



MATERIAL SAFETY DATA SHEET

INDUSTRIES 3R

IDENTITY

Part Number: **3R 3020**
 Identity: Dry graphite lube
 Description: Graphite Aerosol

SUPPLIER

Industries 3R inc.
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INGREDIENTS AND HAZARDS

<u>INGREDIENTS</u>	<u>#CAS</u>	<u>%(weight)</u>	<u>LD₅₀ (route, specie)</u>	<u>LC₅₀ (specie)</u>
1,1,2-Trichloroethylene	79-01-6	10-30	4920 mg/kg (oral, rat) 20 mL/kg (dermal, rabbit)	8450 ppm 4 hrs (rat)
Acetone	67-64-1	10-30	5800 mg/kg (oral, rat)	71 g/m ³ 4 hrs (rat)
Toluene	108-88-3	5-10	636 mg/kg (oral, rat) 14100 µL/kg (dermal, rabbit)	49 g/m ³ 4 hrs (rat)
Isobutane	75-28-5	10-30	N/Ap	658000mg/m ³ 4 hrs (rat)
Propane	74-98-6	7-13	N/Ap	N/Av

PHYSICAL AND CHEMICAL PROPERTIES

Physical state, colour and odour: Aerosol (black liquid) with slight ketone odour.
 Odour threshold: N/Av
 pH: N/Av
 Boiling point: 57-111°C
 Melting/freezing point: N/A
 Vapour pressure: 45-55 psi @ 20°C (68°F)
 Solubility in water: Negligible
 Coefficient of oil/water distribution: N/Av
 Specific gravity or density (water = 1): ~1.01-1.05
 Vapour density (air = 1): Heavier than air
 Evaporation rate (n-Butyl acetate = 1): > 1
 % volatile by volume: N/Av

FIRE-FIGHTING MEASURES

Fire hazards/conditions of flammability: EXTREMELY FLAMMABLE AEROSOL according to flame projection (>15 cm but <100 cm) and no flashback. Does burn under normal handling conditions.

Flash point (Method): >-18°C
 Lower flammable limit (% by volume): 1.0
 Upper flammable limit (% by volume): 12.8
 Sensitivity to mechanical impact: Aerosols may explode or become projectiles after a mechanical impact.
 Sensitivity to static discharge: N/Av
 Auto-ignition temperature: 465-480°C

Suitable extinguishing media: Carbon dioxide, dry chemical powder and appropriate foam.

Special fire-fighting procedures/equipment: During a fire, irritating/toxic smoke and fumes may be generated. Vapours can accumulate in confined spaces, resulting in a toxicity and flammability hazard. A self-contained breathing apparatus is required for fire-fighting personnel to protect themselves from toxic products produced during the combustion. Closed containers may explode with the pressure building from the heat. Use water to cool fire exposed containers and prevent this situation.

Hazardous combustion products: Carbon monoxide, carbon dioxide and other irritant gases, which may include toxic constituents.

STABILITY AND REACTIVITY

Stability and reactivity: Stable at room temperature, in normal handling and storage conditions.

Polymerisation: Hazardous polymerisation will not occur.

Conditions to avoid: Avoid STRONG OXIDIZING AGENTS, STRONG BASES, ALKALI METALS, ETC. Keep away from ignition sources. Do not expose containers to mechanical impacts and temperatures exceeding 50°C (122°F).

Materials to avoid: Avoid STRONG OXIDIZING AGENTS, STRONG BASES, ALKALI METALS, ETC.

Hazardous decomposition products: Hydrogen chloride gas, hydrochloric acid, phosgene, dichloroacetyl chloride and dichloroacetic acid.

EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering controls: Local exhaust ventilation system is recommended to maintain concentrations of contaminants below exposure limits.

Respiratory Protection: Respiratory protection is required if the concentrations are higher than the exposure limits. Use a NIOSH approved respirator if the exposure limits are unknown.

Protective Clothing/Equipment: Wear chemically protective gloves (impervious), and other protective clothing to prevent prolonged or repeated skin contact. Wear protective chemical safety glasses to prevent prolonged or repeated eye contact. Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.

Comments: Avoid contact with skin and eyes. Avoid breathing this product. Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material.

WASTE DISPOSAL

Handling and storage conditions for disposal: Store material for disposal as indicated in *section Handling and Storage*.

Methods of disposal: Review federal, provincial and local government requirements prior to disposal.

HEALTH HAZARD INFORMATION

Emergency overview

EXTREMELY FLAMMABLE AEROSOL. Vapours may catch fire. Content under pressure. **TOXIC.** May be harmful if ingested or inhaled. Prolonged or excessive inhalation may cause central nervous system depression, death and have neurological effects. Prolonged or excessive ingestion may cause aspiration of liquid into the lungs and cause chemical pneumonitis or even death. **IRRITANT.** Causes skin, eye, respiratory tract and digestive tract irritations.

Possible reproductive hazard - may cause developmental toxicity and mutagenic effects, based on animal information.

Suspect cancer hazard - may cause cancer, based on human information.

POTENTIAL HEALTH EFFECTS (for more details, refer to *Section Toxicological information*)

Primary entry route(s): Skin, eye, ingestion and inhalation.

Effects of short-term (acute) and long-term (chronic) exposure:

Inhalation: May be harmful if inhaled. Prolonged or excessive inhalation may cause central nervous system depression and have neurological effects. May cause headache, nausea, dizziness, vomiting and in coordination. Irritating to respiratory tract.

Skin: Causes severe skin irritations.

Eye: Causes severe eye irritations.

Ingestion: May be harmful if ingested. Prolonged or excessive ingestion may cause aspiration of liquid into the lungs and cause chemical pneumonitis or even death. May also cause gastrointestinal irritation, nausea and diarrhea. Causes severe digestive tract irritations.

FIRST AID MEASURES

Inhalation: Remove source of contamination or have victim move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Obtain medical attention immediately.

Skin contact: Flush contaminated area with lukewarm, gently running water for at least 20 minutes. If irritation persists, obtain medical advice.

Eye contact: Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for at least 20 minutes. Obtain medical attention immediately.

Ingestion: NEVER give anything by mouth if victim is rapidly losing consciousness, or is unconscious or convulsing. Rinse mouth thoroughly with water. DO NOT INDUCE VOMITING. Have victim drink two glasses of water. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Repeat administration of water. Obtain medical attention immediately.

ACCIDENTAL RELEASE MEASURES

Personal precautions: Restrict access to area until completion of clean-up. Ensure clean-up is conducted by trained personnel only. Remove all ignition sources. Remove or isolate flammable and combustible materials. Wear adequate personal protective equipment (See *Section Exposure controls and personal protection*). Ventilate area.

Spill response/Cleanup: Stop the flow if it can be done safely. Keep materials which can burn away from spilled material. Prevent material from entering waterways, sewers or confined spaces. Put material in suitable, covered, labelled containers.

Environmental precautions: Confine spill, preventing it from entering sewer lines or waterways. Dispose of as per local, state and federal regulations.

HANDLING AND STORAGE

Safe handling procedures: Before handling, it is very important that engineering controls are operating and that protective equipment requirements and personal hygiene measures are being followed. People working with this chemical should be properly trained regarding its hazards and its safe use. Do not use near welding operations, flames or hot surfaces. Ensure proper ventilation after sealed area has been treated. Inspect containers for leaks before handling. Label containers appropriately. Keep containers closed when not in use. Empty containers are always dangerous. Assume that empty containers contain residues which are hazardous. Do not use with incompatible materials.

Storage requirements: Store in a cool, well-ventilated area, away from heat and ignition sources. Keep storage area clear of ignition sources. Store away from incompatible materials. Inspect all incoming containers to make sure they are properly labelled and not damaged. Store in suitable, labelled containers. Keep containers tightly closed. Empty containers are always dangerous. Storage area should be clearly identified, clear of obstruction and accessible only to trained personnel. Inspect periodically for damage or leaks.

TRANSPORT INFORMATION

Transportation of Dangerous Goods (TDG) :

TDG Classification: UN1950; AEROSOL ; Class 2.1

Special case: Product can also be shipped as a LIMITED QUANTITY/CONSUMER COMMODITY according to TDG Section 1.17.

TOXICOLOGICAL INFORMATION

Exposure limits: N/Av for the product.

<u>INGREDIENTS</u>	<u>OSHA PEL</u>		<u>ACGIH-TLV</u>		<u>Other exposure Limits</u>
	TWA	STEL	TWA	STEL	
1.1.2-Trichloroethylene	100 ppm	200 ppm	10 ppm	25 ppm	N/A
Acetone	1000 ppm	N/Av	500 ppm	750 ppm	N/A
Toluene	200 ppm	300 ppm	20 ppm	N/A	N/A
Isobutane	N/A	N/A	1000 ppm	N/A	N/A
Propane	1000 ppm	N/A	1000 ppm	N/A	N/A

For more details, refer to Section Hazards Identification.

Carcinogenicity: 1.1.2-Trichloroethylene is listed by IARC, ACGIH, NTP or OSHA as a carcinogen.

Teratogenicity, mutagenicity, other reproductive effects: 1.1.2-Trichloroethylene and Toluene may cause developmental toxicity and mutagenic effects.

Skin sensitization: N/A

Respiratory tract sensitization: N/A

Synergistic materials: N/A

ECOLOGICAL INFORMATION

Environmental effects: N/A

Important environmental characteristics: N/A

Aquatic toxicity: N/A

REGULATORY INFORMATION

In Canada

WHMIS information:

Product is regulated according to the Controlled Product Regulation (CPR) in Canada.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and this MSDS contains all the information required by the CPR.

Hazardous Materials Identification System (HMIS):

Health: 3 Flammability: 4 Reactivity: 1

Personal protection: *Section Exposure controls and personal protection.*

HAZARD: 0 Minimal 1 Slight 2 Moderate 3 Serious 4 Severe

National Fire Protection Association (NFPA):

Health: 3 Flammability: 4 Reactivity: 1

Personal protection: *Section Exposure controls and personal protection.*

HAZARD: 0 Minimal 1 Slight 2 Moderate 3 Serious 4 Severe

ADDITIONAL INFORMATION

The information, details, dimensions and values indicated are to our best knowledge. We recommend testing according to local conditions. The specifications are subject to change without notice.