SECTION 1	PRODUCT AND COMPANY INFORMATION
TRADE NAME:	**K-Mag®, all grades**
CHEMICAL NAME:	**Potassium Magnesium Sulfate**
CAS NUMBER:	**14977-37-8**
CHEMICAL FAMILY:	**Inorganic Salt**
SYNONYMS:	**Potassium Magnesium Sulfate, SPM, Langbeinite, Sulfate of Potash Magnesia**
PRIMARY USE:	**Potash Crop Nutrient**
COMPANY INFORMATION:	**The Mosaic Company** Atria Corporate Center Suite E490 3033 Campus Drive Plymouth, MN 55441 USA www.mosaicco.com For non-emergency questions, phone hours are 8 AM to 5 PM Central Time US 800.918.8270 (toll free) 763.577.2700 (phone)
EMERGENCY TELEPHONE:	**EMERGENCY OVERVIEW** **24 Hour Emergency Telephone Number:** **For Chemical Emergencies:** **Spill, Leak, Fire or Accident** **Call CHEMTREC** **North America: (800) 424-9300** **Others: (703) 527-3887 (collect)**

SECTION 2 — HAZARD IDENTIFICATION

EMERGENCY OVERVIEW:

Health Hazards:	Irritant. Avoid contact with eyes, skin and clothing. Wash thoroughly after handling.
Physical Hazards:	None expected
Physical Form:	Solid
Appearance:	White and pink to gray, crystalline or granular (fine).
Odor:	None
Toxicity:	None expected under normal use

NFPA HAZARD CLASS	
Health:	1
Flammability:	0
Instability:	0
Special Hazard:	None

HMIS HAZARD CLASS	
Health:	1
Flammability:	0
Physical Hazard:	0
PPE:	Section 8

WHMIS HAZARD CLASS	
Symbol	Not WHMIS Controlled
Classification	N/A
Sub Class (N/A)	N/A

POTENTIAL HEALTH EFFECTS:

Eye:	Contact may cause mild eye irritation including stinging, watering and redness.
Skin:	Contact may cause mild irritation including redness and a burning sensation. No harmful effects from skin absorption have been reported.
Inhalation (Breathing):	May form particulate matter that may cause irritation. No toxicology data available.
Ingestion (Swallowing):	May be harmful if swallowed. Do not take internally. Do not taste or swallow.

	Signs and Symptoms:	Effects of overexposure may include irritation of the nose, throat and digestive tract, nausea, vomiting, diarrhea, abdominal cramping, irregular heartbeats (arrhythmias), dehydration, and hypertension.
	Cancer:	Inadequate data available to evaluate the cancer hazard of this material.
	Target Organs:	No data available.
	Developmental:	Inadequate data available for this material.
	Other Comments:	To the best of our knowledge, the chemical and toxicological properties of potassium magnesium sulfate have not been thoroughly investigated.
	Pre-Existing Medical Conditions:	Conditions aggravated by exposure may include respiratory diseases (asthma-like disorders) and abnormal blood pressure
POTENTIAL ENVIRONMENTAL EFFECTS:	**K-Mag®,** is a naturally-occurring mineral used as a crop nutrient however; large spills can harm or kill vegetation.	
SECTION 3	**COMPOSITION INFORMATION ON INGREDIENTS**	
FORMULA:	$K_2 SO_4 \cdot 2MgSO_4$	
COMPOSITION:	Potassium Magnesium Sulfate (Langbeinite) CAS No. 14977-37-8	94.5 - 99.5 %
	Sodium Chloride CAS No. 7647-14-5	0.5 – 2.0 %
	Other naturally-occuring minerals CAS No. Various	0.5 – 3.5 %
SECTION 4	**FIRST AID MEASURES**	
FIRST AID PROCEDURES:	Eyes:	If irritation or redness develops, move victim away from exposure and into fresh air. Flush eyes with clean water for at least 15 minutes. If symptoms persist, seek medical attention.
	Skin:	Remove contaminated shoes and clothing and cleanse affected area(s) thoroughly by washing with mild soap and water. If irritation or redness develops and persists, seek medical attention.
	Inhaled:	If respiratory symptoms develop, move victim away from source of exposure and into fresh air. If symptoms persist, seek medical attention. If victim is not breathing, clear airway and immediately begin artificial respiration. If breathing difficulties develop, oxygen should be administered by qualified personnel. Seek immediate medical attention.

	Ingestion:	If swallowed, seek emergency medical attention. If victim is drowsy or unconscious and vomiting, place on left side with the head down and do not give anything by mouth. If victim is conscious and alert and ingestion occurred within the last hour, vomiting should be induced for ingestion of large amounts (more than 5 ounces or a little more than 1/2 cup in an adult) preferably under direction from a physician or poison center. If possible, do not leave victim unattended and observe closely for adequacy of breathing.
NOTE TO PHYSICIAN:	Pre-existing medical conditions such as high blood pressure (hypertension) may be aggravated by exposure	
SECTION 5	**FIRE FIGHTING MEASURES**	
FLAMMABLE PROPERTIES:	Flash Point:	Not applicable
	OSHA Flammability Class:	Not applicable
	LEL/UEL:	LEL: Not applicable / UEL: Not applicable
	Auto-Ignition Temperature:	Not applicable
EXTINGUISHING MEDIA:	Use extinguishing agent suitable for type of surrounding fire.	
PROTECTION OF FIREFIGHTERS:	No unusual fire or explosion hazards are expected. Combustion can yield oxides of sulfur when heated above 1000°F (537°C). Positive pressure, self-contained breathing apparatus is required for all fire fighting activities involving hazardous materials. Full structural fire fighting (bunker) gear is the minimum acceptable attire. The need for proximity, entry, flashover and/or special chemical protective clothing (see Section 8) needs to be determined for each incident by a competent fire fighting safety professional. Water used for fire suppression and cooling may become contaminated. Discharge to sewer system(s) or the environment may be restricted, requiring containment and proper disposal of water (see Section 6).	
SECTION 6	**ACCIDENTAL RELEASE MEASURES**	
RESPONSE TECHNIQUES:	**K-Mag®,** is a naturally-occurring mineral used as a crop nutrient; large spills can harm or kill vegetation. • Stay upwind and away from spill (dust hazard). • Wear appropriate protective equipment including respiratory protection as conditions warrant (see Section 8). • Prevent spilled material from entering sewers, storm drains, other unauthorized treatment drainage systems, and natural waterways. • Notify appropriate federal, state, and local agencies as may be required (see Section 13). • Minimize dust generation. • Sweep up and package appropriately for disposal.	
RELEASE NOTES:	If spill could potentially enter any waterway, including intermittent dry creeks, contact the local authorities. If in the U.S., contact the US COAST GUARD NATIONAL RESPONSE CENTER toll free number 800-424-8802. In case of accident or road spill notify: CHEMTREC IN North America at 800-424-9300; CHEMTREC in other countries at (International code) +1-703-527-3887 (collect).	

SECTION 7	HANDLING AND STORAGE	
HANDLING:	The use of appropriate respiratory protection is advised when concentrations exceed any established exposure limits. Wash thoroughly after handling. Wash contaminated clothing or shoes. Use good personal hygiene practices.	
STORAGE:	Stable under normal storage conditions.	
SECTION 8	**EXPOSURE CONTROLS / PERSONAL PROTECTION**	
ENGINEERING CONTROLS:	If current ventilation practices are not adequate to maintain airborne concentrations below the established exposure limits, additional ventilation or exhaust systems may be required.	
PERSONAL PROTECTIVE EQUIPMENT (PPE):	Eye/Face:	Approved eye protection to safeguard against potential eye contact, irritation, or injury is recommended.
	Skin:	The use of cloth or leather work gloves is advised to prevent skin contact; possible irritation and absorption (see glove manufacturer literature for information on permeability).
	Respiratory:	A NIOSH approved air purifying respirator with a type 95 (R or P) particulate filter may be used under conditions where airborne concentrations are expected to exceed exposure limits (see Section 2). Protection provided by air purifying respirators is limited (see manufacturer's respirator selection guide). Use a positive pressure air supplied respirator if there is potential for uncontrolled release, exposure levels are not known or any other circumstances where air purifying respirators may not provide adequate protection. A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed if workplace conditions warrant a respirator.
	Other:	A source of clean water should be available in the work area for flushing eyes and skin. Impervious clothing should be worn as needed.
GENERAL HYGIENE CONSIDERATIONS:	Wash thoroughly after handling. Wash contaminated clothing. Use adequate ventilation. Use good personal hygiene practice.	
EXPOSURE GUIDELINES:	OSHA Permissible Exposure Limits (PEL):	Particulates Not Otherwise Regulated (PNOR) : 5 mg/m^3 TWA – Respirable 15 mg/m^3 TWA - Total Dust
	ACGIH Threshold Limit Value (TLV):	Not established
SECTION 9	**PHYSICAL AND CHEMICAL PROPERTIES**	
Note: Unless otherwise stated, values in this section are determined at 20°C (68°F) and 760 mm Hg (1 atm).		
Flash Point:	Not available	
Flammability/ Explosive Limits (%):	LEL: Not applicable / UEL: Not applicable	
Auto-Ignition Temperature:	Not available	
Appearance:	White and pink to gray, crystalline or granular	

Physical State:	Crystalline to granular solid
Odor:	None
Molecular Weight of Pure Material:	$K_2 SO_4 \cdot 2MgSO4$ - 415; NaCl - 58.5
pH:	Approximately 7 in a 5% solution
Vapor Pressure (mm Hg):	Not applicable
Vapor Density (air=1):	Not applicable
Boiling Point:	Not available
Freezing/Melting Point:	972°C (1700°F)
Solubility in Water:	Approximately 24.4% @ 77°F (25°C)
Specific Gravity:	2.81 – 2.85
Volatility:	No data available
Bulk Density:	Loose - 83 to 94 lbs/ft^3 (1300 - 1505 kg/m^3)
SECTION 10	**STABILITY AND REACTIVITY**
Chemical Stability:	Stable under normal conditions of storage and handling.
Conditions to Avoid:	Mildly corrosive to metals in the presence of moisture.
Incompatible Materials:	Avoid contact with hot nitric acid, may cause evolution of toxic nitrosyl chloride. Contact with other strong acids may produce irritating hydrogen chloride gas. NaCl reacts with most noble metals, such as iron or steel, building materials (such as cement) bromine, or trifluoride. A potentially explosive reaction may occur if NaCl is mixed with dichloromaleic anhydride and urea. Electrolysis of mixtures containing NaCl and nitrogen compounds may form explosive nitrogen trichloride.
Hazardous Decomposition Products:	Combustion can yield oxides of sulfur when heated above 1000°F (537°C).
Corrosiveness:	Mildly corrosive to metals in the presence of moisture.
Hazardous Polymerization:	Will not occur
SECTION 11	**TOXICOLOGICAL INFORMATION**
Acute Oral Toxicity:	Potassium Magnesium Sulfate: No data available Sodium Chloride: LD_{50} (rat, oral) = 3 g/kg LD_{50} (mouse, oral) = 4 g/kg
Acute Inhalation Toxicity:	Potassium Magnesium Sulfate: No data available Sodium Chloride: LC_{50} (rat) >42 g/m^3 / 1 hour
Acute Dermal Toxicity:	No data available
Mutagenesis:	No data available
Target Organ:	No data available
Developmental Toxicity:	No data available
Carcinogenicity:	No data available

SECTION 12	ECOLOGICAL INFORMATION
ECOTOXICOLOGY:	When dissolved in water, sodium chloride creates an elevated level of salinity that may be harmful to fresh water aquatic species and to plants that are not salt-tolerant.
SECTION 13	**DISPOSAL CONSIDERATIONS**
	This material, if discarded as produced, is not an RCRA "listed" or "characteristic" hazardous waste. Contamination may subject it to hazardous waste regulations. Properly characterize all waste materials. Consult state and local regulations regarding the proper disposal of this material.
SECTION 14	**TRANSPORTATION INFO**
Regulatory Status:	Not listed in the hazardous materials shipping regulation (49 CFR, Table 172.101) by the U.S. Department of Transportation, or in the Transport of Dangerous Goods (TDG) regulations in Canada.
Proper Shipping Name:	Not applicable
Hazard Class:	Not Applicable
Packing Group:	Not Applicable
Identification Number:	Not applicable
Guide Number:	Not applicable
HTS (Harmonized Tariff Schedule) Code:	3104.90.01
SECTION 15	**REGULATORY INFORMATION**
CERCLA:	Not listed
RCRA 261.33:	Not listed
SARA TITLE III: (Exemptions at 40 CFR, Part 370 may apply for agricultural use, or for quantities of less than 10,000 pounds on-site.)	SARA – 311/312: Acute: Yes Chronic: No Fire: No Pressure: No Reactivity: No
	SARA – 313: No
	SARA – 302/304: RQ: No TPQ: No
NTP, IARC, OSHA:	This material has not been identified as a carcinogen by NTP, IARC, or OSHA.
Canada DSL and NDSL:	DSL: Sodium chloride is listed on the Domestic Substances List (DSL). As potassium magnesium sulfate (langbeinite) is a naturally occurring substance processed only by mechanical means, it is considered to be on the DSL per the Canadian Environmental Protection Act (CEPA), New Substances Notification Regulations, Section 3. NDSL: No
TSCA:	Potassium magnesium sulfate (langbeinite) is a naturally occurring chemical substance. Sodium chloride is listed in the TSCA Inventory.
WHMIS:	Not Controlled

SECTION 16	OTHER INFORMATION
Disclaimer:	The information in this document is believed to be correct as of the date issued. Nothing herein contained shall be deemed to be a representation or warranty with respect to the product described herein. **NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY OTHER WARRANTY IS EXPRESSED OR IS TO BE IMPLIED REGARDING THE ACCURACY OR COMPLETENESS OF THIS INFORMATION, THE RESULTS TO BE OBTAINED FROM THE USE OF THIS INFORMATION OR THE PRODUCT, THE SAFETY OF THIS PRODUCT, OR THE HAZARDS RELATED TO ITS USE, AND ALL SUCH REPRESENTATIONS AND WARRANTIES ARE HEREBY EXPRESSLY DISCLAIMED BY MOSAIC.** This information and product are furnished on the condition that the person receiving them shall make their own determination as to suitability of the product for their particular purpose and on the condition that they assume the risk of their use thereof. The conditions and use of this product are beyond the control of Mosaic, and Mosaic disclaims any liability for loss or damage incurred in connection with the use or misuse of this substance.
Preparation:	The preparation of this MSDS was in accordance with ANSI Z400.1-2010.
References:	Tomes, Toxnet, Grant (4th Ed.), RTECS
Note to ____ (*if applicable)*:	Not applicable