Agrium Material Safety Data Sheet

NFPA Classification	DOT / TDG Pictograms	WHMIS Classification	HMIS		PROTECTIVE CLOTHING
Health 1, Flammability 0, Reactivity 0, Specific Hazard			Health 1 Flammability 0 Reactivity 0 PPE E		

Section I. Chemical Product and Company Identification

PRODUCT NAME/ TRADE NAME	**Agrium Potash Plus**
SYNONYM	Potash Plus
CHEMICAL NAME	Not applicable; a complex co-granulated mixture of potash with added manganese and zinc.
CHEMICAL FAMILY	Ammonium salt.
CHEMICAL FORMULA	Not applicable.
MATERIAL USES	Agricultural industry: Fertilizer.

MSDS NUMBER: **14097**

REVISION NUMBER 1.3

MSDS prepared by the Environment, Health and Safety Department on: **January 25, 2007**

24 HR EMERGENCY TELEPHONE NUMBER:

Transportation: 1-800-792-8311
Medical: 1-888-670-8123

MANUFACTURER

Agrium
North American Wholesale
13131 Lake Fraser Drive, S.E.
Calgary, Alberta, Canada, T2J 7E8

Agrium U.S. Inc.
Suite 1700, 4582 South Ulster St.
Denver, Colorado, U.S.A., 80237

SUPPLIER

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Denver, Colorado, U.S.A., 80237

Section II. Hazardous Ingredients

NAME	CAS #	Exposure Limits (ACGIH) TLV-TWA mg/m³	TLV-TWA ppm	STEL mg/m³	STEL ppm	CEIL mg/m³	CEIL ppm	% by Weight
Manganese compounds, n.o.s.	----------	0.2 as Mn						2.2% as Mn
Zinc oxide sulfate	59766-35-7	----						3 as Zn

ACGIH TLV notations:

---- No assigned TLV
(C) - Ceiling - the concentration not to be exceeded at any time
(I) - measured as the Inhalable fraction of the aerosol
(R) - measured as the Respirable fraction of the aerosol
(T) - measured as the Thoracic fraction of the aerosol

TOXICOLOGICAL DATA ON INGREDIENTS

Manganese sulfate:
Rat: LD50 - ROUTE: Oral; DOSE: 2150 mg/kg - RTECS
Mouse: LD50 - ROUTE: Oral; DOSE: 2330 mg/kg - RTECS

Zinc sulfate:
Rat oral (LD50), Acute: 1710 mg/kg RTECS
Aquatic Toxicity: 0.3 mg/l as Zn/120 hr/stickleback/lethal
4.6 ppm/96 hr/rainbow trout/LC 50/fresh water

Zinc oxide:
Mouse oral (LD50), Acute: 7950 mg/kg Mouse, RTECS.

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Section III. Hazards Identification.

POTENTIAL ACUTE HEALTH EFFECTS	May cause severe eye irritation. Corrosive to eyes and skin. Inhalation of dust will produce irritation to gastro-intestinal or respiratory tract, characterized by burning, sneezing and coughing. Ingestion of this substance may produce irritation of the gastro-intestinal tract, characterized by burning, diarrhea, and a metallic taste. Certain zinc compounds can affect humans severely. Zinc salts produce effects ranging from a burning pain in the mouth and throat caused by zinc sulfate, to intense chest and stomach pain, violent vomiting, diarrhea, shock, and possible death on massive ingestion. Fumes generated from high temperatures such as from welding and cutting on metals contaminated with this product may result in formation of zinc oxide fumes at levels above the occupational exposure limit, which can cause "metal fume fever", a flu-like condition involving fever, chills, sweats, nausea, vomiting, muscular aches and pains and breathing disturbance. Symptoms may appear a few hours after exposure and subside within 24-48 hours with no permanent effect.
POTENTIAL CHRONIC HEALTH EFFECTS	Inhalation of large quantities of manganese containing dusts over many years may result in damage to the central nervous system, with symptoms of sleepiness, tremors and weakness in the legs, slurred speech, emotional disturbances and loss of balance in more advanced cases. High levels of manganese in the blood may increase anemia by interfering with iron absorption. Iron deficiency may increase an individual's susceptibility to manganese. Studies suggest that populations at risk of adverse effects due to manganese exposure are infants and those with existing iron deficiency. Not classifiable as a human or animal carcinogen, teratogen or mutagen.

Section IV. First Aid Measures

EYE CONTACT	May cause eye irritation. Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Obtain medical attention if irritation persists.
MINOR SKIN CONTACT	May cause skin irritation. Wash contaminated skin with soap and water. Cover dry or irritated skin with a good quality skin lotion. If irritation persists, seek medical attention.
EXTENSIVE SKIN CONTACT	No additional information.
MINOR INHALATION	Inhalation of dust may produce irritation, burning, sneezing and coughing. Long term exposure may cause headache, nausea or weakness. Loosen tight clothing. Allow to rest in a well ventilated area. Obtain medical attention if irritation persists.
SEVERE INHALATION	In emergency situations use proper respiratory protection to evacuate affected individuals to a safe area as soon as possible. Loosen tight clothing around the person's neck and waist. Oxygen may be administered if breathing is difficult. If the person is not breathing, perform artificial respiration. Obtain immediate medical attention.
SLIGHT INGESTION	Do not induce vomiting. May cause digestive tract irritation, with accompanying nausea, vomiting and diarrhea. If spontaneous vomiting does occur, lower the head so that the vomit will not reenter the mouth and throat. If tolerated, give no more than 1 cup of milk or water for adults or 1/2 cup for children to rinse the mouth and throat, dilute the stomach contents, and minimize irritation. Obtain medical attention.
EXTENSIVE INGESTION	No additional information.

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Section V. Fire and Explosion Data

THE PRODUCT IS	Non-flammable.
AUTO-IGNITION TEMPERATURE	Not applicable.
FLASH POINT	Not applicable.
FLAMMABILITY LIMITS	Not applicable.
PRODUCTS OF COMBUSTION	Material will not burn. Undergoes thermal decomposition at elevated temperatures to release toxic and combustible gases: ammonia, nitrogen oxides, sulfur oxides, phosphorous oxides.
FIRE HAZARD IN THE PRESENCE OF VARIOUS SUBSTANCES	Not applicable.
EXPLOSION HAZARD IN THE PRESENCE OF VARIOUS SUBSTANCES	Non combustible. Flammable and toxic gases may form at upon prolonged exposure to elevated temperatures (>190 °C) by thermal decomposition (ammonia, phosphorus oxides, nitrogen oxides). A self contained breathing apparatus should be used to avoid inhalation of toxic fumes.
FIRE FIGHTING MEDIA AND INSTRUCTIONS	Material will not burn. Undergoes thermal decomposition at elevated temperatures to release toxic and combustible gases. Use extinguishing media suitable for surrounding materials.
SPECIAL REMARKS ON FIRE HAZARDS	Non combustible. Toxic gases will form at elevated temperatures (>190 °C) by thermal decomposition (sulfur oxides,). A self contained breathing apparatus should be used to avoid inhalation of toxic fumes.
SPECIAL REMARKS ON EXPLOSION HAZARDS	No additional remark.

Section VI. Accidental Release Measures

SMALL SPILL	Use appropriate tools to put the spilled solid in a suitable container for intended use or disposal.
LARGE SPILL	Prevent additional discharge of material, if possible to do so without hazard. Prevent spills from entering sewers, watercourses, wells, etc. Product will promote algae growth which may degrade water quality and taste. Notify downstream water users. Recover and place material in suitable containers for recycle, reuse, or disposal. Ensure disposal complies with government requirements and local regulations.

Section VII. Handling and Storage

PRECAUTIONS	Avoid contact with skin and eyes. After handling, always wash hands thoroughly with soap and water. Do not breathe dust. Keep away from food, drink and animal feed. Avoid contact with incompatible substances. Keep out of reach of children.
STORAGE	Store in a dry, cool and well ventilated area.

Section VIII. Exposure Controls/Personal Protection

ENGINEERING CONTROLS	Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, use ventilation to keep exposure to airborne contaminants below the exposure limit.
PERSONAL PROTECTION	The selection of personal protective equipment varies, depending upon conditions of use. Wear appropriate respiratory protection for dust/mist when ventilation is inadequate. A filtering facepiece dust mask is recommended for most applications if respiratory protection is needed. Where skin and eye contact may occur as a result of brief periodic exposures, wear long sleeved clothing, coveralls, chemical resistant gloves, and safety glasses with side shields.
PERSONAL PROTECTION IN CASE OF LARGE RELEASE	No additional information.

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EXPOSURE LIMITS	ACGIH TLV-TWA for Particulates (Insoluble) Not Otherwise Specified: 10 mg/m^3 OSHA PEL for Particulates Not Otherwise Regulated: 15 mg/m^3 ACGIH TLV-TWA for Manganese and Inorganic compounds, as Mn: 0.2 mg/m^3 OSHA PEL for Manganese and Inorganic compounds, as Mn: 5 mg/m^3 (ceiling) ACGIH TLV-TWA for Zinc oxide: 2 mg/m^3 as respirable particulate OSHA PEL for Zinc oxide: 15 mg/m^3 as total dust, 5 mg/m^3 as respirable dust, and 5 mg/m^3 as zinc oxide fume. Federal, State or Provincial exposure limits may vary by jurisdiction. Consult local authorities for acceptable exposure limits in your area.

Section IX. Physical and Chemical Properties

PHYSICAL STATE AND APPEARANCE	Solid.		
MOLECULAR WEIGHT	Not applicable.	**COLOR**	Grey.
pH (10% SOLN/WATER)	Not available	**ODOR**	Odorless.
BOILING POINT	Decomposes.	**ODOR THRESHOLD**	Not available
MELTING POINT	Not available	**TASTE**	Acrid. (Slight.)
CRITICAL TEMPERATURE	Not available.	**VOLATILITY**	Not applicable.
SPECIFIC GRAVITY g/cc	Not available	**SOLUBILITY**	Easily soluble in hot water. Soluble in cold water.
BULK DENSITY kg/m^3 ; lbs/ft^3	Not available.	**DISPERSION PROPERTIES**	See solubility in water.
VAPOR PRESSURE	Not applicable.	**WATER/OIL DIST. COEFF.**	Not available.
VAPOR DENSITY	Not applicable.		

Section X. Stability and Reactivity Data

STABILITY	The product is stable.
INSTABILITY TEMPERATURE	Not available.
CONDITIONS OF INSTABILITY	No additional remark.
INCOMPATABILITY WITH VARIOUS SUBSTANCES	Slightly reactive to reactive with oxidizing agents. Very slightly to slightly reactive with metals, alkalis, moisture.
CORROSIVITY	Mineral salts. Highly corrosive to aluminum, zinc, and copper. Slightly corrosive to mild steel and 304 stainless steel. Non-corrosive to 316 stainless steel.
SPECIAL REMARKS ON REACTIVITY	Avoid contact with moisture. Hydrolysis will slowly produce acids corrosive to metals.
SPECIAL REMARKS ON CORROSIVITY	Incompatible with copper alloys. Corrosive to brass. Corrosive to ferrous metals and alloys. Contact your sales representative or a metallurgical specialist to ensure compatability with your equipment.

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Section XI. Toxicological Information

SIGNIFICANT ROUTES OF EXPOSURE	Ingestion. Inhalation.
TOXICITY TO ANIMALS	See Section II.
SPECIAL REMARKS ON TOXICITY TO ANIMALS	May be harmful to livestock and wildlife if ingested. Clean up all spilled material, especially where bulk fertilizer loading of equipment occurs to prevent animal exposure.
OTHER EFFECTS ON HUMANS	No additional information.
SPECIAL REMARKS ON CHRONIC EFFECTS ON HUMANS	No additional remark.
SPECIAL REMARKS ON OTHER EFFECTS ON HUMANS	No additional remark.

Section XII. Ecological Information

ECOTOXICITY	Low toxicity for humans or animals under normal conditions of use. May be harmful to livestock and wildlife if ingested. Clean up all spilled material, especially where bulk fertilizer loading of equipment occurs to prevent animal exposure.
BOD and COD	Not available.
PRODUCTS OF DEGRADATION	Sulfur oxides (SO_2, SO_3 ...) Inorganic mineral salts and oxides.
TOXICITY OF THE PRODUCTS OF DEGRADATION	The product itself and its products of degradation are not harmful under normal conditions of use. Avoid spills or releases to watercourses.
SPECIAL REMARKS ON THE PRODUCTS OF DEGRADATION	Product will promote algae growth which may degrade water quality and taste. Will dissolve and disperse in water. Reclaiming material may not be viable.

Section XIII. Disposal Considerations

WASTE DISPOSAL OR RECYCLING	Recover and place material in a suitable container for intended use or disposal. Ensure disposal complies with government requirements and local regulations.

Section XIV. Transport Information

DOT / TDG CLASSIFICATION	Not controlled under TDG (Canada) or D.O.T. (U.S.A.)
PIN and Shipping Name	Not applicable.
SPECIAL PROVISIONS FOR TRANSPORT	Not applicable.
DOT (U.S.A) (Pictograms)	

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Section XV. Other Regulatory Information and Pictograms

OTHER REGULATIONS

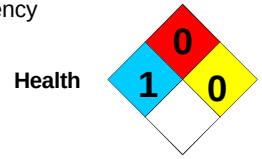
CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA): This product is on the Domestic Substances List (DSL), and acceptable for use under the provisions of CEPA.
TSCA (Toxic Substance Control Act): This product is listed on the TSCA Inventory.
CERCLA/SUPERFUND, 40 CFR 117,302: This product contains no Reportable Quantity (RQ) Substances.
This product is not considered as a priority pollutant as regulated under the Clean Water Act.
This product contains the following chemicals subject to the reporting requirements of SARA Section 313 and 40 CFR 372:
a) Zinc compounds, chemical category code N982, 3% of total product weight is Zn.
b) Manganese compounds, chemical category N450, 1% of total product weight is Mn.
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by the Controlled Products Regulations.

OTHER CLASSIFICATIONS

HCS (U.S.A.)	HCS CLASS: Irritating substance.
DSCL (EEC)	22- Harmful if ingested.

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

Hazards presented under acute emergency conditions only:



TDG (Pictograms - Canada)

DSCL (Europe) (Pictograms)

Not Available
No Disponible
Pas Disponible

ADR (Europe) (Pictograms)

Not Available
No Disponible
Pas Disponible

Section XVI. Other Information

REFERENCES

-Transportation of Dangerous Goods Act and Clear Language Regulations, current revision.
-Canada Gazette Part II, Vol. 122, No. 2 Registration SOR/88-64 31 December, 1987 Hazardous Products Act "Ingredient Disclosure List".
-Domestic Substances List, Canadian Environmental Protection Act.
-29 CFR Part 1910
-33 CFR Parts 151, 153, 154, 156
-40 CFR Parts 1-799
-46 CFR Part 153
-49 CFR Parts 1-199
-American Conference of Governmental Industrial Hygienists, Threshold Limit Values for Chemical Substances, 2006.
-NFPA 704, National Fire Codes Online, National Fire Protection Association, current edition at time of MSDS preparation.
-Corrosion Data Survey, Sixth Edition, 1985, National Association of Corrosion Engineers
-TOMES® System: Heitland G & Hurlbut KM (Eds) (electronic version): MICROMEDEX, Greenwood Village, Colorado, USA. Available at: http://csi.micromedex.com (2007). The TOMES® System includes MEDITEXT® Medical Management; HAZARDTEXT® Hazard Management; INFOTEXT® Documents; ERG2000 Emergency Response Guidebook Documents; REPROTEXT®: Heitland G & Hurlbut KM (Eds); CHRIS Hazardous Chemical Data: U.S. Department of Transportation, U.S. Coast Guard, Washington, D.C. (2007); HSDB:

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	Hazardous Substances Data Bank. National Library of Medicine, Bethesda, Maryland (2007); IRIS: Integrated Risk Information System. U.S. Environmental Protection Agency, Washington, D.C. (2007); NIOSH: Pocket Guide to Chemical Hazards. National Institute for Occupational Safety and Health, Cincinnati, Ohio (2007); OHM/TADS: Oil and Hazardous Materials Technical Assistance Data System. U.S. Environmental Protection Agency, Washington, D.C. (2007); REPROTOX®: Scialli A.R. Georgetown University Medical Center and Reproductive Toxicology Center, Columbia Hospital for Women Medical Center, Washington, D.C. (2007); RTECS®: Registry of Toxic Effects of Chemical Substances. National Institute for Occupational Safety and Health, Cincinnati, Ohio (2007); and SHEPARDS: Shepard T.H.: Shepard's Catalog of Teratogenic Agents (2007). -The Fertilizer Institute Product Testing Program Results, March 2003 -Michigan Office of Regulatory Reform R325.51108
OTHER SPECIAL CONSIDERATIONS	Revisions to sections 1, 3, and 15 in this version.
FOR FURTHER SAFETY, HEALTH, OR ENVIRONMENTAL INFORMATION ON THIS PRODUCT, CONTACT	**AGRIUM** **Wholesale Environment, Health and Safety** **Telephone (780) 998-6906 or Fax (780) 998-6677**

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