

Safety Data Sheet

R-4



1. Identification

Product identifier	R-4
Product code	FLR44X4LTCS, FLR420LT, FLR4205LT
Other means of identification	R-4, Liquid bulk format. This SDS sheet is not for the product in aerosol format.
Recommended use of the chemical and restrictions on use	Industrial loose nut and penetrate, anticorrosion, dielectric.
Manufacturer	AEROCHEM Inc. 5977 Trans Canada Highway Pointe-Claire, QC H9R 1C1 Canada General Information: 1-888-592-5837 www.aerochem.ca info@aerochem.ca
Emergency phone number	INFOTRAC®: 1-800-535-5053 International call collect: 1-352-323-3500 24 hours/day, 7 days/week

2. Hazard identification

Summary	Combustible liquid. Keep away from heat, sparks and open flame. Avoid contact with skin, eyes and clothing. Do not breathe vapours, mists or aerosols. Do not ingest. If ingested consult physician immediately and show this Safety Data Sheet. Wear eye protection, gloves and other protective clothing that are adapted to the task being performed and the risks involved.
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WHMIS 2015/GHS/OSHA HCS 2012



Flammable liquids (Category 4)
Acute toxicity, inhalation (Category 4)
Skin corrosion/irritation (Category 2)
Serious eye damage/eye irritation (Category 2)
Specific target organ toxicity, single exposure, Narcotic effects (Category 3)
Aspiration hazard (Category 1)

DANGER

H227: Combustible liquid
H304: May be fatal if swallowed and enters airways
H332: Harmful if inhaled
H319: Causes serious eye irritation
H315: Causes skin irritation
H336: May cause drowsiness or dizziness
H411: Toxic to aquatic life with long lasting effects
P210: Keep away from heat, sparks, open flames and other ignition sources. No smoking.
P261: Avoid breathing vapours, mist and spray.
P264: Wash skin thoroughly after handling.
P271: Use only outdoors or in a well-ventilated area.
P273: Avoid release to the environment.

P280: Wear protective gloves, protective clothing and eye protection.
 P301+310+331: IF SWALLOWED: Immediately call a POISON CENTER or a physician. Do NOT induce vomiting.
 P302+352: IF ON SKIN: Wash with plenty of water and soap.
 P332+313: If skin irritation occurs: Get medical advice or attention.
 P304+340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
 P312: Call a POISON CENTER or physician if you feel unwell.
 P305+351+338: IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
 P337+313: If eye irritation persists: Get medical advice or attention.
 P362+364: Take off contaminated clothing and wash before reuse.
 P370+378: In case of fire: Use chemical foam, dry chemical or carbon dioxide to extinguish.
 P391: Collect spillage.
 P403+233: Store in a well ventilated place. Keep container tightly closed.
 P405: Store locked up.
 P501: Dispose of contents and container to a licensed chemical disposal agency in accordance with local, regional and national regulations.

Other hazards which do not result in classification

Long-term hazard to the aquatic environment (Category 2)

3. Composition/information on ingredients

Common name	CAS	Weight % content
Naphtha (petroleum), hydrotreated heavy (C6-C13)	64742-48-9	30 - 60 %
Stoddard solvent (Mineral Spirits)	8052-41-3	15 - 40 %
Mineral oil	Mixture oil	10 - 30 %
Phosphorodithioic acid, mixed O,O-bis(iso-Bu and pentyl) esters, zinc salts	68457-79-4	1 - 5 %
Distillates (petroleum), hydrotreated heavy naphthenic	64742-52-5	0.5 - 1.5 %

Note: The mineral oil contained in this material may be described by one or more of the following CAS no: 64742-54-7, 64742-65-0, 64742-55-8, and 64742-56-9. The product is made at 99.9% of a mixture of these highly refined ingredients, containing no polycyclic aromatic hydrocarbon (PAH). The manufacturer withholds the actual concentration range of the ingredients as a trade secret.

4. First-aid measures

Inhalation	Move person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen by trained personnel. If a problem develops or persists, seek medical attention.
Skin contact	Wash skin with warm water and mild soap for at least 15 minutes. Remove contaminated clothing and wash before reuse. Avoid touching eyes with contaminated body parts. If a problem develops or persists, seek medical attention.
Eye contact	IMMEDIATELY flush with plenty of water. Remove contact lenses if easy to do. Flush with water for at least 15 minutes. Hold eyelids apart to rinse properly. Seek medical attention immediately.
Ingestion	DO NOT induce vomiting, unless recommended by medical personnel. If victim is conscious wash out mouth with plenty of water. Never give anything by mouth if victim is unconscious or convulsing. If spontaneous vomiting occurs, keep head below hip level to prevent aspiration into the lungs. Seek medical attention or contact a Poison Centre immediately.
Other	No information available.
Symptoms	May cause redness and irritation to eyes. May cause dry skin and irritation. Inhalation of vapours may cause central nervous system depression such as drowsiness, headache, dizziness, vertigo, nausea and fatigue. Harmful or fatal if inhaled into the lungs (ingestion/vomiting). Signs of lung involvement include increased respiratory rate, increased heart rate, and a bluish discolouration of the skin. Coughing, choking and

	gagging are often noted at the time of aspiration.
Notes to the physician	Aspiration hazard for the lungs (ingestion/vomiting). Can enter lungs and cause damage. If gastric lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

5. Fire-fighting measures

Suitable extinguishing media	Dry chemicals, water spray, chemical foam, carbon dioxide (CO ₂). Do not use a heavy water jet.
Specific hazards arising from the chemical	Combustible liquid and vapours. May be ignited by heat, sparks, flame or static electricity. Vapours are heavier than air and may travel to an ignition source distant from the material handling point. Contact with strong oxidizers may cause fire.
Special protective equipment	Firefighters must wear self contained breathing apparatus with full face mask. Firefighting suit may not be efficient against chemicals.
Special protective actions for fire-fighters	Use water spray to cool fire-exposed containers. Water spray can reduce the intensity of the flames. However, the water jets can spread the fire. Prevent run-off from fire control or dilution from entering streams, sewers or drinking water supply.


6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Do not touch spilled material. Make sure to wear personal protective equipment mentioned in this Safety Data Sheet.
Environmental precautions	Prevent entry into sewers, closed areas and release to the environment. For a large spill, consult the Department of Environment or the relevant authorities.
Methods and materials for containment and cleaning up	Ventilate the area well. Remove sources of ignition. Stop leak, if it's possible to do so without risk. Absorb with inert material (soil, sand, vermiculite) and place in an appropriate waste disposal clearly identified. Use non-sparking and antistatic tools. Finish cleaning the contaminated surface by rinsing with soapy water. For large spills, dike for later disposal. Dispose via a licensed waste disposal contractor.

7. Handling and storage

Precautions for safe handling	Keep away from heat, sparks and open flame. Avoid all sources of ignition. Use non-sparking and antistatic tools. Ground/bond all containers when transferring large quantities (5 gallons US or 20 L and more). Use only in well ventilated area. Do not breathe vapours, mists or aerosols. Avoid contact with skin, eyes and clothing. Wear eye protection, gloves and other protective clothing that are adapted to the task being performed and the risks involved. Keep only the quantities necessary for the work being performed in the work area. Keep containers tightly closed when not in use. Do not eat, do not drink and do not smoke during use. Wash hands, forearms and face thoroughly after handling this compound and before eating, drinking or using toiletries. Remove contaminated clothing and wash before reuse.
Conditions for safe storage, including any incompatibilities	Storage and handling should follow the NFPA 30 Flammable and/or Combustible Liquids Code and the National Fire Code of Canada (NFCC). Ground or bond large containers. Store tightly closed and in properly labelled containers in a cool, dry and well ventilated place. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Store away from oxidizing materials and incompatible materials (see section 10). Keep away from direct sunlight and heat.
Storage temperature	0 to 50 °C (32 to 122 °F)

8. Exposure controls/personal protection

Immediately Dangerous to Life or Health	Stoddard solvent (Mineral Spirits): 20000 mg/m ³ .			
Naphtha (petroleum), hydrotreated heavy (C6-C13)	TWA (8h)	Mist	5 mg/m ³ 175 ppm 300 ppm	ACGIH , RSST Other OSHA
Stoddard solvent (Mineral Spirits)	STEL TWA (8h)		580 mg/m ³ 290 mg/m ³ 100 ppm	BC BC
Mineral oil	STEL	Mist	10 mg/m ³	ACGIH , ON, RSST RSST
Distillates (petroleum), hydrotreated heavy naphthenic	TWA (8h)	Mist	5 mg/m ³	ACGIH , RSST
	STEL	Mist	10 mg/m ³	OSHA , RSST
	TWA (8h)	Mist	1 mg/m ³	BC
		Mist	5 mg/m ³	ACGIH , ON, OSHA, RSST
Appropriate engineering controls	Provide sufficient mechanical ventilation (general or local exhaust) to keep the airborne concentrations of vapours, mists, aerosols or dust below their respective occupational exposure limits.			
Individual protection measures				
Eye	Wear chemical splash goggles.			
Hands	Chemical-resistant, impervious gloves should be worn at all times when handling this chemical product. Wear nitrile or neoprene gloves. Disposable nitrile gloves can also be used, but discard after single use. Before using, user should confirm impermeability. Discard gloves with tears, pinholes, or signs of wear. Gloves must only be worn on clean hands. Wash gloves with water before removing them. After using gloves, hands should be washed and dried thoroughly.			
Skin	Personal protective equipment for the body should be selected based on the task being performed and the risks involved. Wear normal work clothing covering arms and legs as required by employer code. Wear synthetic or a neoprene apron, if necessary, to prevent repeated or prolonged contact with skin.			
Respiratory	Respiratory protection is not required for normal use. Where the conditions in the workplace require a respirator, it is necessary to follow a respiratory protection program. Moreover, respiratory protection equipment (RPE) must be selected, fitted, maintained and inspected in accordance with regulations and standard 29 CFR 1910.134 (OSHA), ANSI Z88.2 or CSA Z 94.11 (Canada) and approved by NIOSH/MSHA. In case of insufficient ventilation or in confined or enclosed space and for an assigned protection factor (APF) up to 10 times the exposure limit, wear a half mask respirator with organic vapour cartridges fitted with P100 filters. For an APF until maximum 100 times of exposure limit, wear a full face respirator mask with organic vapour cartridges and P100 filters.			
Feet	Wear rubber boots to clean up a spill.			
				
<div style="display: flex; justify-content: space-around; width: 100%;"> Apron Goggles Nitrile gloves </div>				

9. Physical and chemical properties

Physical state	Liquid	Flammability	Combustible
Colour	Brownish	Flammability limits	1.1 to 6.1%
Odour	Solvent	Flash point	65°C (149°F) Setaflash
Odour threshold	N/Av.	Auto-ignition	N/Av.

		temperature	
pH	N/Ap.	Sensibility to electrostatic charges	Yes
Melting point	N/Av.	Sensibility to sparks and/or friction	No
Freezing point	N/Av.	Vapour density	>3.1 (Air = 1)
Boiling point	150 to 170°C (302 to 338°F)	Relative density	0.81 kg/L (Water = 1)
Solubility	Insoluble in water.	Partition coefficient n-octanol/water	N/Av.
Evaporation rate	< Butyl Acetate	Decomposition temperature	N/Av.
Vapour pressure	N/Av.	Viscosity	2 cSt @ 40°C (104°F)
Percent Volatile	N/Av.	Molecular mass	N/Ap.
N/Av.: Not Available N/Ap.: Not Applicable Und.: Undetermined N/E: Not Established			

10. Stability and reactivity

Reactivity	No information available for this product.
Chemical stability	Stable under recommended storage conditions.
Possibility of hazardous reactions (including polymerizations)	A dangerous reaction will not occur.
Conditions to avoid	Avoid heat, flame and sparks. Avoid contact with incompatible materials.
Incompatible materials	Strong bases, strong acids, strong oxidizing agents (e.g. chlorine, fluorine, nitric acid, perchloric acid, peroxides, nitrates, chlorates, chromates, permanganates and perchlorates).
Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11. Toxicological information

Numerical measures of toxicity	Naphtha (petroleum), hydrotreated heavy (C6-C13)	Ingestion >10000 mg/kg Rat LD50
		Inhalation >8.5 mg/l/4h Rat LC50
		Skin >3200 mg/kg Rabbit LD50
	Stoddard solvent (Mineral Spirits)	Ingestion >5000 mg/kg Rat LD50
		Inhalation >12 mg/l/4h Rat LC50
		Skin >3000 mg/kg Rabbit LD50
	Mineral oil	Ingestion >2000 mg/kg Rat LD50
		Skin >5000 mg/kg Rabbit LD50
	Phosphorodithioic acid, mixed O,O-bis(iso-Bu and pentyl) esters, zinc salts	Ingestion 3600 mg/kg Rat LD50
		Skin >20000 mg/kg Rabbit LD50
	Distillates (petroleum), hydrotreated heavy naphthenic	Ingestion >5000 mg/kg Rat LD50
		Inhalation >5 mg/l/4h Rat LC50
	Skin >5000 mg/kg Rabbit LD50	
Likely routes of exposure	Skin, eyes, inhalation, ingestion.	


Delayed, immediate and chronic effects	Eye contact	May cause redness and irritation to eyes. The alkyldithiophosphate zinc salts cause irreversible effects on the rabbit eye (OECD Guideline 405). Eye Irritation/Corrosion, Rabbit (OECD TG 405): tests performed with the other ingredients of this mixture gave not irritating to slightly irritating results.
	Skin contact	May cause redness and irritation of the skin. Prolonged or repeated exposure can cause skin drying, defatting and dermatitis. Stoddard solvent (CAS no 8052-41-3) may cause moderate irritation and slight edemas when applied to the skin of the rabbit for 4 hours. The alkyldithiophosphate zinc salts is irritating on rabbit skin (OECD Guideline 404). Skin Irritation/Corrosion, Rabbit (OECD 404) : tests performed with the other ingredients of this mixture gave not irritating to slightly irritating results.
	Inhalation	Harmful if inhaled. Inhalation of vapours may cause central nervous system depression such as drowsiness, headache, dizziness, vertigo, nausea and fatigue.
	Ingestion	Harmful or fatal if inhaled into the lungs (ingestion/vomiting). May cause serious damage to lung tissue and respiratory tract. Signs of lung involvement include increased respiratory rate, increased heart rate, and a bluish discolouration of the skin. Coughing, choking and gagging are often noted at the time of aspiration.
	Respiratory or skin sensitization	Ingredients present at levels greater than or equal to 0.1% of this product are not skin or respiratory sensitizers.
	IARC/NTP Classification	No ingredients listed.
	Carcinogenicity	Ingredients present at levels greater than or equal to 0.1% of this product are not listed as a carcinogen by IARC, ACGIH, NIOSH, NTP or OSHA.
	Mutagenicity	Ingredients in this product present at levels greater than or equal to 0.1% are not known to cause mutagenic effects.
Reproductive toxicity	Ingredients in this product present at levels greater than or equal to 0.1% are not known to cause reproduction effects.	
Specific target organ toxicity - single exposure	Central nervous system.	
Specific target organ toxicity - repeated exposure	No target organ is listed.	
Interactive effects	No information available.	
Other information	The oral and skin acute toxicity estimates (ATE) of the mixture were calculated to be greater than 2000 mg/kg. These values are not classified according to WHMIS 2015 and OSHA HCS 2012. The acute toxicity estimate (ATE) by inhalation of the mixture was calculated to be greater than 10 mg/L/4h but lower than 20 mg/L/4h. This value is classified according to GHS: Acute toxicity, inhalation (Category 4).	

12. Ecological information

Ecological toxicity	Fish - Oncorhynchus mykiss - Rainbow trout	LC50	4.5 mg/L; 96h (CAS no 68457-79-4) OECD 203
	Aquatic Invertebrate - Daphnia magna (static)	EC50	23 mg/L; 48h (CAS no 68457-79-4) OECD 202
	Aquatic Plant - Algea, Desmodesmus subspicatus	EC50	21 mg/L; 72h (CAS no 68457-79-4) OECD 201
	Pseudokirchneriella subcapitata - Aquatic plant	EC50	1.5 mg/L; 72h (CAS no 8052-41-3)
	Crustacea (Daphnia magna)	EC50	0.42-2.3 mg/L; 48h (CAS no 8052-41-3)
	Fish - Pimephales promelas - Fresh water	LC50	8.2 mg/L; 96 h (64742-48-9)
	Aquatic Invertebrate - Daphnia magna	EC50	4.5 mg/L; 48 h (64742-48-9) OECD 202
	Fish - Fathead minnow, Pimephales promelas - fresh water	LC50	154 mg/L; 96h (Mineral oil)
Persistence	Contains an or many ingredients that may be persistent in aquatic environment.		
Degradability			

	The product is a hydrocarbon mixture of which some ingredients are not readily biodegradable. The alkyldithiophosphate zinc salts family compounds are hydrolytically stable at pH 4, 7 and 9 (OECD 111). They are not readily biodegradable (1.5%) in 28 days (OECD 301B).
Bioaccumulative potential	Contains oils that have a high potential to bioaccumulate. The mineral oil mixture should bioaccumulate according to its high partition coefficient (Log Kow 10.88). The alkyldithiophosphate zinc salts family compounds have a Bioconcentration Factor (BCF) value of less than 2000 in fish and a low partition coefficient Log Kow of 0.69, indicating a low potential for bioaccumulation.
Mobility in soil	The product is a hydrocarbon mixture of which some ingredients can evaporate into the air while others present a medium to low mobility in soil. The alkyldithiophosphate zinc salts family compounds are slightly soluble in water. They should have a medium to low mobility in soil.
Other adverse effects	This chemical does not deplete the ozone layer.

13. Disposal considerations

	Important! Prevent waste generation. Use in full. DO NOT dispose residue in sewers, streams or drinking water supply. Non-use oils, organic solvents and wastes residues can be reprocessed (recycle) where there is a recovery program. Dispose via a licensed waste disposal contractor. Observe all federal, state/provincial and municipal regulations. If necessary consult the Department of Environment or the relevant authorities.
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14. Transport information

UN Number	UN N/A
UN Proper Shipping Name	Not regulated by TDG (Canada). Regulated by 49 CFR DOT (USA). COMBUSTIBLE LIQUID, N.O.S.
Environmental hazards	This material does not contain marine pollutant.
Special precautions for user	NOTE: Regulated by 49 CFR DOT (USA): NA1993, COMBUSTIBLE LIQUID, N.O.S. Class 3, PG III. Not regulated in containers less than 450 L (119 gallons). See art. 173.150; Exceptions for Class 3 (flammable and combustible liquids). Permit required for transportation with proper DANGER placards displayed on vehicle.
TDG - Transportation of Dangerous Goods (Canada)	
Transport hazard class(es)	Not regulated
Packing group	Not regulated
Emergency response guidebook 2016	
IMO/IMDG - International Maritime Transport	
Classification	Not regulated
IATA - International Air Transport Association	
Classification	Not regulated
These transportation classifications are provided as a customer service. As the shipper YOU remain responsible for complying with all applicable laws and regulations, including proper transportation classification and packaging. In addition, if a domestic exemption exists, it is the responsibility of the shipper to define the application of it.	

15. Regulatory information

CANADA

Common name	CAS	CEPA	DSL	NDSL	NPRI
Naphtha (petroleum), hydrotreated heavy (C6-C13)	64742-48-9		X		
Stoddard solvent (Mineral Spirits)	8052-41-3	X	X		X
Mineral oil	Mixture oil		X		
Phosphorodithioic acid, mixed O,O-bis(iso-Bu and pentyl) esters, zinc salts	68457-79-4	X	X		X
Distillates (petroleum), hydrotreated heavy naphthenic	64742-52-5		X		

- CEPA: List of Toxic Substances Managed Under Canadian Environmental Protection Act
- DSL: Domestic Substances List Inventory
- NDSL: Non-Domestic Substances List Inventory
- NPRI: National Pollutant Release Inventory Substances

UNITED STATE OF AMERICA

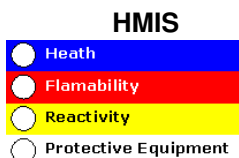
Common name	CAS	TSCA	CER CLA	EPCRA 313	EPCRA 302/304	CAA 112(b) HON	CAA 112(b) HAP	CAA 112(r)	CWA 311	CWA Prio.
Naphtha (petroleum), hydrotreated heavy (C6-C13)	64742-48-9	X								
Stoddard solvent (Mineral Spirits)	8052-41-3	X								
Mineral oil	Mixture oil	X								
Phosphorodithioic acid, mixed O,O-bis(iso-Bu and pentyl) esters, zinc salts	68457-79-4	X								
Distillates (petroleum), hydrotreated heavy naphthenic	64742-52-5	X								

- TSCA: Toxic Substance Control Act
- CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act list of hazardous substances
- EPCRA 313: Emergency Planning and Community Right-to-Know Act, Section 313 Toxic Chemicals
- EPCRA 302/304: Emergency Planning and Community Right-to-Know Act, Section 302/304 Extremely Hazardous Substances
- CAA 112(b) HON: Clean Air Act - Hazardous Organic National Emission Standard for Hazardous Air Pollutant
- CAA 112(b) HAP: Clean Air Act - Hazardous Air Pollutants lists pollutants
- CAA 112(r): Clean Air Act - Regulated Chemicals for Accidental Release Prevention
- CWA 311: Clean Water Act - List of Hazardous Substances
- CWA Priority: Clean Water Act - Priority Pollutant list


California Proposition 65

No ingredients listed.

Other regulations



16. Other information

Date (YYYY-MM-DD)	AEROCHEM Inc. 2020-03-03
Version	04
Other information	<p>REFERENCES:</p> <ul style="list-style-type: none">- Haz-Map, Information on Hazardous Chemicals and Occupational Diseases, https://haz-map.com/- Service du répertoire toxicologique de la Commission des normes, de l'équité, de la santé et de la sécurité du travail (CNESST), http://www.reptox.csst.qc.ca- EPA ACToR (Aggregated Computational Toxicology Resource) http://actor.epa.gov/actor/faces/ACToRHome.jsp <p>DATE OF FIRST VERSION OF SDS: 2015-12-22.</p> <p>CHANGES MADE IN THE VERSION 02: sections 3, 14 and 15.</p> <p>DATE OF SECOND VERSION OF SDS: 2018-07-18.</p> <p>CHANGES MADE IN THE VERSION 03: section 3.</p> <p>DATE OF THIRD VERSION OF SDS: 2019-08-01.</p> <p>CHANGES MADE IN THE VERSION 04: section 1.</p> <p>ACGIH: American Conference of Governmental Industrial Hygienists AIHA: American Industrial Hygiene Association HMIS: Hazardous Materials Identification System NFPA: National Fire Protection Association OSHA: Occupational Safety and Health Administration (USA) NIOSH: National Institute for Occupational Safety and Health NTP: National Toxicology Program RSST: Règlement sur la santé et la sécurité du travail (Québec) GHS: Globally Harmonized System IARC: International Agency for Research on Cancer IDLH: Immediately Dangerous to Life or Health STEL: Short Term Exposure Limit (15 min) TWA: Time Weighted Averages WHMIS: Workplace Hazardous Materials Information System</p>
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