

WHMIS (Classification)

CLASS D-2A : Very toxic material causing other toxic effects

WHMIS (Pictograms)



SECTION 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Trade Name	Jarosite Residue
Product Code	None
Supplier	Noranda Income Limited Partnership, 860 Gérard Cadieux Boulevard, Salaberry-de-Valleyfield (Quebec) Canada J6T 6L4
Information Contact	Viviane DeQuoy, Industrial Hygienist
Phone Number (Business hours)	1 (450) 373-9144 Extension 2394
Phone Number (Emergency)	450-373-9144 Extension 2220
Synonym	Résidu de jarosite (French)
DSL (Domestic Substance List)	Not available
Name / Chemical Formula	Not applicable
Chemical Family	Metal ; Oxides ; Salts
Utilization	Solid waste

SECTION 2. COMPOSITION AND INFORMATIONS ON INGREDIENTS

Name	CAS #	Percentage (%)	Exposure Limits		
			ACGIH (U.S.A.) 2009 TLV-TWA (mg/m ³)	OSHA (U.S.A.) PEL - TWA (mg/m ³)	QUÉBEC (CA) TWA _{EV} (mg/m ³)
Sodium (Ferric hydroxy sulfate)	-	30.35	1 (Fe soluble salts)	Not established	1 (soluble salts)
Calcium (sulfate) (gypsum)	13397-24-5	5-7	10 (inhalable fraction)	15 (total dust) 5 (respirable fraction)	10 (total dust) 5 (respirable dust)
Hydronium (Ferric hydroxy sulfate)	-	2-5	1 (Fe soluble salts)	Not established	1 (soluble salts)
Lead	7439-92-1	<1	0.05 (Pb, inorganic compds)	0.05 (Pb, Pb compds)	0.05 (Pb, inorganic compds)
Silica (Amorphous)	7631-86-9	<1	Not established	80% SiO ₂	6 (respirable dust)

ACGIH : American Conference of Governmental Industrial Hygienists. OSHA : Occupational Safety and Health Administration.

Note : **Ferric (hydroxy sulfate) (Sodium ; Hydronium) (as Fe soluble salts) :** ACGIH TLV TWA : 1 mg/m³ (Fe soluble salts). NIOSH REL-TWA (≤10 hours) : 5 mg/m³ (Dust, fumes) (Fe) ; IDLH : 2 500 mg/m³ (Fumes ; Fe dust oxides). LD50 and LC50 : Not available. (RTECS).

Calcium (Sulfate dihydrate, gypsum) : ACGIH TLV-TWA : Total dust containing no asbestos and < 1% crystalline silica. NIOSH REL-TWA (≤10 hours) : 5 mg/m³ (Respirable fraction), 10 mg/m³ (Total). INHALATION acute (LoTC) : 194 g/m³/10 year-intermittent (Human). (RTECS).

Plomb : ACGIH TLV TWA : Lead and inorganic compounds. NIOSH REL-TWA (≤10 hours) : 0.05 mg/m³ ; REL also applies to other lead compounds (as Pb) ; IDLH : 100 mg/m³ (Metal ; Compounds). OSHA PEL-TWA : PEL also applies to other lead compounds (as Pb). ORAL acute (LoLD) : 155 mg/kg (Human) ; 0.2 mg/kg (Rat). INHALATION acute (LoTC) : 10 µg/m³ (Human). INTRAPERITONEAL acute (LoLD) : 1 g/kg (Rat). (RTECS).

Silica (Amorphous) : NIOSH REL-TWA (≤10 hours) : 6 mg/m³ ; IDLH : 3 000 mg/m³. ORAL acute (LD50) : 3 160 mg/kg (Rat). INTRAVENOUS acute (LD50) : 15 mg/kg (Rat). (RTECS).

Consult local authorities for acceptable exposure limits.

SECTION 3. RISKS IDENTIFICATION FOR HUMAN HEALTH

Routes of Entry	Ingestion. Inhalation.
Carcinogenicity	Lead : POSSIBLE (Group 2B, IARC) (EPA) ; CARCINOGEN (Animal, A3, ACGIH). Calcium (Sulfate) : NOT A CARCINOGEN (IARC) ; NOT LISTED (Human, Group A4, ACGIH). Silica (Amorphous) : NOT CLASSIFIABLE (Human, Group 3, IARC) ; NOT LISTED (ACGIH). Iron (Hydroxide) : NOT LISTED (IARC, ACGIH).
Mutagenicity	Not applicable.
Teratogenicity	Lead : SUSPECTED (OSHA).
Acute Effects	Solid form : Not a health hazards. Conditions and work practices which generate dusts or fumes should be avoided or controlled. Ferric (hydroxy sulfate) : May cause metal fume fever , a delayed, generally benign, transient, reversible flu-like condition.

SECTION 4. FIRST AID MEASURES

Eye Contact	Remove contact lenses if present. Immediately flush eyes with plenty of water, while holding eyelids open for at least 15 minutes. Consult a physician.
Skin Contact	Remove contaminated clothing and immediately flush skin with plenty of water for at least 15 minutes. Call a physician. Always wash skin thoroughly with water and soap after handling lead or lead compounds. Particles : Possibility of skin irritation.

Inhalation	Remove the person from exposure. Possible irritation : Nose, throat. If not breathing : Give artificial respiration.. Difficult breathing : Give oxygen. Get immediate medical attention. Maintain observation of the patient for delayed onset of pulmonary oedema.
Ingestion	Induce vomiting. UNCONSCIOUS person : DO NOT induce vomiting or give any liquid. Consult a physician. Ingestion : will nearly always cause acute gastro-intestinal irritation. Acute exposure : Possibility of other organs and body systems damages.

NOTE : Mixture : Health effects may be due to a possible synergetic effect between substances, their individual toxicity and their percent content in the mixture.

SECTION 5. FIRE AND EXPLOSION DATA

Flash Point	Not available
Flammable Limits	Not available
Auto-Ignition Temperature	Not available
Products of Combustion	Metal oxides
Fire Hazards	Not flammable Lead : In contact with fire or heat source, it may melt, and then if in contact with water, will cause a violent reaction. Possibility of toxic lead vapours formation.
Explosion Hazards	Not explosive (Mechanical impact ; Static discharge).
Instructions (Fire Fighting)	NOT FLAMMABLE. Use fire fighting materials and procedures adapted to the immediate environment.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Spill	Clean spills first by shovel. Recycle to process. Wash down contaminated area. Collect water for recycling according to regulation.
Personal Protection	Safety glasses. Gloves. Be sure to use a NIOSH approved respirator or equivalent when occupational exposure limits are exceeded.

SECTION 7. HANDLING AND STORAGE

Handling	DO NOT ingest or inhale dust. Wear appropriate protective clothing. Wear approved respirators if adequate ventilation cannot be provided. Ingestion or inhalation : Seek medical advice immediately and provide medical personnel with a copy of this SDS.
Storage	Away from : Incompatible substances (Acids).

SECTION 8. ENGINEERING CONTROLS AND PERSONAL PROTECTION

Engineering Controls	Ensure that eyewash station is proximal to the work-station location.
Personal Protection	Safety glasses. Gloves. Be sure to use a NIOSH approved respirator or equivalent when occupational exposure limits are exceeded.



SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State and Appearance	Solid (Slurry)	Odour	None
Molecular Weight	Not applicable	Taste	Not available
pH (1% soln/water)	2.4	Colour	Yellow
Boiling Point	Not available	Volatility	Not available
Melting Point	Not available	% Moisture	40%
Critical Temperature	Not available	Odour Threshold	Not available
Specific Gravity	Not available	Water/Oil Dist. Coeff.	Not available
Vapour Pressure	Not available	Ionicity (in Water)	Not available
Vapour Density	Not available	Dispersion	Not applicable
Solubility	No (Water)		

SECTION 10. STABILITY AND REACTIVITY DATA

Stability	Chemically stable
Conditions of Instability	Not applicable
Incompatibilities	Ferric (Hydroxy sulfate) (as Fe soluble salts) : Heated, violent reaction with : Aluminum powder (Intense heat production), calcium disilicide, metal acetylides (Calcium acetylide plus iron (III) chloride, on ignition ; Cesium acetylide (Warming causes incandescent reaction) ; Rubidium acetylide). Possibility of violent reaction with : Aluminum, ethylene oxide. Calcium (Sulfate) : With magnesium, aluminum powder, phosphorus, acids, strong oxidizing agents. Lead : Violent reaction on ignition with : Chlorine trifluoride, concentrated hydrogen peroxide, ammonium nitrate, sodium acetylide. Other incompatibilities : Sodium nitrate, zirconium, disodium acetylide, oxidants.

Silica (Amorphous) : Violent reaction with : Fluoride, oxygen difluoride, chlorine trifluoride.

Corrosivity None

SECTION 11. TOXICOLOGICAL INFORMATION

Chronic Effects

Possibility of toxic effects to : Blood, liver, lungs ; Nervous and reproductive systems. Non-controlled repeated or prolonged exposure : Possibility of target organs damages ; Possibility of a general health deterioration by an accumulation in one or many organs.

Ferric (hydroxy sulfate) (as Fe soluble salts) : Potentially a serious risk in all industrial settings. Hematite dust : Benign pneumoconiosis (Siderosis). Prolonged or repeated contact : Possibility of permanent ferric eyes coloration. Inhaled particles : May stay in permanence in the lungs. Acute exposure : Possibility of liver and kidney damage, altered respiratory rate, convulsions.

Calcium (Sulfate) : Irritating (Dust) : Eyes, skin and mucous membranes. Possibility of : Conjunctivitis, rhinitis, epistaxis, coughing, sneezing, pneumonia, laboured breathing. Ingestion : May result in obstruction, particularly at the pylorus. Chronic overexposure : Possibility of dermatitis.

Lead : Metal lead NOT CLASSIFIED as carcinogen but listed as teratogen and reproductive toxic (European Economic Community Expert Committee on Metal). Lead is a regulated substance in many jurisdictions. Target organs for acute and chronic overexposure (NIOSH 90-117) : Blood, gingival tissues ; gastro-intestinal, central nervous, renal systems. Symptoms of acute overexposure often develop abruptly and resemble those of chronic overexposure : Anaemia, lassitude, weakness, nausea, vomiting, abdominal cramps, constipation, confusion, convulsions, muscular weakness, muscular and joint pains. Acute overexposure is more likely to occur in children than in adults. Target organs (Chronic overexposure) : Blood, kidneys, digestive, nervous and reproductive systems.

Silica (Amorphous) : Target organ for acute and chronic overexposure (NIOSH 90-117) : Respiratory system. Signs or symptoms of chronic overexposure : Shortness of breath. Prolonged dust inhalation can cause silicosis (Fibrosis of the lungs).

Toxicity

Workers with the following pre-existing conditions warrant particular attention :

Ferric (Hydroxy sulfate) (as Fe) : Eyes and respiratory sensitivities.

Calcium (Sulfate) : Respiratory disorder.

Lead : Anaemia, pregnant or breast feeding women and women of child bearing age. Preferred method for biological monitoring : Blood lead levels (Pb blood) measurement.

Silica (Amorphous) : Tuberculosis.

Eating, drinking and smoking must be prohibited in areas where this material is handled and processed. Wash hands and face before eating, drinking and smoking.

SECTION 12. ECOTOXICOLOGICAL INFORMATION

Ecotoxicity	Heavy metals : Harmful to aquatic life.
Toxicity to Animals	No additional remark
Biodegradation Products	Not applicable
Biodegradation Products (Toxicity)	Not applicable
Remarks on Environment	No additional remark
BOD5 and COD	Not available

SECTION 13. DISPOSAL ARRANGEMENTS

Waste Disposal Recycle to process, if possible. Discard in full compliance with Federal, Provincial and local regulations.

SECTION 14. TRANSPORT INFORMATION

TDG (Pictograms)	Not regulated (Canada)
PIN	Not applicable
Special Provisions (Transport)	Not applicable

SECTION 15 OTHER REGULATIONS

Labeling (EEC)	EU: Consolidated Inventories : Listed. Ferric (Hydroxide) : EU Consolidated Inventories : EC Number 215-166-1 Iron (Sulfate) : EU Consolidated Inventories : EC Number 231-753-5 Calcium (Sulfate) : EU Consolidated Inventories : EC Number 231-900-3 Lead : EU Consolidated Inventories : EC Number 231-100-4 Silica (Amorphous) : EU Consolidated Inventories : EC Number 231-545-4 Not classified in the Annex I of Directive 67/548/EEC Not listed in the Annex I of Council Regulation No (EC) 304/2003 Not listed in a priority list (as foreseen under Council Regulation (EEC) No 793/93
Risk Phrases (EEC)	Not controlled
Safety Phrases (EEC)	Not controlled

CEPA DSL (CANADA)

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) : On the Domestic Substances List (DSL) ; Acceptable for use under the provisions of CEPA.

Regulation (U.S.A.)

CERCLA Section 103 Hazardous substances (40 CFR 302.4) : Listed.

Iron (Sulfate) or Ferrous (Sulfate) (RQ) : 1000 pound (454 kg)

CERCLA Section 103 Hazardous substances (40 CFR 302.4) ; SARA 110 ATSDR CERCLA Priority List : Listed ; SARA Section 313, Toxic Chemicals (40 CFR 372.65) : Listed.

Lead (RQ) : *10 pounds (4.54 kg)

TSCA (EPA, Toxic Substance Control Act) Chemical Inventory (40 CFR710) : Listed.

Ferric (Hydroxide) ; Lead.

Classifications HCS (U.S.A.)

Not regulated

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

Fire Hazard 1 **Réactivité** 0 **Health** 0 **Special Hazard**

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

DSCL (Europe) (Pictograms)

ADR (Europe) (Pictograms)

SECTION 16. OTHER INFORMATIONS

References

- TLVs and BEIs (2009). Based on the Documentation of the Threshold Limit Values for Chemical Substances and Physical Agents & Biological Exposure Indices. ACGIH, Cincinnati, OH – <http://www.acgih.org>
- CCOHS (2009) - Canadian Centre for Occupational Health and Safety - <http://www.ccohs.ca/>
- CSST (2008) - Commission de la Santé et de la Sécurité du Travail (Québec). Service du répertoire toxicologique - <http://www.reptox.csst.qc.ca/>
- ERG (2008). Emergency Response Guidebook, U.S. Department of Transportation, Transport Canada, et le Secretariat of Communications and Transportation of Mexico
- ESIS : C&L (Classification and Labelling), substances or preparations in accordance with Directive 67/548/EEC (substances) and 1999/45/EC (preparations),
- ESIS : EINECS (European Inventory of Existing Commercial chemical Substances) O.J. C 146A, 15.6.1990
- ESIS : EINECS corrections published in O.J. C 54/13 01.03.2002, 2002/C54/08.
- HSDB (2009) - Hazardous Substances Data Bank. TOXNET® Network of databases on toxicology, hazardous chemicals, and environmental health. NLM Databases & Electronic Resources, U.S. National Library of Medicine, NHI, 8600 Rockville Pike, Bethesda, MD 20894 - <http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?HSDB>
- IARC - Monographs on the Evaluation of Carcinogenic Risks to Humans (collection) - <http://www-cie.iarc.fr/>
- Merck Index (1999). Merck & CO., Inc, 12th edition
- NIOSH U.S. (2008) - Pocket Guide to Chemical Hazards - <http://www.cdc.gov/niosh/npg/>
- Patty's Industrial Hygiene and Toxicology, 3rd Revised Edition
- Règlement sur les produits contrôlés (Canada)
- RTECS (2008). Registry of Toxic Effects of Chemical Substances, NIOSH, CDC
- Toxicologie industrielle & intoxication professionnelle, 3e édition, Lauwerys
- TSCA (2009) - U.S. EPA Toxic Substance Control Act, Chemical Inventory. System of Registries (SoR), Substance Registry Services, http://iaspub.epa.gov/sor_internet/registry/substreg/searchandretrieve/substancesearch/search.do

Glossaire

- CSST : Commission de la Santé et de la Sécurité du Travail (Québec).
- HSDB : Hazardous Substances Data Bank.
- IARC : International Agency for Research on Cancer.
- NIOSH : National Institute of Occupational Safety and Health.
- NTP : U.S. National Toxicology Program.
- RTECS : Registry of Toxic Effects of Chemical Substances

Note No specific studies have been performed on this mixture. For your protection, we suggest that you test it before using in your process.

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Partial review : None

Previous complete revision : New SDS

Request

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