KALIUM CHEMICALS

SECTION I — Chemical Product and Company Identification			
Product Name:	Potash; Potassium Chloride		24-Hour Emergency Assistance (306) 345-8400
Supplier:	Kalium Canada Ltd. PO. Box 7500 Regina, SK S4P 4L6 (306) 345-8400 Fax: (306) 345-8222	Kalium Chemicals Suite 100-2500 W. Golf Road Rolling Meadows, IL 60008 (708) 952-1480 Fax: (708) 952-1306	
Synonym:	Muriate of potash; Potassium Muriate.		
Chemical Name:	Potassium chloride.		
Chemical Family:	Neutral Salt of Alkali Metal.		
Chemical Formula:	KCl.		
Manufacturer:	Refer to supplier.		
Material Uses:	Fertilizer; Industrial Applications.		

SECTION II — Composition and Information on Ingredients					
		Exposure Limits According to ACGIH			
Name	CAS #	TLV-TWA (mg/m^3)	TLV-STEL (mg/m^3)	TLV-CEIL (mg/m^3)	% by Weight
Potassium chloride	7447-40-7	10			98.6-98.9
Sodium chloride	7647-14-5	10			0.80-1.25

SECTION III — Hazards Identification		
Potential Acute Health Effects:	As shipped this product does not present special health hazards. Conditions and work practices which generate dust or fumes should be avoided or controlled. Dust from this product is considered a "nuisance" dust and may cause irritation to skin, eyes and respiratory tract.	
Potential Chronic Health Effects:	CARCINOGENIC EFFECTS:	Not applicable.
	MUTAGENIC EFFECTS:	Not applicable.
	TERATOGENIC EFFECTS:	Not applicable.
	REPRODUCTION EFFECTS:	Not applicable.

SECTION IV — First Aid Measures	
Eye Contact:	**Check for and remove any contact lenses. Immediately flush eyes with copious amounts of running water, holding eyelids open, for at least 20 minutes. If discomfort or irritation persists, seek medical attention.**
	Dust may cause eye irritation and stinging sensation. Acts as a foreign body.
Skin Contact:	**Wash exposed area thoroughly with soap or mild detergent and copious amounts of running water. If irritation persists, seek medical attention.**
	Prolonged contact may cause skin irritation and rashes to susceptible individuals.
Inhalation:	**Remove from exposure area to a ventilated area. If breathing discomfort persists, seek medical attention.**
	Dust may cause irritation to mucous membranes, upper respiratory tract and lungs.
Ingestion:	**Drink water. Do not induce vomiting or give a liquid to an unconscious person. Seek medical attention.**
	Acts as a common salt. Large quantities may cause irritation to the gastro-intestinal tract, with nausea, vomiting, epigastric distress, abdominal discomfort and diarrhea

SECTION V – Fire and Explosion Data		
The Product is:	Non-flammable.	
Auto-Ignition Temperature	Not applicable.	
Flash Points	Not applicable.	
Flammable Limits (LEL, UEL)	Not applicable.	
Products of Combustion	Not applicable. Product may emit toxic and corrosive forms of chloride at decomposition temperatures.	
Fire Hazards in Presence of Various Substances	Not applicable.	
Explosion Hazards in Presence of Various Substances	Risk of explosion of the product in presence of mechanical impact:	Not applicable.
	Risk of explosion of the product in presence of static discharge:	Not applicable.
Fire Fighting Media and Instructions	Not applicable.	
Special Remarks on Fire Hazards	No acute hazard. Avoid breathing vapors or fumes.	
Special Remarks on Explosion Hazards	**Potassium chloride:** explosive reaction with: bromine trifluoride and also the combination of sulfuric acid and potassium permanganate.	

SECTION VI – Accidental Release Measures	
Spill:	Sweep up and containerize for reclamation or disposal. Vacuuming or wet sweeping may be used to avoid dust dispersal. Wash area with water; however, avoid contaminating surface water, waterways or sewers leading to surface water. Will damage vegetation if applied in excess.

SECTION VII – Handling and Storage	
Precautions:	DO NOT ingest. DO NOT breathe dust. Avoid generating dust during handling and promote personal hygiene among workers.
Storage:	Store in a dry location away from incompatible substances, strong acids and intense heat.

SECTION VIII – Exposure Controls, Personal Protection	
Exposure Limit:	TLV-TWA 10 mg/m³ from ACGIH for potassium chloride (as nuisance dust). Consult local authorities for acceptable exposure limits.
Ventilation:	Provide general and local ventilation as necessary to maintain dust levels below the exposure limit.
Clothing:	Wear appropriate clothing to prevent repeated or prolonged skin contact. Gloves are recommended.
Eye Protection:	Use safety glasses or goggles to prevent eye contact. An eye wash station should be available for emergency use. Wearing of contact lenses is not recommended when working with the product.
Respiratory Protection:	Provide respiratory protection (dust mask or dust respirator) for conditions of use where exposure to dust is apparent. For emergencies, a self-contained breathing apparatus may be necessary.

SECTION IX — Physical and Chemical Properties			
Physical State and Appearance	Solid (Crystalline or Granulated).	Odor	Odorless.
		Taste	Strong Saline.
Molecular Weight	74.55	Color	White.
pH (5% soln/water)	5.4 to 8.8		
Boiling Point	1500°C (2732°F) (Sublimes).		
Melting Point	776°C (1429°F).		
Critical Temperature	Not available.		
Specific Gravity	1.984 (Water = 1).		
Vapor Pressure	Not available.		
Vapor Density	Not available.		
Volatility	Not available.		
Odor Threshold	Not available.		
Water/Oil Dist. Coeff.	Not available.		
Ionicity (in Water)	Not available.		
Dispersion Properties	See solubility in water.		
Solubility	27g of potash per 100g of water at 0°C.		
	34.7g of potash per 100g of water at 20°C.		
	56.7g of potash per 100g of water at 100°C.		

SECTION X — Stability and Reactivity Data	
Stability	The product is stable.
Instability Temperature	Not applicable.
Conditions of Instability	No additional remarks.
Incompatibility with Various Substances	Avoid contact with strong inorganic acids, strong oxidizing agents and intense heat.
Corrosivity	Similar to salt. Mildly corrosive to metals in the presence of moisture.
Special Remarks on Reactivity	No additional remarks.
Special Remarks on Corrosivity	No additional remarks.

SECTION XI — Toxicological Information		
Routes of Entry	Ingestion. Inhalation.	
Toxicity to Animals	ORAL (LD50):	383 mg/kg (mouse)
		2500 mg/kg (Guinea Pig)
		2600 mg/kg (Rat)
	ORAL (LDLO):	2430 mg/kg (rat)
	EYE (severe):	500 mg/24 hr. (Rabbit)
Chronic Effects on Humans	**CARCINOGENIC EFFECTS:**	Not applicable.
	MUTAGENIC EFFECTS:	Not applicable.
	TERATOGENIC EFFECTS:	Not applicable.
	REPRODUCTION EFFECTS:	Not applicable.
Other Toxic Effects on Humans	As shipped, this product does not present special health hazards. Conditions and work practices which generate dust or fumes should be avoided or controlled. Dust from this product is considered a "nuisance" dust and may cause irritation to skin, eyes and respiratory tract.	
Special Remarks on Toxicity to Animals	No additional remarks.	
Special Remarks on Chronic	**Potassium chloride:** NIOSH (90-117) does not report target organs effects for potassium chloride. Respiratory diseases may be aggravated by exposure to product dust. Passes through the placental barrier in animal.	
Special Remarks on Other Toxic Effects on Humans	No additional remarks.	

SECTION XII — Ecological Information	
Ecotoxicity	Not applicable.
BOD5 and COD	Not applicable.
Products of Biodegradation	Not applicable.
Toxicity of the Products of Biodegradation	Not applicable.
Special Remarks on Environment	No additional remarks.

SECTION XIII — Disposal Considerations	
Waste Disposal	Recycle to process if possible. Dispose of waste in compliance with local or regional regulations.

SECTION XIV — Transport Information	
TDG Classification	Not controlled under TDG (Canada).
PIN	Not applicable (PIN and PG).
Special Provisions for Transport	Not applicable.
TDG Pictograms	

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KALIUM CHEMICALS

SECTION XV — Other Regulatory Information and Pictograms

Other Regulations	This product is not listed as a dangerous or hazardous material.	
Other Classifications	WHMIS (CDN)	Not controlled under WHMIS (Canada).
	HCS (U.S.A.)	Not controlled under the HCS (United States).
	DSCL (EEC)	Not controlled under DSCL (Europe).

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

Health Hazard	1
Fire Hazard	0
Reactivity	0
Personal Protection	f

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

WHMIS (CDN) (Pictograms)

DOT (U.S.A.) (Pictograms)

Protective Equipment (Pictograms)

SECTION XVI — Other Information

The information in this MSDS was obtained from sources which we believe are accurate and reliable. However, this information is provided without any representation or warranty express or implied, regarding the accuracy or correctness, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes.

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KALIUM CHEMICALS

KC PRODUCT SPECIFICATIONS MARCH, 1996

PARTICLE SIZE DISTRIBUTION (Cumulative Weight Percent Retained)

GRANULAR Muriate of Potash (Potassium Chloride) 62.5% K_2O

Tyler Mesh	U.S. Mesh	Typical	Range
6	8	8.0	1 – 11
8	8	53.0	38 – 63
10	12	87.0	70 – 98
12	14	98.3	90 – 99
14	16	98.4	96 – 100
20	20	99.3	98 – 100
35	40	99.7	99 – 100
SGN	–	245.0	–

COARSE Muriate of Potash (Potassium Chloride) 62.2% K_2O

Tyler Mesh	U.S. Mesh	Typical	Range
6	6	2.0	0 – 8
8	8	28.0	15 – 40
10	12	69.0	45 – 86
12	14	91.0	80 – 97
14	16	94.0	87 – 99
20	20	98.0	95 – 100
35	40	99.8	99 – 100
SGN	–	200.0	–

STANDARD Muriate of Potash (Potassium Chloride) 62.4% K_2O

Tyler Mesh	U.S. Mesh	Typical	Range
10	12	2.0	0 – 8
14	16	14.0	5 – 30
20	20	28.0	15 – 45
35	40	63.0	35 – 95
65	70	94.3	80 – 100
SGN	–	55.0	–

FINE Muriate of Potash (Potassium Chloride) 62.4% K_2O

Tyler Mesh	U.S. Mesh	Typical	Range
20	20	0.1	0 – 2
35	40	15.0	6 – 30
65	70	77.0	70 – 90
100	100	92.7	90 – 100
SGN	–	30.0	–

TYPICAL CHEMICAL ANALYSIS (Percentage by Weight)

Component	Symbol	Fine	Standard	Coarse	Granular
Potassium Oxide Equivalent	K_2O	62.43	62.46	62.19	62.47
Potassium Chloride	KCl	98.83	98.91	98.44	98.88
Potassium	K	51.83	51.87	51.62	51.87
Sodium Chloride	NaCl	0.95	0.90	1.23	0.87
Calcium	Ca	0.021	0.016	0.012	0.017
Magnesium	Mg	0.006	0.007	0.007	0.006
Bromide	Br	0.043	0.037	0.038	0.037
Sulfate	SO_4	0.035	0.025	0.018	0.028
Water Insoluble	–	0.009	0.008	0.005	0.009
Moisture and Volatile	–	0.073	0.075	0.220	0.127
Chloride	Cl	47.61	47.61	47.59	47.58

TYPICAL PHYSICAL PROPERTIES

Property	Unit	Fine	Standard	Coarse	Granular
Bulk Density (Loose)	lb/ft^3	72.0	76.0	73.0	68.0
Bulk Density (Packed)	lb/ft^3	79.0	83.0	76.0	74.0
Angle of Repose	Degrees	27.0	26.0	23.0	32.0

Product analysis are typical as tested at the minesite. Handling and transportation may affect the analysis of the delivered product