

SAFETY DATA SHEET

Carbon Conductive Paint

Section 1. Identification

GHS product identifier : Carbon Conductive Paint
Product code : 05006-AB; 05006-GA; 05006-RA; 05006-XK
Other means of identification : Carbon suspension; SPI Supplies® Carbon Suspension
Product type : Liquid.

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

Product use : Laboratory reagent.
Area of application : Industrial applications, Professional applications.

Supplier's details : SPI Supplies Division Structure Probe, Inc.
206 Garfield Ave. West Chester, PA 19380
United States

Telephone: 1-(610)-436-5400
<http://www.2spi.com>

e-mail address of person responsible for this SDS : SDS@2spi.com

Emergency telephone number (with hours of operation) : **CHEMTREC**
Toll Free: 1-(800)-424-9300 (USA + Canada) (24/7)
International: 1-(703)-741-5970 (24/7)

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 : H225 FLAMMABLE LIQUIDS - Category 2
H318 SERIOUS EYE DAMAGE - Category 1
H336 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
H373 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2

GHS label elements

Hazard pictograms :



Signal word : Danger

Hazard statements : H225 - Highly flammable liquid and vapor.
H318 - Causes serious eye damage.
H336 - May cause drowsiness or dizziness.
H373 - May cause damage to organs through prolonged or repeated exposure. (liver)

Date of issue/Date of revision : 09/18/2020 **Date of previous issue** : No previous validation **Version** : 1 1/16

Section 2. Hazards identification

Precautionary statements

Prevention	: P280 - Wear protective gloves, protective clothing and eye or face protection. P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P241 - Use explosion-proof electrical, ventilating or lighting equipment. P242 - Use non-sparking tools. P243 - Take action to prevent static discharges. P271 - Use only outdoors or in a well-ventilated area. P260 - Do not breathe vapor.
Response	: P314 - Get medical advice or attention if you feel unwell. P304 + P340, P312 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor if you feel unwell. P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. P305 + P351 + P338, P310 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor.
Storage	: P405 - Store locked up. P403 + P233 - Store in a well-ventilated place. Keep container tightly closed. P403 + P235 - Keep cool.
Disposal	: P501 - 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
Other means of identification	: Carbon suspension; SPI Supplies® Carbon Suspension

Ingredient name	Other names	%	CAS number
Isopropyl alcohol	-	60 - 70	67-63-0
Graphite	-	10 - 20	7782-42-5
butan-1-ol	-	1 - 5	71-36-3
1-methoxy-2-propanol	-	1 - 5	107-98-2
2-methylpentane-2,4-diol	-	1 - 5	107-41-5

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 as hazardous to health and hence require reporting in this section.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact	: Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician.
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Section 4. First aid measures

- Inhalation** : Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes 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. 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.
- Skin contact** : Get medical attention immediately. Call a poison center or physician. 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 10 minutes. Chemical burns must be treated promptly by a physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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. Chemical burns must be treated promptly by a 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 damage.
- Inhalation** : Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness.
- Skin contact** : Defatting to the skin. May cause skin dryness and irritation.
- Ingestion** : Can cause central nervous system (CNS) depression.

Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:
pain
watering
redness
- Inhalation** : Adverse symptoms may include the following:
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness
- Skin contact** : Adverse symptoms may include the following:
pain or irritation
redness
dryness
cracking
blistering may occur
- Ingestion** : Adverse symptoms may include the following:
stomach pains

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

Section 4. First aid measures

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- 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 fumes 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. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
hydrocarbons

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. Do not breathe 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".

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).

Section 6. Accidental release measures

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). Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. 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 between the following temperatures: 5 to 32°C (41 to 89.6°F). 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

Section 8. Exposure controls/personal protection

Ingredient name	Exposure limits
Isopropyl alcohol	<p>ACGIH TLV (United States, 3/2019). TWA: 200 ppm 8 hours. STEL: 400 ppm 15 minutes.</p> <p>NIOSH REL (United States, 10/2016). TWA: 400 ppm 10 hours. TWA: 980 mg/m³ 10 hours. STEL: 500 ppm 15 minutes. STEL: 1225 mg/m³ 15 minutes.</p> <p>OSHA PEL (United States, 5/2018). TWA: 400 ppm 8 hours. TWA: 980 mg/m³ 8 hours.</p>
Graphite	<p>ACGIH TLV (United States, 3/2019). TWA: 2 mg/m³ 8 hours. Form: Respirable fraction</p> <p>NIOSH REL (United States, 10/2016). TWA: 2.5 mg/m³ 10 hours. Form: Respirable fraction</p> <p>OSHA PEL (United States, 5/2018). TWA: 5 mg/m³ 8 hours. Form: Respirable fraction TWA: 15 mg/m³ 8 hours. Form: Total dust</p> <p>OSHA PEL Z3 (United States, 6/2016). TWA: 15 mppcf 8 hours.</p>
butan-1-ol	<p>ACGIH TLV (United States, 3/2019). TWA: 20 ppm 8 hours.</p> <p>NIOSH REL (United States, 10/2016). Absorbed through skin. CEIL: 50 ppm CEIL: 150 mg/m³</p> <p>OSHA PEL (United States, 5/2018). TWA: 100 ppm 8 hours. TWA: 300 mg/m³ 8 hours.</p>
1-methoxy-2-propanol	<p>ACGIH TLV (United States, 3/2019). TWA: 50 ppm 8 hours. TWA: 184 mg/m³ 8 hours. STEL: 100 ppm 15 minutes. STEL: 369 mg/m³ 15 minutes.</p> <p>NIOSH REL (United States, 10/2016). TWA: 100 ppm 10 hours. TWA: 360 mg/m³ 10 hours. STEL: 150 ppm 15 minutes. STEL: 540 mg/m³ 15 minutes.</p>
2-methylpentane-2,4-diol	<p>ACGIH TLV (United States, 3/2019). STEL: 10 mg/m³ 15 minutes. Form: Inhalable fraction. Aerosol only. STEL: 50 ppm 15 minutes. Form: Vapor fraction</p> <p>TWA: 25 ppm 8 hours. Form: Vapor fraction</p> <p>NIOSH REL (United States, 10/2016). CEIL: 25 ppm CEIL: 125 mg/m³</p>

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.

Section 8. Exposure controls/personal protection

- 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. 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 and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.
- 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.
- 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. Recommended: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator w/ full or ½ face N95 cartridge masks if exposure limits are exceeded or symptoms are experienced.

Section 9. Physical and chemical properties

Appearance

- Physical state** : Liquid.
- Color** : Black.
- Odor** : Alcohol-like.
- Odor threshold** : Not available.
- pH** : Not available.
- Melting point** : <0°C (<32°F)
- Boiling point** : >82.3°C (>180.1°F)
- Flash point** : Closed cup: 11.1°C (52°F) [Pensky-Martens.]
- Evaporation rate** : Not available.

Section 9. Physical and chemical properties

Flammability (solid, gas)	: Not applicable.
Lower and upper explosive (flammable) limits	: Lower: 2% Upper: 12%
Vapor pressure	: 4.1 kPa (31 mm Hg) [room temperature]
Vapor density	: 2.07 [Air = 1]
Relative density	: 0.875 to 0.9
Density	: Not available.
Solubility	: Soluble in the following materials: cold water and hot water.
Partition coefficient: n-octanol/water	: Not available.
Auto-ignition temperature	: >398.8°C (>749.8°F)
Decomposition temperature	: Not available.
SADT	: Not available.
Viscosity	: Dynamic (room temperature): 200 to 400 mPa·s (200 to 400 cP)
Flow time (ISO 2431)	: Not available.
Physical/chemical properties comments	: VOC (v/v): 80% VOC: 710 g/l

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. Under normal conditions of storage and use, hazardous polymerization 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. Do not allow vapor to accumulate in low or confined areas. Avoid high temperatures.
Incompatible materials	: Reactive or incompatible with the following materials: oxidizing materials Reactive or incompatible with the following materials: acids and alkalis.
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Section 11. Toxicological information

Product/ingredient name	Result	Species	Dose	Exposure
Isopropyl alcohol	LC50 Inhalation Vapor	Rat	72.2 mg/l	4 hours
	LD50 Dermal	Rabbit	12800 mg/kg	-
	LD50 Oral	Rat	5000 mg/kg	-
butan-1-ol	LC50 Inhalation Vapor	Rat	24000 mg/m ³	4 hours
	LD50 Dermal	Rabbit	3400 mg/kg	-
	LD50 Oral	Rat	790 mg/kg	-
1-methoxy-2-propanol	LC50 Inhalation Vapor	Rat	24.1 mg/l	4 hours
	LD50 Dermal	Rabbit	13 g/kg	-
	LD50 Dermal	Rat - Male, Female	>2000 mg/kg	-
	LD50 Oral	Rat - Male, Female	4016 mg/kg	-
2-methylpentane-2,4-diol	LD50 Dermal	Rabbit	7900 mg/kg	-
	LD50 Oral	Rat	3700 mg/kg	-

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Isopropyl alcohol	Eyes - Moderate irritant	Rabbit	-	24 hours 100 mg	-
	Eyes - Moderate irritant	Rabbit	-	10 mg	-
	Eyes - Severe irritant	Rabbit	-	100 mg	-
butan-1-ol	Skin - Mild irritant	Rabbit	-	500 mg	-
	Eyes - Severe irritant	Rabbit	-	24 hours 2 mg	-
	Eyes - Severe irritant	Rabbit	-	0.005 MI	-
1-methoxy-2-propanol	Skin - Moderate irritant	Rabbit	-	24 hours 20 mg	-
	Eyes - Mild irritant	Rabbit	-	24 hours 500 mg	-
	Skin - Mild irritant	Rabbit	-	500 mg	-
2-methylpentane-2,4-diol	Skin - Mild irritant	Rabbit	-	465 mg	-
	Skin - Moderate irritant	Rabbit	-	24 hours 500 mg	-

Sensitization

Not available.

Mutagenicity

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Classification

Product/ingredient name	OSHA	IARC	NTP
Isopropyl alcohol	-	3	-

Reproductive toxicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

Section 11. Toxicological information

Name	Category	Route of exposure	Target organs
Isopropyl alcohol	Category 3	-	Narcotic effects
butan-1-ol	Category 3	-	Respiratory tract irritation
1-methoxy-2-propanol	Category 3	-	Narcotic effects
2-methylpentane-2,4-diol	Category 3	-	Narcotic effects Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
Isopropyl alcohol	Category 2	-	liver

Aspiration hazard

Name	Result
butan-1-ol	ASPIRATION HAZARD - Category 1

Information on the likely routes of exposure : Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential acute health effects

- Eye contact** : Causes serious eye damage.
- Inhalation** : Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness.
- Skin contact** : Defatting to the skin. May cause skin dryness and irritation.
- 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
watering
redness
- Inhalation** : Adverse symptoms may include the following:
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness
- Skin contact** : Adverse symptoms may include the following:
pain or irritation
redness
dryness
cracking
blistering may occur
- Ingestion** : Adverse symptoms may include the following:
stomach pains

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

Short term exposure

Section 11. Toxicological information

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

General : May cause damage to organs through prolonged or repeated exposure. Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Reproductive toxicity : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (mg/l)	Inhalation (dusts and mists) (mg/l)
Carbon Conductive Paint	4630.8	40819.2	N/A	N/A	N/A
Isopropyl alcohol	5000	12800	N/A	72.2	N/A
butan-1-ol	790	3400	N/A	24	N/A
1-methoxy-2-propanol	4016	2500	N/A	24.1	N/A
2-methylpentane-2,4-diol	3700	7900	N/A	N/A	N/A

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
Isopropyl alcohol	Acute EC50 7550 mg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 1400000 µg/l Marine water	Crustaceans - Crangon crangon	48 hours
butan-1-ol	Acute LC50 4200 mg/l Fresh water	Fish - Rasbora heteromorpha	96 hours
	Acute EC50 225 mg/l Fresh water	Algae - Pseudokirchneriella subcapitata	96 hours
	Acute EC50 1983 mg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 1730000 µg/l Fresh water	Fish - Pimephales promelas	96 hours
2-methylpentane-2,4-diol	Acute NOEC 415 mg/l Fresh water	Daphnia - Daphnia magna	48 hours Static
	Acute NOEC 519 mg/l Fresh water	Fish - Pimephales promelas	96 hours Static
	Acute EC50 >429 mg/l Fresh water	Algae	72 hours
	Acute EC50 2800000 µg/l Fresh water	Crustaceans - Ceriodaphnia reticulata - Larvae	48 hours
	Acute EC50 3200000 µg/l Fresh water	Daphnia - Daphnia magna - Larvae	48 hours
	Acute LC50 8000000 µg/l Marine water	Fish - Alburnus alburnus	96 hours

Section 12. Ecological information

Conclusion/Summary : Not available.

Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
1-methoxy-2-propanol	OECD 301E Ready Biodegradability - Modified OECD Screening Test	96 % - Readily - 28 days	-	-
2-methylpentane-2,4-diol	OECD	81 % - Readily - 28 days	-	-

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Isopropyl alcohol	-	-	Readily
butan-1-ol	-	-	Readily
1-methoxy-2-propanol	-	-	Readily
2-methylpentane-2,4-diol	-	-	Readily

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Isopropyl alcohol	0.05	-	low
butan-1-ol	1	-	low
1-methoxy-2-propanol	<1	-	low
2-methylpentane-2,4-diol	0.58	-	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.

United States - RCRA Toxic hazardous waste "U" List

Ingredient	CAS #	Status	Reference number
1-Butanol (l); n-Butyl alcohol (l)	71-36-3	Listed	U031

Date of issue/Date of revision : 09/18/2020 **Date of previous issue** : No previous validation **Version** : 1 12/16

Section 14. Transport information

	DOT Classification	IMDG	IATA
UN number	UN1263	UN1263	UN1263
UN proper shipping name	Paint	PAINT	Paint
Transport hazard class(es)	3 	3 	3 
Packing group	II	II	II
Environmental hazards	No.	No.	No.

Additional information

DOT Classification

: **Limited quantity** Yes.
Packaging instruction Exceptions: 150. Non-bulk: 173. Bulk: 242.
Quantity limitation Passenger aircraft/rail: 5 L. Cargo aircraft: 60 L.
Special provisions 149, 367, 383, B52, B131, IB2, T4, TP1, TP8, TP28

IMDG

: **Emergency schedules** F-E, _S-E_
Special provisions 163, 367

IATA

: **Quantity limitation** Passenger and Cargo Aircraft: 5 L. Packaging instructions: 353.
Cargo Aircraft Only: 60 L. Packaging instructions: 364. Limited Quantities - Passenger Aircraft: 1 L. Packaging instructions: Y341.
Special provisions A3, A72, A192

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.

Transport in bulk according to IMO instruments : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption:** Not determined
United States inventory (TSCA 8b): All components are active or exempted.

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

Section 15. Regulatory information

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : FLAMMABLE LIQUIDS - Category 2
 SERIOUS EYE DAMAGE - Category 1
 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2
 HNOC - Defatting irritant

Composition/information on ingredients

Name	%	Classification
Isopropyl alcohol	60 - 70	FLAMMABLE LIQUIDS - Category 2 EYE IRRITATION - Category 2A SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2 HNOC - Defatting irritant
Graphite butan-1-ol	10 - 20 1 - 5	COMBUSTIBLE DUSTS FLAMMABLE LIQUIDS - Category 3 ACUTE TOXICITY (oral) - Category 4 SKIN IRRITATION - Category 2 SERIOUS EYE DAMAGE - Category 1 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
1-methoxy-2-propanol	1 - 5	ASPIRATION HAZARD - Category 1 FLAMMABLE LIQUIDS - Category 3 EYE IRRITATION - Category 2B SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
2-methylpentane-2,4-diol	1 - 5	SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2A SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3

SARA 313

	Product name	CAS number	%
Form R - Reporting requirements	butan-1-ol	71-36-3	1 - 5
Supplier notification	butan-1-ol	71-36-3	1 - 5

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.

State regulations

Massachusetts : The following components are listed: ISOPROPYL ALCOHOL; 2-PROPANOL; GRAPHITE (NATURAL)DUST; GRAPHITE, SYNTHETIC; N-BUTYL ALCOHOL; 1-BUTANOL; PROPYLENE GLYCOL METHYL ETHER; PROPYLENE GLYCOL MONOMETHYL ETHER; HEXYLENE GLYCOL

Section 15. Regulatory information

- New York** : The following components are listed: Butyl alcohol; 1-Butanol
- New Jersey** : The following components are listed: ISOPROPYL ALCOHOL; 2-PROPANOL; GRAPHITE (NATURAL); GRAPHITE; n-BUTYL ALCOHOL; 1-BUTANOL; PROPYLENE GLYCOL MONOMETHYL ETHER; 1-METHOXY-2-PROPANOL; HEXYLENE GLYCOL; 2,4-PENTANEDIOL, 2-METHYL-
- Pennsylvania** : The following components are listed: 2-PROPANOL; GRAPHITE; GRAPHITE (SYNTHETIC); 1-BUTANOL; 2-PROPANOL, 1-METHOXY-; 2,4-PENTANEDIOL, 2-METHYL-

California Prop. 65

This product does not require a Safe Harbor warning under California Prop. 65.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Section 16. Other information

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

Health	*	3
Flammability		3
Physical hazards		0

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings and the associated label are not required on SDSs or products leaving a facility under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered trademark and service mark of the American Coatings Association, Inc.

The customer is responsible for determining the PPE code for this material. For more information on HMIS® Personal Protective Equipment (PPE) codes, consult the HMIS® Implementation Manual.

National Fire Protection Association (U.S.A.)



Procedure used to derive the classification

Section 16. Other information

Classification	Justification
FLAMMABLE LIQUIDS - Category 2	On basis of test data
SERIOUS EYE DAMAGE - Category 1	Calculation method
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3	Calculation method
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2	Calculation method

History

Date of issue/Date of revision	: 09/18/2020
Date of previous issue	: No previous validation
Version	: 1
Prepared by	: Sphera Solutions
Key to abbreviations	: ATE = Acute Toxicity Estimate AMP = Acceptable maximum peak above the acceptable ceiling concentration for an 8-hr shift 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 UN = United Nations
References	: HCS (U.S.A.)- Hazard Communication Standard International transport regulations

📌 Indicates information that has changed from previously issued version.

Notice to reader

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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.