

Safety Data Sheet

FOR REGULATORY AND SDS QUESTIONS (U.S. AND CANADA):
CALL THE PRODUCT STEWARDSHIP LINE
1- 908-791-2336 9 AM TO 6 PM ET (Mon-Fri)


Section 1. Identification

Product name : **1544 Soldering Flux**
Product code : 4060013
Product type : Liquid.
Date of issue/Date of revision : March 10 2023.

Manufacturer - Supplier	Telephone no.:	Emergency phone:
Alpha Assembly Solutions Inc. 800 West Thorndale Avenue Itasca, IL 60143 USA	 800-253-7837 1-630-616-4000	DOMESTIC NORTH AMERICA 202-464-2554
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Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).


Classification of the substance or mixture :  **FLAMMABLE LIQUIDS** - Category 2
ACUTE TOXICITY (inhalation) - Category 4
SKIN IRRITATION - Category 2
EYE IRRITATION - Category 2A
SKIN SENSITIZATION - Category 1
CARCINOGENICITY - Category 2
TOXIC TO REPRODUCTION - Category 1B
SPECIFIC TARGET ORGAN TOXICITY (Respiratory tract irritation) - Category 3
SPECIFIC TARGET ORGAN TOXICITY (Narcotic effects) - Category 3
AQUATIC HAZARD (ACUTE) - Category 3
AQUATIC HAZARD (LONG-TERM) - Category 3

GHS label elements

Hazard pictograms



Signal word :  **Danger**

Hazard statements :  Highly flammable liquid and vapor.
 Causes skin irritation.
 May cause an allergic skin reaction.
 Causes serious eye irritation.
 Harmful if inhaled.
 May cause respiratory irritation.
 May cause drowsiness or dizziness.

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Section 2. Hazards identification

Suspected of causing cancer.
May damage fertility or the unborn child.
Harmful to aquatic life with long lasting effects.

Precautionary statements

Prevention

: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves, protective clothing and eye or face protection. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use explosion-proof electrical, ventilating or lighting equipment. Use non-sparking tools. Take action to prevent static discharges. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Avoid breathing vapor. Wash thoroughly after handling.

Response

: If exposed or concerned: Get medical advice or attention. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor if you feel unwell. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. Wash contaminated clothing before reuse. IF ON SKIN: Wash with plenty of water. If skin irritation or rash occurs: Get medical advice or attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice or attention.

Storage

: Store locked up. Store in a well-ventilated place. Keep container tightly closed. Keep cool.

Disposal

: Dispose of contents and container in accordance with all local, regional, national and international regulations.

Supplemental label elements

: Avoid contact with skin and clothing. Wash thoroughly after handling.

Hazards not otherwise classified

: Prolonged or repeated contact may dry skin and cause irritation.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Ingredient name	%	CAS number
Rosin/Resin	40-50	-
butan-2-ol	20-30	78-92-2
ethanol	20-30	64-17-5
Isopropyl alcohol	1-10	67-63-0
Additive	0.1-1.0	-
methanol	0.1-1.0	67-56-1
4-methylpentan-2-one	0.1-1.0	108-10-1

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact

: Check for and remove any contact lenses. Immediately flush eyes with running water for at least 30 minutes, keeping eyelids open. Get medical attention.

Section 4. First aid measures

- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that mists are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Skin contact** : Wash skin thoroughly with soap and water or use recognized skin cleanser. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 15 minutes. Get medical attention. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. If necessary, call a poison center or physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

- Eye contact** : Causes serious eye irritation.
- Inhalation** : Harmful if inhaled. Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness. May cause respiratory irritation.
- Skin contact** : Causes skin irritation. Defatting to the skin. May cause an allergic skin reaction.
- Ingestion** : Can cause central nervous system (CNS) depression.

Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:
pain or irritation
watering
redness
- Inhalation** : Adverse symptoms may include the following:
respiratory tract irritation
coughing
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness
reduced fetal weight
increase in fetal deaths
skeletal malformations
- Skin contact** : Adverse symptoms may include the following:
irritation
redness
dryness
cracking
reduced fetal weight
increase in fetal deaths
skeletal malformations

Section 4. First aid measures

- Ingestion** : Adverse symptoms may include the following:
reduced fetal weight
increase in fetal deaths
skeletal malformations

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

- Notes to physician** : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that mists are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

- Suitable extinguishing media** : Use dry chemical, CO₂, water spray (fog) or foam.
- Unsuitable extinguishing media** : Do not use water jet.

- Specific hazards arising from the chemical** : Highly flammable liquid and vapor. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. This material is harmful to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

- Hazardous thermal decomposition products** : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides
halogenated compounds

- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

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Section 6. Accidental release measures

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.

Methods and materials for containment and cleaning up

- Small spill** : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapor or mist. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.

- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

- Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

[Control parameters](#)

[Occupational exposure limits](#)

 Rosin/Resin

butan-2-ol

ACGIH TLV (United States, 3/2017). Skin sensitizer. Inhalation sensitizer.

ACGIH TLV (United States, 1/2021).

TWA: 303 mg/m³ 8 hours.

TWA: 100 ppm 8 hours.

NIOSH REL (United States, 10/2020).

STEL: 455 mg/m³ 15 minutes.

STEL: 150 ppm 15 minutes.

TWA: 305 mg/m³ 10 hours.

TWA: 100 ppm 10 hours.

OSHA PEL (United States, 5/2018).

TWA: 450 mg/m³ 8 hours.

TWA: 150 ppm 8 hours.

OSHA PEL 1989 (United States, 3/1989).

TWA: 305 mg/m³ 8 hours.

TWA: 100 ppm 8 hours.

ethanol

ACGIH TLV (United States, 3/2017). Notes: 1996 Adoption Refers to Appendix A -- Carcinogens.

STEL: 1000 ppm 15 minutes.

NIOSH REL (United States, 10/2016).

TWA: 1900 mg/m³ 10 hours.

TWA: 1000 ppm 10 hours.

OSHA PEL (United States, 6/2016).

TWA: 1900 mg/m³ 8 hours.

TWA: 1000 ppm 8 hours.

OSHA PEL 1989 (United States, 3/1989).

TWA: 1900 mg/m³ 8 hours.

TWA: 1000 ppm 8 hours.

Isopropyl alcohol

ACGIH TLV (United States, 3/2017). Notes: Refers to Appendix A - Carcinogens. ACGIH 2003 Adoption

STEL: 400 ppm 15 minutes.

TWA: 200 ppm 8 hours.

NIOSH REL (United States, 10/2016).

STEL: 1225 mg/m³ 15 minutes.

STEL: 500 ppm 15 minutes.

TWA: 980 mg/m³ 10 hours.

TWA: 400 ppm 10 hours.

OSHA PEL (United States, 6/2016).

TWA: 980 mg/m³ 8 hours.

TWA: 400 ppm 8 hours.

OSHA PEL 1989 (United States, 3/1989).

STEL: 1225 mg/m³ 15 minutes.

STEL: 500 ppm 15 minutes.

TWA: 980 mg/m³ 8 hours.

TWA: 400 ppm 8 hours.

methanol

ACGIH TLV (United States, 3/2017). Absorbed through skin. Notes: Substances for which there is a Biological Exposure Index or Indices

STEL: 328 mg/m³ 15 minutes.

STEL: 250 ppm 15 minutes.

TWA: 262 mg/m³ 8 hours.

TWA: 200 ppm 8 hours.

NIOSH REL (United States, 10/2016). Absorbed through skin.

STEL: 325 mg/m³ 15 minutes.

STEL: 250 ppm 15 minutes.

TWA: 260 mg/m³ 10 hours.

TWA: 200 ppm 10 hours.

Section 8. Exposure controls/personal protection

OSHA PEL (United States, 6/2016).

TWA: 260 mg/m³ 8 hours.

TWA: 200 ppm 8 hours.

OSHA PEL 1989 (United States, 3/1989). Absorbed through skin.

STEL: 325 mg/m³ 15 minutes.

STEL: 250 ppm 15 minutes.

TWA: 260 mg/m³ 8 hours.

TWA: 200 ppm 8 hours.

4-methylpentan-2-one

ACGIH TLV (United States, 3/2017). Notes: Substances for which there is a Biological Exposure Index or Indices

STEL: 75 ppm 15 minutes.

TWA: 20 ppm 8 hours.

NIOSH REL (United States, 10/2016).

STEL: 300 mg/m³ 15 minutes.

STEL: 75 ppm 15 minutes.

TWA: 205 mg/m³ 10 hours.

TWA: 50 ppm 10 hours.

OSHA PEL (United States, 6/2016).

TWA: 410 mg/m³ 8 hours.

TWA: 100 ppm 8 hours.

OSHA PEL 1989 (United States, 3/1989).

STEL: 300 mg/m³ 15 minutes.

STEL: 75 ppm 15 minutes.

TWA: 205 mg/m³ 8 hours.

TWA: 50 ppm 8 hours.

Appropriate engineering controls

- : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls

- : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures

- : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection

- : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

Skin protection

Hand protection

- : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Section 8. Exposure controls/personal protection

- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties and safety characteristics

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

Appearance

- Physical state** : Liquid.
- Color** : Amber.
- Odor** : Alcohol-like.
- Odor threshold** : Not available.
- pH** : Not available.
- Melting point/freezing point** : Not available.
- Boiling point, initial boiling point, and boiling range** : 36°C (96.8°F)
- Flash point** : Closed cup: 11°C (51.8°F)
- Evaporation rate** : Not available.
- Flammability** : Not available.
- Lower and upper explosion limit/flammability limit** : Not available.
- Vapor pressure** : 5.9 kPa (44.25354 mm Hg)
- Relative vapor density** : Not available.
- Relative density** : Not available.
- Solubility** : Not available.
- Miscible with water** : ☒ No.
- VOC** : 493.8 g/l
- Partition coefficient: n-octanol/water** : ☒ Not applicable.
- Auto-ignition temperature** : 390°C (734°F)
- Decomposition temperature** : Not available.
- Viscosity** : Not available.
- Flow time (ISO 2431)** : ☒ Not available.
- Particle characteristics**
- Median particle size** : ☒ Not applicable.

Section 10. Stability and reactivity

Reactivity	: No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	: The product is stable.
Possibility of hazardous reactions	: Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	: Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.
Incompatibility with various substances	: Reactive or incompatible with the following materials: oxidizing materials, metals, acids, alkalis and moisture.
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Hazardous polymerization	: Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Rosin/Resin	LD50 Oral	Mouse	2.2 g/kg	-
	LD50 Oral	Rat	3 g/kg	-
	LC50 Inhalation Gas.	Rat	8000 ppm	4 hours
	LC50 Inhalation Vapor	Rat	48500 mg/m ³	4 hours
	LD50 Oral	Rabbit	4893 mg/kg	-
	LD50 Oral	Rat	2054 mg/kg	-
	LD50 Oral	Rat	2193 mg/kg	-
	LD50 Oral	Rat	6200 mg/kg	-
	LDLo Oral	Dog	2400 mg/kg	-
	LDLo Oral	Rabbit	3000 mg/kg	-
ethanol	LC50 Inhalation Vapor	Rat	124700 mg/m ³	4 hours
	LD50 Oral	Rat	10600 mg/kg	-
	TDLo Oral	Man - Male	0.8 g/kg	-
	TDLo Oral	Mouse	4 g/kg	-
Isopropyl alcohol	LD50 Dermal	Rabbit	6290 mg/kg	-
	LD50 Oral	Rat	4.7 g/kg	-
Additive methanol	LD50 Oral	Rat	1070 mg/kg	-
	LC50 Inhalation Gas.	Rat	145000 ppm	1 hours
	LC50 Inhalation Gas.	Rat	64000 ppm	4 hours
	LC50 Inhalation Vapor	Rat	64000 ppm	4 hours
	LD50 Oral	Rat	5600 mg/kg	-
	LDLo Oral	Man - Male	6422 mg/kg	-
	TDLo Oral	Man - Male	9450 uL/kg	-
	TDLo Oral	Man - Male	3571 uL/kg	-
4-methylpentan-2-one	LD50 Dermal	Rabbit	>3000 mg/kg	-
	LD50 Oral	Rat	2080 mg/kg	-

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
butan-2-ol ethanol	Eyes - Severe irritant	Rabbit	-	0.1 MI	-
	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	0.066666667 minutes 100 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	100 microliters	-
	Eyes - Severe irritant	Rabbit	-	500 milligrams	-
	Skin - Mild irritant	Rabbit	-	400	-

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Isopropyl alcohol	Skin - Moderate irritant	Rabbit	-	milligrams 24 hours 20	-
	Eyes - Moderate irritant	Rabbit	-	milligrams 24 hours 100	-
	Eyes - Moderate irritant	Rabbit	-	milligrams 10 milligrams	-
	Eyes - Severe irritant	Rabbit	-	100 milligrams	-
methanol	Skin - Mild irritant	Rabbit	-	500 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	24 hours 100	-
	Eyes - Moderate irritant	Rabbit	-	40 milligrams	-
	Skin - Moderate irritant	Rabbit	-	24 hours 20	-
4-methylpentan-2-one	Eyes - Moderate irritant	Rabbit	-	milligrams 24 hours 100	-
	Eyes - Severe irritant	Rabbit	-	microliters 40 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500	-
				milligrams	

Sensitization

Not available.

Mutagenicity

Product/ingredient name	Test	Experiment	Result
ethanol	-	Experiment: In vitro Subject: Mammalian-Animal Cell: Somatic	Equivocal
	-	Experiment: In vitro Subject: Mammalian-Human Cell: Somatic	Equivocal

Carcinogenicity

Not available.

Classification

Product/ingredient name	OSHA	IARC	NTP
Isopropyl alcohol	-	3	-
4-methylpentan-2-one	-	2B	-

Reproductive toxicity

Product/ingredient name	Maternal toxicity	Fertility	Development toxin	Species	Dose	Exposure
butan-2-ol	-	-	Equivocal	Rat	Inhalation: 5000 ppm	7 hours
ethanol	-	-	Equivocal	Woman	Oral: 41 g/ kg	-
	-	-	Equivocal	Woman	Oral: 250 mg/kg	-
Additive	Equivocal	-	-	Mouse	Intraperitoneal: 3825 mg/ kg	-
	Equivocal	-	-	Mouse	Oral: 12 g/ kg	-
methanol	-	-	Positive	Mouse - Female	Oral: 4 g/ kg	-
	Negative	-	Positive	Rat - Female	Oral: 5200 µg/ kg	-

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Section 11. Toxicological information

Teratogenicity

Product/ingredient name	Result	Species	Dose	Exposure
methanol	Positive - Oral	Rat	1027 mg/kg	-

Specific target organ toxicity (single exposure)

Product/ingredient name	Category	Route of exposure	Target organs
Butan-2-ol	Category 3	-	Respiratory tract irritation
Isopropyl alcohol	Category 3	-	Narcotic effects
methanol	Category 3	-	Narcotic effects
	Category 1	-	central nervous system (CNS), optic nerve
4-methylpentan-2-one	Category 3	-	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Dermal contact. Eye contact. Inhalation. Ingestion.

Potential acute health effects

- Eye contact** : Causes serious eye irritation.
- Inhalation** : Harmful if inhaled. Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness. May cause respiratory irritation.
- Skin contact** : Causes skin irritation. Defatting to the skin. May cause an allergic skin reaction.
- Ingestion** : Can cause central nervous system (CNS) depression.

Symptoms related to the physical, chemical and toxicological characteristics

- Eye contact** : Adverse symptoms may include the following:
 - pain or irritation
 - watering
 - redness
- Inhalation** : Adverse symptoms may include the following:
 - respiratory tract irritation
 - coughing
 - nausea or vomiting
 - headache
 - drowsiness/fatigue
 - dizziness/vertigo
 - unconsciousness
 - reduced fetal weight
 - increase in fetal deaths
 - skeletal malformations
- Skin contact** : Adverse symptoms may include the following:
 - irritation
 - redness
 - dryness
 - cracking
 - reduced fetal weight
 - increase in fetal deaths
 - skeletal malformations

Section 11. Toxicological information

Ingestion : Adverse symptoms may include the following:
reduced fetal weight
increase in fetal deaths
skeletal malformations

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

Carcinogenicity : Suspected of causing cancer. Risk of cancer depends on duration and level of exposure.

Mutagenicity : No known significant effects or critical hazards.

Reproductive toxicity : May damage fertility or the unborn child.

Numerical measures of toxicity

Acute toxicity estimates

Route	ATE value
Oral	3340.59 mg/kg
Inhalation (gases)	15309.47 ppm

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
Butan-2-ol ethanol	Acute EC50 4227 mg/l	Daphnia	48 hours
	Acute EC50 4227 mg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 3670 mg/l	Fish	96 hours
	Acute EC50 17.921 mg/l Marine water	Algae - Ulva pertusa	96 hours
	Acute EC50 2000 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 25500 µg/l Marine water	Crustaceans - Artemia franciscana - Larvae	48 hours
	Acute LC50 42000 µg/l Fresh water	Fish - Oncorhynchus mykiss	4 days
	Chronic NOEC 4.995 mg/l Marine water	Algae - Ulva pertusa	96 hours
	Chronic NOEC 100 µl/L Fresh water	Daphnia - Daphnia magna - Neonate	21 days
	Chronic NOEC 0.375 µl/L Fresh water	Fish - Gambusia holbrooki - Larvae	12 weeks
Isopropyl alcohol	Acute EC50 10100 mg/l Fresh water	Daphnia - Daphnia magna	48 hours
Additive	Acute LC50 1400000 µg/l Marine water	Crustaceans - Crangon crangon	48 hours
	Acute LC50 4200 mg/l Fresh water	Fish - Rasbora heteromorpha	96 hours
	LC50 9 mg/l	Algae	96 hours

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Section 12. Ecological information

methanol	Acute EC50 16.912 mg/l Marine water Acute LC50 2500000 µg/l Marine water	Algae - Ulva pertusa Crustaceans - Crangon crangon - Adult	96 hours 48 hours
	Acute LC50 3289 mg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 290 mg/l Fresh water	Fish - Danio rerio - Egg	96 hours
4-methylpentan-2-one	Chronic NOEC 9.96 mg/l Marine water Acute LC50 505000 µg/l Fresh water Chronic NOEC 78 mg/l Fresh water Chronic NOEC 168 mg/l Fresh water	Algae - Ulva pertusa Fish - Pimephales promelas Daphnia - Daphnia magna Fish - Pimephales promelas - Embryo	96 hours 96 hours 21 days 33 days

Persistence and degradability

Not available.

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Rosin/Resin	1.9 to 7.7	-	high
butan-2-ol	0.61	-	low
ethanol	-0.35	-	low
Isopropyl alcohol	0.05	-	low
Additive	-3.28	-	low
methanol	-0.77	<10	low
4-methylpentan-2-one	1.9	-	low

Mobility in soil







Soil/water partition coefficient (K_{oc}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	DOT Classification	TDG Classification	Mexico Classification	UN	IMDG	IATA
UN number	UN1987	UN1987	UN1987	UN1987	UN1987	UN1987
UN proper shipping name	ALCOHOLS, N. O.S. (butan- 2-ol, ethanol)	ALCOHOLS, N. O.S. (butan- 2-ol, ethanol)	ALCOHOLS, N. O.S. (butan- 2-ol, ethanol)	ALCOHOLS, N. O.S. (butan- 2-ol, ethanol)	ALCOHOLS, N. O.S. (butan- 2-ol, ethanol)	ALCOHOLS, N. O.S. (butan- 2-ol, ethanol)
Transport hazard class(es)	3 	3 	3 	3 	3 	3 
Packing group	II	II	II	II	II	II
Environmental hazards	No.	No.	No.	No.	No.	No.

Additional information - DOT Classification	ERG# 127

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Section 15. Regulatory information

U.S. Federal regulations : TSCA 5(a)2 proposed significant new use rule (SNUR): No products were found.
TSCA 5(a)2 final significant new use rule (SNUR): No products were found.
TSCA 12(b) one-time export notification: No products were found.
TSCA 12(b) annual export notification: No products were found.

United States inventory (TSCA 8b) : All components are listed or exempted.


SARA 302/304

Composition/information on ingredients

No products were found.

SARA 311/312

Classification

:  **FLAMMABLE LIQUIDS** - Category 2
ACUTE TOXICITY (inhalation) - Category 4
SKIN IRRITATION - Category 2
EYE IRRITATION - Category 2A
SKIN SENSITIZATION - Category 1
CARCINOGENICITY - Category 2
TOXIC TO REPRODUCTION - Category 1B
SPECIFIC TARGET ORGAN TOXICITY (Respiratory tract irritation) - Category 3
SPECIFIC TARGET ORGAN TOXICITY (Narcotic effects) - Category 3
HNOC - Defatting irritant

SARA 313

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Section 15. Regulatory information

	Product name	CAS number	%
Form R - Reporting requirements	butan-2-ol	78-92-2	20-30
Supplier notification	butan-2-ol	78-92-2	20-30

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

California Prop. 65

 **WARNING:** Cancer and Reproductive Harm - www.P65Warnings.ca.gov.

Canada

Canada inventory : All components are listed or exempted.

International regulations

Inventory list

Australia : All components are listed or exempted.
China : All components are listed or exempted.
Japan : All components are listed or exempted.
New Zealand : All components are listed or exempted.
Philippines : All components are listed or exempted.
Republic of Korea : All components are listed or exempted.
Taiwan : All components are listed or exempted.

Section 16. Other information

Hazardous Material Information System (U.S.A.)

Health	2
Flammability	4
Physical hazards	0

Procedure used to derive the classification

Classification	Justification
FLAMMABLE LIQUIDS - Category 2 ACUTE TOXICITY (inhalation) - Category 4 SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2A SKIN SENSITIZATION - Category 1 CARCINOGENICITY - Category 2 TOXIC TO REPRODUCTION - Category 1B SPECIFIC TARGET ORGAN TOXICITY (Respiratory tract irritation) - Category 3 SPECIFIC TARGET ORGAN TOXICITY (Narcotic effects) - Category 3 AQUATIC HAZARD (ACUTE) - Category 3 AQUATIC HAZARD (LONG-TERM) - Category 3	On basis of test data Calculation method Calculation method Calculation method Calculation method Calculation method Calculation method Calculation method Calculation method Calculation method Calculation method

History

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Section 16. Other information

Key to abbreviations

: ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973
as modified by the Protocol of 1978. ("Marpol" = marine pollution)
N/A = Not available
SGG = Segregation Group
UN = United Nations

References

: Not available.

Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.