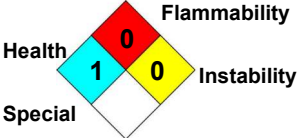





Material Safety Data Sheet

NFPA	HMIS	WHMIS	TDG	DOT								
	<table border="1"> <tr><td>Health</td><td>1</td></tr> <tr><td>Flammability</td><td>0</td></tr> <tr><td>Physical hazards</td><td>0</td></tr> <tr><td>Suggested PPE</td><td></td></tr> </table>	Health	1	Flammability	0	Physical hazards	0	Suggested PPE				
Health	1											
Flammability	0											
Physical hazards	0											
Suggested PPE												

1 . Product and Company Identification

Product name 14170 Ultra Yield Iron Oxy Sulfate 40%	
Synonym 40% Fe, 6% S, 3.5% Zn; iron oxysulfate 40%	MSDS prepared by the Environment, Health & Safety Department on: 7/7/2009.
Material uses Soil additive, micronutrient.	Version 2
MSDS Number 14170	<u>In Case of Emergency</u> Transportation: 1-800-792-8311 Medical: 1-888-670-8123
Manufacturer Agrium Advanced Technologies (U.S.), Inc. 2405 West Vassar Road (M-15) Reese, MI 48757	For more information on Agrium AT or our products, please go to: http://www.agriumat.com or contact us at Toll-Free:800-461-6471

2 . Hazards Identification

Physical state	Solid.
OSHA/HCS status	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
<u>Potential acute health effects</u>	
Inhalation	No known significant effects or critical hazards.
Ingestion	May cause irritation to the digestive tract if swallowed.
Skin	May cause skin irritation.
Eyes	May irritate the eyes upon contact.
<u>Potential chronic health effects</u>	
Chronic effects	Contains material that may cause target organ damage, based on animal data. Exposures to excessive quantities of iron oxide over many years may lead to siderosis, an accumulation of iron particles in the lungs which may lead to chronic inflammation.
Carcinogenicity	No known significant effects or critical hazards.
Mutagenicity	No known significant effects or critical hazards.
Teratogenicity	No known significant effects or critical hazards.
Developmental effects	No known significant effects or critical hazards.
Fertility effects	No known significant effects or critical hazards.

2 . Hazards Identification

Target organs Contains material which may cause damage to the following organs: lungs, upper respiratory tract, skin, eyes, nose/sinuses, throat.

Over-exposure signs/symptoms

Inhalation No specific data.

Ingestion No specific data.

Skin No specific data.

Eyes No specific data.

Medical conditions aggravated by over-exposure Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

See toxicological information (section 11)

3 . Composition / Information on Ingredients

United States

<u>Name</u>	<u>CAS number</u>	<u>%</u>
diiron trioxide	1309-37-1	40 - 70
zinc sulphate (anhydrous)	7733-02-0	1 - 5
zinc oxide	1314-13-2	1 - 5

Canada

<u>Name</u>	<u>CAS number</u>	<u>%</u>
diiron trioxide	1309-37-1	40 - 70
zinc sulphate (anhydrous)	7733-02-0	1 - 5
zinc oxide	1314-13-2	1 - 5

Mexico

<u>Name</u>	<u>CAS number</u>	<u>UN number</u>	<u>%</u>	<u>IDLH</u>	<u>Classification</u>			
					<u>H</u>	<u>F</u>	<u>R</u>	<u>Special</u>
diiron trioxide	1309-37-1	Not available.	40 - 70	2500 mg/m ³	0	0	0	
zinc oxide	1314-13-2	Not available.	1 - 5	500 mg/m ³	0	0	0	

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

4 . First Aid Measures

Eye contact Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.

Skin contact Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention if irritation develops. Wash thoroughly with soap and water after handling.

Inhalation Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

4 . First Aid Measures

Ingestion	Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.
Protection of first-aiders	No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
Notes to physician	No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

5 . Fire-fighting Measures

Flammability of the product	No specific fire or explosion hazard.
<u>Extinguishing media</u>	
Suitable	Use an extinguishing agent suitable for the surrounding fire.
Not suitable	None known.
Special exposure hazards	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
Hazardous thermal decomposition products	Decomposition products may include the following materials: sulfur oxides metal oxide/oxides
Special protective equipment for fire-fighters	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6 . Accidental Release Measures

Personal precautions	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see section 8).
Environmental precautions	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
<u>Methods for cleaning up</u>	
Small spill	Move containers from spill area. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.
Large spill	Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor. Note: see section 1 for emergency contact information and section 13 for waste disposal.

7 . Handling and Storage

Handling

Put on appropriate personal protective equipment (see section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Do not get in eyes or on skin or clothing. Do not ingest. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Storage

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

8 . Exposure Controls / Personal Protection

United States

Ingredient	Exposure limits
diiron trioxide	<p>ACGIH TLV (United States, 1/2008). TWA: 5 mg/m³ 8 hour(s). Form: Respirable fraction</p> <p>NIOSH REL (United States, 6/2008). TWA: 5 mg/m³, (as Fe) 10 hour(s). Form: Dust and fumes</p> <p>OSHA PEL 1989 (United States, 3/1989). TWA: 5 mg/m³ 8 hour(s). Form: Respirable fraction TWA: 10 mg/m³ 8 hour(s). Form: Total dust STEL: 10 ppm, (as Fe) 15 minute(s). Form: Total particulates</p> <p>OSHA PEL (United States, 11/2006). TWA: 10 mg/m³ 8 hour(s).</p>
zinc oxide	<p>NIOSH REL (United States, 6/2008). CEIL: 15 mg/m³ Form: Dust TWA: 5 mg/m³ 10 hour(s). Form: Dust and fumes STEL: 10 mg/m³ 15 minute(s). Form: Fume</p> <p>OSHA PEL 1989 (United States, 3/1989). TWA: 5 mg/m³ 8 hour(s). Form: Fume STEL: 10 mg/m³ 15 minute(s). Form: Fume TWA: 10 mg/m³ 8 hour(s). Form: Total dust TWA: 5 mg/m³ 8 hour(s). Form: Respirable fraction</p> <p>OSHA PEL (United States, 11/2006). TWA: 5 mg/m³ 8 hour(s). Form: Fume TWA: 15 mg/m³ 8 hour(s). Form: Total dust TWA: 5 mg/m³ 8 hour(s). Form: Respirable fraction</p> <p>ACGIH TLV (United States, 1/2008). STEL: 10 mg/m³ 15 minute(s). TWA: 2 mg/m³ 8 hour(s).</p>

Canada

Occupational exposure limits		TWA (8 hours)			STEL (15 mins)			Ceiling			Notations
Ingredient	List name	ppm	mg/m ³	Other	ppm	mg/m ³	Other	ppm	mg/m ³	Other	

8 . Exposure Controls / Personal Protection

diiron trioxide	US ACGIH 1/2008	-	-	5	-	-	-	-	-	-	[a]
diiron trioxide, as Fe	AB 6/2008	-	-	5	-	-	-	-	-	-	[b]
	BC 6/2008	-	-	10	-	-	-	-	-	-	
		-	-	5	-	-	-	-	-	-	[c]
		-	-	5	-	10	-	-	-	-	[d]
		-	-	3	-	-	-	-	-	-	[e]
		-	-	10	-	-	-	-	-	-	[f]
diiron trioxide	ON 6/2008	-	-	5	-	-	-	-	-	-	[g]
		-	-	10	-	-	-	-	-	-	[h]
diiron trioxide, as Fe	QC 6/2008	-	-	5	-	-	-	-	-	-	[i]
zinc oxide	US ACGIH 1/2008	-	-	2	-	10	-	-	-	-	
	AB 6/2008	-	-	10	-	-	-	-	-	-	[c]
		-	-	5	-	10	-	-	-	-	[d]
	BC 6/2008	-	-	2	-	10	-	-	-	-	[j]
	ON 6/2008	-	-	2	-	10	-	-	-	-	[g]
	QC 6/2008	-	-	5	-	10	-	-	-	-	[k]

Form: [a]Respirable fraction [b]Dust and fumes [c]Dust [d]Fume [e]Respirable dust [f]Total dust [g]The notation “respirable” following the name of an agent in this Schedule means that size fraction of the airborne particulate deposited in the gas-exchange region of the respiratory tract and collected during air sampling with a particle size-selective device that, (a) meets the American Conference of Governmental Industrial Hygienists (ACGIH) particle size-selective criteria; and (b) has the cut point of 4 microns at 50 per cent collective efficiency. [h]total dust [i]dust and fume [j]Respirable [k]fume

Mexico

Ingredient	Exposure limits
diiron trioxide	NOM-010-STPS (Mexico, 9/2000). LMPE-CT: 10 mg/m ³ , (as Fe) 15 minute(s). LMPE-PPT: 5 mg/m ³ , (as Fe) 8 hour(s).
zinc oxide	NOM-010-STPS (Mexico, 9/2000). LMPE-PPT: 10 mg/m ³ 8 hour(s). Form: powder LMPE-CT: 10 mg/m ³ 15 minute(s). Form: smoke LMPE-PPT: 5 mg/m ³ 8 hour(s). Form: smoke

Consult local authorities for acceptable exposure limits.

Recommended monitoring procedures	If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.
Engineering measures	If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
Hygiene measures	Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protection

Respiratory	Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
Hands	Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

8 . Exposure Controls / Personal Protection

Eyes	Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.
Skin	Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
<u>Environmental exposure controls</u>	Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9 . Physical and Chemical Properties

Physical state	Solid.
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10 . Stability and Reactivity

Chemical stability	The product is stable.
Possibility of hazardous reactions	Under normal conditions of storage and use, hazardous reactions will not occur.
Hazardous polymerization	Under normal conditions of storage and use, hazardous polymerization will not occur.
Conditions to avoid	No specific data.
Materials to avoid	No specific data.
Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11 . Toxicological Information

<u>Classification</u>						
Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
diiron trioxide	A4	3	-	-	-	-
zinc oxide	A4	-	-	-	-	-
<u>Canada</u>						
<u>Acute toxicity</u>						

11 . Toxicological Information

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
diiron trioxide	A4	3	-	-	-	-
zinc oxide	A4	-	-	-	-	-

Mexico

Acute toxicity

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
diiron trioxide	A4	3	-	-	-	-
zinc oxide	A4	-	-	-	-	-

12 . Ecological Information

Environmental effects No known significant effects or critical hazards.

United States

Aquatic ecotoxicity

Product/ingredient name	Test	Result	Species	Exposure
zinc sulphate (anhydrous)	-	Acute LC50 240 to 500 ug/L Fresh water	Daphnia - Water flea - Daphnia magna - <24 hours	48 hours
	-	Acute LC50 40 to 50 ug/L Fresh water	Fish - Rainbow trout, donaldson trout - Oncorhynchus mykiss - Fingerling	96 hours
zinc oxide	-	Acute LC50 2246000 ug/L Fresh water	Fish - Fathead minnow - Pimephales promelas - Neonate - <24 hours	96 hours
	-	Acute LC50 24600 ug/L Fresh water	Daphnia - Water flea - Daphnia magna - Neonate - <24 hours	48 hours

12 . Ecological Information

Canada

Aquatic ecotoxicity

Product/ingredient name	Test	Result	Species	Exposure
zinc sulphate (anhydrous)	-	Acute LC50 240 to 500 ug/L Fresh water	Daphnia - Water flea - Daphnia magna - <24 hours	48 hours
	-	Acute LC50 40 to 50 ug/L Fresh water	Fish - Rainbow trout, donaldson trout - Oncorhynchus mykiss - Fingerling	96 hours
zinc oxide	-	Acute LC50 2246000 ug/L Fresh water	Fish - Fathead minnow - Pimephales promelas - Neonate - <24 hours	96 hours
	-	Acute LC50 24600 ug/L Fresh water	Daphnia - Water flea - Daphnia magna - Neonate - <24 hours	48 hours

Mexico

Aquatic ecotoxicity

Product/ingredient name	Test	Result	Species	Exposure
zinc oxide	-	Acute LC50 2246000 ug/L Fresh water	Fish - Fathead minnow - Pimephales promelas - Neonate - <24 hours	96 hours
	-	Acute LC50 24600 ug/L Fresh water	Daphnia - Water flea - Daphnia magna - Neonate - <24 hours	48 hours

13 . Disposal Considerations

Waste disposal


The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

13 . Disposal Considerations

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

14 . Transport Information

Regulatory information	UN number	Shipping name	Classes	PG*	Label	Additional information
DOT Classification	Not available.	Not available.	Not available.	-		-
TDG Classification	Not available.	Not available.	Not available.	-		-
Mexico Classification	Not available.	Not available.	Not available.	-		-

PG* : Packing group

15 . Regulatory Information

United States

HCS Classification Target organ effects

U.S. Federal regulations **United States inventory (TSCA 8b):** All components are listed or exempted.

SARA 302/304/311/312 extremely hazardous substances: No products were found.

SARA 302/304 emergency planning and notification: No products were found.

SARA 302/304/311/312 hazardous chemicals: iron(ii) sulfate heptahydrate; diiron trioxide; zinc sulphate (anhydrous); zinc oxide

SARA 311/312 MSDS distribution - chemical inventory - hazard identification:
iron(ii) sulfate heptahydrate: Delayed (chronic) health hazard; diiron trioxide: Delayed (chronic) health hazard; zinc sulphate (anhydrous): Immediate (acute) health hazard, Delayed (chronic) health hazard; zinc oxide: Immediate (acute) health hazard, Delayed (chronic) health hazard

Clean Water Act (CWA) 307: zinc sulphate (anhydrous); zinc oxide

Clean Water Act (CWA) 311: iron(ii) sulfate heptahydrate; zinc sulphate (anhydrous)

Clean Air Act (CAA) 112 accidental release prevention: No products were found.

Clean Air Act (CAA) 112 regulated flammable substances: No products were found.

Clean Air Act (CAA) 112 regulated toxic substances: No products were found.

Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs) Not listed

Clean Air Act Section 602 Class I Substances Not listed

Clean Air Act Section 602 Class II Substances Not listed

15 . Regulatory Information

DEA List I Chemicals
(Precursor Chemicals) Not listed

DEA List II Chemicals
(Essential Chemicals) Not listed

SARA 313

	<u>Product name</u>	<u>CAS number</u>	<u>Concentration</u>
Form R - Reporting requirements	zinc sulphate (anhydrous)	7733-02-0	1 - 5
	zinc oxide	1314-13-2	1 - 5
Supplier notification	zinc sulphate (anhydrous)	7733-02-0	1 - 5
	zinc oxide	1314-13-2	1 - 5

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

State regulations

Connecticut Carcinogen Reporting: None of the components are listed.

Connecticut Hazardous Material Survey: None of the components are listed.

Florida substances: None of the components are listed.

Illinois Chemical Safety Act: None of the components are listed.

Illinois Toxic Substances Disclosure to Employee Act: None of the components are listed.

Louisiana Reporting: None of the components are listed.

Louisiana Spill: None of the components are listed.

Massachusetts Spill: None of the components are listed.

Massachusetts Substances: The following components are listed: IRON OXIDE DUST; FERROUS SULFATE (HEPAHYDRATE); ZINC SULFATE; ZINC OXIDE FUME

Michigan Critical Material: None of the components are listed.

Minnesota Hazardous Substances: None of the components are listed.

New Jersey Hazardous Substances: The following components are listed: IRON OXIDE FUME; ZINC SULFATE; ZINC OXIDE

New Jersey Spill: None of the components are listed.

New Jersey Toxic Catastrophe Prevention Act: None of the components are listed.

New York Acutely Hazardous Substances: The following components are listed: Ferrous sulfate; Zinc sulfate

New York Toxic Chemical Release Reporting: None of the components are listed.

Pennsylvania RTK Hazardous Substances: The following components are listed: IRON OXIDE (FE2O3); FERROUS SULFATE; SULFURIC ACID, ZINC SALT (1:1); ZINC OXIDE (ZNO)

Rhode Island Hazardous Substances: None of the components are listed.

United States inventory
(TSCA 8b) All components are listed or exempted.

Canada

WHMIS (Canada) Class D-2B: Material causing other toxic effects (Toxic).

Canadian lists

CEPA Toxic substances: None of the components are listed.

Canadian ARET: None of the components are listed.

Canadian NPRI: The following components are listed: Zinc; Zinc

Alberta Designated Substances: None of the components are listed.

Ontario Designated Substances: None of the components are listed.

Quebec Designated Substances: None of the components are listed.

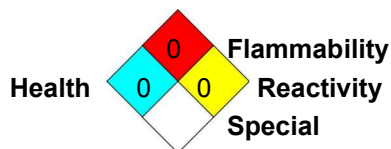
Canada inventory All components are listed or exempted.

15 . Regulatory Information

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

Mexico

Classification



EU regulations

Hazard symbol or symbols



Risk phrases

R51/53- Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety phrases

S29- Do not empty into drains.
S61- Avoid release to the environment. Refer to special instructions/safety data sheet.

International regulations

International lists

Australia inventory (AICS): All components are listed or exempted.
China inventory (IECSC): All components are listed or exempted.
Japan inventory (ENCS): All components are listed or exempted.
Japan inventory (ISHL): Not determined.
Korea inventory (KECI): All components are listed or exempted.
New Zealand Inventory of Chemicals (NZIoC): All components are listed or exempted.
Philippines inventory (PICCS): All components are listed or exempted.

Chemical Weapons Convention List Schedule I Chemicals

Not listed

Chemical Weapons Convention List Schedule II Chemicals

Not listed

Chemical Weapons Convention List Schedule III Chemicals

Not listed

16 . Other information

Label requirements

CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.

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

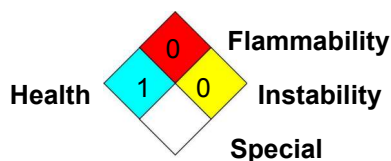
Health	1
Flammability	0
Physical hazards	0

16 . Other information

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on MSDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material. Suggested protective clothing might not be adequate. Consult a specialist before handling this product.

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



Date of issue 7/7/2009.

Version 2

▣ Indicates information that has changed from previously issued version.

Notice to Reader:

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