SAFETY DATA SHEET

FABRIKEM® RED RETARDER

SECTION 01: PRODUCT AND COMPANY IDENTIFICATION

Product Identifier:	Fabrikem® Red Retarder
Product Use:	Concrete Set Retarder
Manufacturer's Name:	Fabrikem Manufacturing Ltd. 20361 Duncan Way, Langley, BC V3A 7N3
Supplier's Name:	Fabrikem Manufacturing Ltd. 20361 Duncan Way, Langley, BC V3A 7N3
Preparation Date of SDS:	12 January 2017
Revision Date of SDS:	21 February 2020
SDS Prepared By:	WHMIS Committee
Phone Number of Preparer:	604-532-3883
CANUTEC Emergency Number:	613-996-6666

SECTION 02: HAZARDOUS IDENTIFICATION

GHS Classification:

Flammable liquids	Category 2
Acute toxicity: Oral	Category 4
Serious eye damage/eye irritation	Category 2A
Specific target organ systemic toxicity – single exposure	Category 3

GHS Labelling:

Signal Word:: Danger

Hazard Statements:

H225 Highly flammable liquid and vapor.
H302 Harmful if swallowed.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.

Precautionary Statements:

Prevention:

P102 Keep out of reach of children.
P103 Read label before use.
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ventilating/lighting/equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P261 Avoid breathing dust/fume/gas/mist/vapors/spray.
P264 Wash hands thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/protective clothing/eye protection/face protection.

Response:

P301 + P312 – IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P301 +P330– IF SWALLOWED: rinse mouth.
P303 + P361 + P353 – IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 – IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338 – IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313 – IF exposed or concerned: Get medical advice/attention.
P370 + P378 – In case of fire: Use dry sand, dry chemical, or alcohol resistant foam for extinction.
P362 Take off contaminated clothing and wash before reuse.

Storage:

P403 +P233 + P235 Store in a well-ventilated place. Keep container tightly closed. Keep cool.

	P405 Store locked up. **Disposal:** P501 – Dispose of contents/container in accordance with local regulations.
Other hazards	No information available.

SECTION 03: HAZARDOUS INGREDIENTS

Ingredients:	CAS#	%	Common Name/Synonyms	Other Identifiers
Isopropyl Alcohol	67-63-0	40	Isopropanol	

SECTION 04: FIRST AID MEASURES

General Advice:	Show this safety data sheet to the doctor in attendance. If exposed or concerned: Get medical advice/attention. Immediate medical attention is required.
Inhalation:	Remove to fresh air. IF exposed or concerned: Get medical advice/attention.
Eye Contact:	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Do not rub affected area. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.
Skin Contact:	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. If symptoms persist, call a physician.
Ingestion:	Do NOT induce vomiting. Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Call a physician.
Self-protection of the first aider:	Remove all sources of ignition. Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Use personal protective equipment as required. See section 8 for more information. Avoid contact with skin, eyes or clothing.
Most important symptoms and effects, both acute and delayed:	Causes serious eye irritation Low toxicity. May cause corneal injury. May cause lachrymation (excessive tears). May cause pain disproportionate to the level of irritation to eye tissue. Aspiration into the lungs during ingestion or vomiting may lead to chemical pneumonitis. May cause central nervous system effects, such as headache, nausea, vomiting, abdominal pain, dizziness, confusion and breathing difficulties. Small amounts swallowed incidental to normal handling operations are not likely to cause injury. Prolonged skin contact is unlikely to result in absorption of harmful amounts. Swallowing larger amounts may cause injury. Vapor may cause eye irritation experienced as mild discomfort and redness. May cause drying and flaking of the skin. Prolonged exposure not likely to cause significant skin irritation. Signs and symptoms of excessive exposure may include: Facial flushing. Low blood pressure. Irregular heartbeats. With good ventilation, single exposure is not likely to be hazardous. In poorly ventilated areas, vapors or mists may accumulate and cause respiratory irritation. Prolonged excessive exposure may cause adverse effects. Excessive exposure (400 ppm) to isopropanol may cause eye, nose and throat irritation. Incoordination, confusion, hypotension, hypothermia, circulatory collapse, respiratory arrest and death may follow a longer duration or higher levels. Observations in animals include middle ear lining damage upon exposure to vapors of isopropanol. However, the relevance of this to humans is unknown.
Immediate medical attention and special treatment :	Treatment based on sound judgment of physician and individual reactions of patient. Hemodialysis may be of benefit if substantial amounts have been ingested and the patient is showing signs of intoxication. Consider hemodialysis for patients with persistent hypotension or coma unresponsive to standard therapy (isopropanol levels >400 - 500 mg/dl). (Goldfrank 1998, King et al, 1970). Because rapid absorption may occur through lungs if aspirated and cause systemic effects, the decision of whether to induce vomiting or not should be made by a physician. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach.

SECTION 05: FIRE FIGHTING MEASURES

Flammable:	Flammable Liquid
Suitable Means of Extinction:	Use dry chemical, CO_2, alcohol resistant foam, or water spray.
Unsuitable Means of Extinction:	Do not use a solid stream of water. This may cause spattering and spread the fire.
Specific Hazards Arising from the Product:	Use water spray to cool fire-exposed containers and structures. Vapors are heavier than air and may accumulate in low areas. Vapors may travel along the ground to be ignited at distant locations. Isolate and restrict area access. Move containers from fire area if you can do it without risk. Stop leak only if safe to do so. Container may rupture from gas

	generation in a fire situation. Fight fire from a safe distance and from a protected location. Flammable concentrations of vapor can accumulate at temperatures above flash point. Use proper bonding and grounding during product transfer. NEVER use a water jet directly on the fire because it may spread the fire to a larger area. Flammable mixtures may exist within the vapor space of containers at room temperature. Keep out of low areas where gases (fumes) can accumulate. Flammable mixtures of this product are readily ignited even by static discharge. Use water spray to disperse vapors; re-ignition is possible. When product is stored in closed containers, a flammable atmosphere can develop. Use caution and test if material is burning before entering area. Material burns with invisible flame.
Hazardous Combustion Products:	Hazardous decomposition products depend upon temperature, air supply, and the presence of other materials.
Special Protective Equipment and Precautions Fire-Fighters:	Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

SECTION 06: ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures:	Evacuate personnel to safe areas. Use personal protective equipment as required. See section 8 for more information. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Keep people away from and upwind of spill/leak. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Pay attention to flashback. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Do not touch or walk through spilled material.
Environmental Precautions:	Refer to protective measures listed in Sections 7 and 8. Prevent further leakage or spillage if safe to do so. Prevent product from entering drains.
Methods for Containment and Cleaning Up.	Stop leak if you can do it without risk. Do not touch or walk through spilled material. A vapor suppressing foam may be used to reduce vapors. Dike far ahead of spill to collect runoff water. Keep out of drains, sewers, ditches and waterways. Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Take precautionary measures against static discharges. Dam up. Soak up with inert absorbent material. Pick up and transfer to properly labeled containers.

SECTION 07: HANDLING AND STORAGE

Precautions for Safe Handling:	Avoid contact with eyes, skin and clothing. Vapors form from this product and may travel or be moved by air currents and ignited by pilot lights, other flames, smoking, sparks, heaters, electrical equipment, static discharges or other ignition sources at locations distant from product handling point and may flash back explosively. Wash thoroughly after handling. Keep away from heat, sparks and flame. Do not ingest. Do not cut, drill, grind, weld or perform similar operations on or near containers. Empty containers may contain hazardous product residues. Bond and ground containers during transfer operations. No smoking or open flame in storage, use or handling areas. Use non-sparking tools. Avoid breathing mist or vapour. Never use air pressure for transferring product. Vapours are heavier than air and will collect in low areas. Do not enter confined spaces unless adequately ventilated.
Conditions for Safe Storage:	Store in a cool, dry, well ventilated area, away from heat and ignition sources. Use explosion-proof ventilation to prevent vapour accumulation. Store at ambient temperature. Avoid storage with incompatible materials. The container choice, for example storage vessel, may effect static accumulation and dissipation. Do not store in open or unlabeled containers. Keep away from direct sunlight

SECTION 08: EXPOSURE CONTROL/PERSONAL PROTECTION

Control Parameters

Chemical Name	ACGIH TLV		OSHA PEL	
	TWA	STEL	TWA	STEL
Isopropyl Alcohol	200 ppm	400 ppm	400 ppm	500 ppm

Appropriate Engineering Controls:	Electrical and mechanical equipment should be explosion proof Local ventilation recommended where mechanical ventilation is ineffective in controlling airborne

	concentrations below the recommended occupational exposure limit. Make up air should always be supplied to balance air exhausted (either generally or locally). For personnel entry into confined spaces (i.e. bulk storage tanks) a proper confined space entry procedure must be followed including ventilation and testing of tank atmosphere. Concentrations in air should be maintained below lower explosive limit at all times or below the recommended threshold limit value if unprotected personnel are involved. Mechanical ventilation is recommended for all indoor situations to control fugitive emissions.	
Individual Protection Measures:	**Eye/Face Protection:**	Chemical safety goggles and/or full face shield to protect eyes and face, if product is handled such that it could be splashed into eyes.
	Hand Protection:	Appropriate chemical resistant gloves should be worn. Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include: Nitrile, Neoprene, Ethyl Vinyl Alcohol Laminate (EVAL), Natural Rubber, Polyvinyl Chloride (PVC), or Polyethylene gloves.
	Skin and Body Protection:	Skin contact should be prevented through the use of suitable protective clothing, gloves and footwear, selected for conditions of use and exposure potential. Consideration must be given both to durability as well as permeation resistance. Chemical/oil resistant clothing.
	Respiratory Protection:	If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include: Half-face filter respirator. For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapor warning properties are poor, or if air purifying filter capacity/rating may be exceeded.
	General Hygiene Considerations:	Do not eat, drink or smoke when using this product. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection.

SECTION 09: PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Colourless liquid
Odour:	Alcohol odour
Odour Threshold:	N/E
pH:	N/A
Melting and Freezing Point:	-40°C
Initial Boiling Point and Boiling Range:	82°C
Flash Point:	23°C (TCC)
Evaporation Rate (n-butyl acetate = 1):	1.5

Flammability (solid, gas)	Flammable liquid
Upper and Lower Flammability or Explosive Limit:	12.0% (UFL) 2.0% (LFL)
Vapour Pressure:	4.4 kPa (33 mm HG) @ 20°C
Vapour Density (air = 1):	2.1
Relative Density (water = 1):	0.98
Solubility in Water:	Completely miscible
Solubility in Other Liquids	No data available
Partition Coefficient n-Octanol/Water (Log Kow)	N/E
Auto-ignition Temperature:	425°C
Decomposition Temperature:	N/E
Viscosity:	

SECTION 10: STABILITY AND REACTIVITY

Reactivity:	Stable
Chemical Stability:	Stable
Possibility of Hazardous Reactions:	No additional remark.
Conditions to Avoid:	Product can decompose at elevated temperatures. Avoid contact with heat, sparks, open flame, and static discharge.
Incompatible Materials:	Strong oxidizers. Strong acids. Aldehydes. Halogens. Halogenated organics.
Hazardous Decomposition Products:	Hazardous decomposition products depend upon temperature, air supply, and the presence of other materials.

SECTION 11: TOXICOLOGICAL INFORMATION

Likely Routes of Exposure:	
Inhalation:	With good ventilation, single exposure is not likely to be hazardous. In poorly ventilated areas, vapors or mists may accumulate and cause respiratory irritation. Prolonged excessive exposure may cause adverse effects. Excessive exposure (400 ppm) to isopropanol may cause eye, nose and throat irritation. Incoordination, confusion, hypotension, hypothermia, circulatory collapse, respiratory arrest and death may follow a longer duration or higher levels. Observations in animals include middle ear lining damage upon exposure to vapors of isopropanol. However, the relevance of this to humans is unknown.
Eye Contact:	Causes serious eye irritation. May cause corneal injury. May cause lachrymation (excessive tears). May cause pain disproportionate to the level of irritation to eye tissue. Vapor may cause eye irritation experienced as mild discomfort and redness.
Skin Contact:	Prolonged skin contact is unlikely to result in absorption of harmful amounts. May cause drying and flaking of the skin. Prolonged exposure not likely to cause significant skin irritation.
Ingestion:	Harmful if swallowed. Low toxicity. May cause central nervous system effects, such as headache, nausea, vomiting, abdominal pain, dizziness, confusion and breathing difficulties. Small amounts swallowed incidental to normal handling operations are not likely to cause injury. Swallowing larger amounts may cause injury. Signs and symptoms of excessive exposure may include: Facial flushing. Low blood pressure. Irregular heartbeats.

Acute Toxicity:	**LC_{50}**	**LD_{50} (oral)**	**LD_{50} (dermal)**
Isopropyl Alcohol	72,600 mg/m^3 (Rat 4 hour)	1,870 mg/kg (Rat)	4,059 mg/kg (Rabbit)

Skin Corrosion/Irritation:	Prolonged skin contact is unlikely to result in absorption of harmful amounts. May cause drying and flaking of the skin. Prolonged exposure not likely to cause significant skin irritation.
Serious Eye Damage/Irritation:	Causes serious eye irritation. May cause corneal injury. May cause lachrymation (excessive tears). May cause pain disproportionate to the level of irritation to eye tissue. Vapour may cause eye irritation experienced as mild discomfort and redness.
Specific Target Organ Toxicity (Single Exposure):	May cause drowsiness or dizziness.

Aspiration Hazard:	No information available.
Specific Target Organ Toxicity (Repeated Exposure):	No information available.
Respiratory and/or Skin Sensitization:	No information available.

Carcinogenicity:

Chemical Name	IARC	ACGIH	OSHA
Isopropyl Alcohol	Group 3	N/A	N/A

Legend:	IARC (International Agency for Research on Cancer) Group 3 - Not Classifiable as to Carcinogenicity in Humans

Reproductive Toxicity:	There is no human information available for Isopropanol. However, Isopropanol is considered teratogenic/embryotoxic based on animal information. One inhalation rat study has shown that 2-propanol is fetotoxic (caused reduced fetal weight gain) in the absence of maternal toxicity. Other studies have shown no effects or effects in the presence of maternal toxicity. Positive and negative mutagenic results have been obtained in mammalian cells in vitro and negative results in bacteria.
Germ Cell Mutagenicity:	Classification based on data available for ingredients. Contains a known or suspected mutagen.
Interactive Effects:	No information available.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity:

Chemical Name	Ecotoxicity Freshwater Algae Data	Ecotoxicity Fish Species Data	Toxicity to Microorganisms	Crustacea
Isopropyl Alcohol	1,000 mg/L EC50 Desmodesmus subspicatus 72 h 1,000 mg/L EC50 Desmodesmus subspicatus 96 h	11,130 mg/L LC50 (Pimephales promelas) 96 h static 9,640 mg/L LC50 (Pimephales promelas) 96 h flow-through 1,400 mg/L LC50 (Lepomis macrochirus) 96 h	Not Available	EC50: =13,299mg/L (48h, Daphnia magna)

Persistence and Degradability:	No information available.
Bioaccumulation:	No information available.

Component Information:

Chemical Name	Partition Coefficient
Isopropyl Alcohol	0.05

Other Adverse Effects:	No information available.

SECTION 13: DISPOSAL CONSIDERATIONS

Disposal Methods:	Dispose of waste in accordance with environmental legislation. Should not be released into the environment. Dispose of in accordance with local regulations. Empty containers should be recycled or disposed of through an approved waste management facility. Empty containers retain product residue (liquid and/or vapour) and can be dangerous.

SECTION 14: TRANSPORT INFORMATION

Shipping Name:	UN 1993, FLAMMABLE LIQUID N.O.S. (Contains Isopropanol), Class 3, P.G. III
PIN:	1993
TDG:	UN 1993, FLAMMABLE LIQUID N.O.S. (Contains Isopropanol), Class 3, P.G. III
DOT:	UN 1993, FLAMMABLE LIQUID N.O.S. (Contains Isopropanol), Class 3, P.G. III
IMO:	N/E
ICAO:	N/E

ERAP:	N/E

SECTION 15: REGULATORY INFORMATION

Safety, Health and Environmental Regulations

U.S. Regulatory Rules

Chemical Name	CERCLA/SARA Section 302	SARA (311, 312) Hazard Class	CERCLA/SARA Section 313
Isopropyl Alcohol	Not Listed	Not Listed	Listed

TSCA:	Complies
DSL/NDSL:	Complies
IARC Monograph:	Group 3
NFPA Rating:	Health = 2, Fire = 3, Instability = 0

SECTION 16: OTHER INFORMATION

Date of Latest Revision:	21 February 2020

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. It is provided solely for the customer's consideration, and verification and Fabrikem Manufacturing Ltd. hereby specifically claims it shall not be held liable for any damage resulting from handling or from contact with the above products.

N/A = Not Applicable
N/E = Not Established