepared in accordance with the hazard criteria of the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

**U.S. Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Reportable Quantity (RQ):**

Not Applicable

**U.S. Superfund Amendments and Reauthorization Act (SARA) - SARA Section 313:**

This product contains the following toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 and 40 CFR 372:

None known

**U.S. TSCA Section 12(b) Export Notification:**

This product is not subject to TSCA 12(b) reporting requirements.

**California Proposition 65:**

The following ingredient(s) present in the product is [are] known to the State of California to cause cancer:

None known to be present or none in reportable amounts for occupational exposure as per OSHA's approval of the California Hazard Communication Standard, Federal Register, page 31159 ff, 6 June 1997.

The following ingredient(s) present in the product is [are] known to the State of California to cause birth defects or other reproductive harm:

None known to be present or none in reportable amounts for occupational exposure as per OSHA's approval of the California Hazard Communication Standard, Federal Register, page 31159 ff, 6 June 1997.

**Notes:** No additional information

**Canada regulations/legislation:**

This product has been classified in accordance with the hazard criteria of the Hazardous Products Regulations and the SDS contains all the information required by the Hazardous Products Regulations.

**Notes:** No additional information

**Chemical inventories:**

<u>Regulation</u>	<u>Status</u>
Australian Inventory of Chemical Substances (AICS):	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):	N
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.

**Europe REACH (EC) 1907/2006:** Applicable components are registered, exempt or otherwise compliant. 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

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outside of the EU, the importer of record must understand and meet their specific obligations under the regulation.

## SECTION 16: Other information

**SDS Revision date:** 2019-08-21

**HMIS (Hazardous Materials Identification System) Ratings:**

**Health:** 2      **Flammability:** 1      **Physical hazard:** 0      **Personal Protection:** X

**NFPA (National Fire Protection Association) Ratings:**

**Health:** 2      **Flammability:** 1      **Instability:** 0      **Special hazards:**

Key: 0=Insignificant; 1=Slight; 2=Moderate; 3=High; 4=Extreme. An asterisk appearing after the HMIS Health numerical rating denotes a chronic hazard.

Hazardous Materials Identification System (HMIS), National Paint and Coating Association, rating applies to product "as packaged" (i.e., ambient temperature). Ratings are based upon HMIS® III and NFPA 704 (2007). An asterisk appearing after the HMIS Health® III numerical rating denotes a chronic hazard. National Fire Protection Association (NFPA) rating identifies the severity of hazards of material during a fire emergency (i.e., "on fire").

**Legend:**

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

ACGIH: American Conference of Governmental Industrial Hygienists

AIHA WEEL: American Industrial Hygiene Association (AIHA) Workplace Environmental Exposure Level (WEEL)

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:**

As the conditions or methods of use are beyond our control, 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 but 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 applicable federal, state, and local laws and local regulations remains the responsibility of the user.

This bulletin 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 bulletin should be provided to your employees or customers. It is your responsibility to develop appropriate work practice guidelines and employee instructional programs for your operation.

Safety Data Sheet Preparer:

Product Compliance Department

Emerald Performance Materials, LLC

1499 SE Tech Center Place, Suite 300

Vancouver, WA 98683

United States