SAFETY DATA SHEET

Ferric Sulphate 60% Solution

SECTION 1: IDENTIFICATION

Product identifier used on a label:	**Ferric Sulphate 60% Solution**
Product code:	2055
Recommended use of the chemical and restrictions on use:	Potable and wastewater treatment, odour removal for industrial applications.
Chemical family:	Inorganic acidic mixture.
Name, address and phone # of supplier:	Aqua Bond Inc. PO Box 63635, Toronto, ON, M1V 5K2 (416) 754-7211
24 Hr. Emergency phone #	**CANUTEC (613) 996-6666**

SECTION 2: HAZARDS IDENTIFICATION

Classification of the chemical: This material is classified as hazardous under U.S. OSHA regulations (29CFR 1910.1200) (Hazcom 2012) and Canadian WHMIS regulations (Hazardous Products Regulations) (WHMIS 2015).

Hazard classification:
Corrosive to metals - Category 1
Skin corrosion / irritation - Category 1A
Serious eye damage / eye irritation - Category 1
Carcinogenicity - Category 1A
Acute toxicity - Category 4 (oral)

Label elements:



Signal word: Danger

Hazard statements:
H290 May be corrosive to metals.
H302 Harmful if swallowed.
H314 Cause severe skin burns and eye damage.
H350 May cause cancer (Inhalation)

Precautionary statements:
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P234 Keep only in original packaging.
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P264 Wash with plenty of water and soap thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P301+P312+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Call a POISON CENTER or doctor if you feel unwell.
P303+P361+P353+P363 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. Wash contaminated clothing before reuse.

P304+P340+P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P313 IF exposed or concerned: Get medical advice or attention.
P390 Absorb spillage to prevent material damage.
P405 Store locked up.
P501 Dispose of contents/container according to all applicable regulations.

Hazards Not Otherwise Classified Not available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Pure substance/ mixture: Mixture.

Ingredient name	CAS Number	Concentration (%)
Ferric sulphate	10028-22-5	58-62%
Sulphuric acid	7664-93-9	1-5%
Water	7732-18-5	33-41%

SECTION 4: FIRST-AID MEASURES

Description of first aid measures:

General advice:

Remove contaminated clothes, undergarments and shoes immediately. First aid personnel should pay attention to their own safety. Remove affected person from danger area. Call a poison control center or physician for treatment advice.

Ingestion: Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER or doctor. If vomiting occurs naturally, lie on your side, in the recovery position.

Inhalation: Remove source of exposure or move person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor. If breathing has stopped, trained personnel should begin rescue breathing or if the heart has stopped, immediately start cardiopulmonary resuscitation (CPR) or automated external defibrillation (AED). Avoid mouth to mouth contact by using a barrier device. If exposed or concerned: Get medical advice / attention.

Skin contact: Avoid direct contact. Wear chemical protective clothing, if necessary. Take off immediately contaminated clothing, shoes and leather goods. Rinse skin with lukewarm, gently flowing water / shower for 30 minutes. Immediately call a POISON CENTER or doctor. Wash contaminated clothing before re-use, or discard. If exposed or concerned: Get medical advice / attention.

Eye contact: Avoid direct contact. Wear chemical protective gloves, if necessary. Remove source of exposure or move person to fresh air. Rinse eyes cautiously with lukewarm, gently flowing water for several minutes, while holding the eyelids open. Remove contact lenses, if present and easy to do. Continue rinsing for 30 minutes. Take care not to rinse contaminated water into the unaffected eye or onto the face. Immediately call a POISON CENTER or doctor.

Most important symptoms and effects, both acute and delayed:

Inhalation: Causes severe burns to the mouth and throat (mist).

Ingestion	Causes burns to the mouth and throat. Harmful if swallowed.
Skin contact	Causes severe skin burns.
Eye contact	Causes serious eye damage.
Further information	For further information see Section 11 Toxicological Information.

SECTION 5: FIRE-FIGHTING MEASURES

Extinguishing media:	
Suitable	Use media appropriate for surrounding material.
Unsuitable	Water jets are not recommended in fires involving chemicals.
Specific hazards arising from the chemical:	Reacts with many metals to liberate hydrogen gas that can form explosive mixtures. In the event of a fire oxides of sulphur may be released.
Special protective actions for fire-fighters:	Wear NIOSH-approved self-contained breathing apparatus and chemical-protective clothing.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:	Wear appropriate personal protective equipment (See Section 08 Exposure Controls and Personal Protection). Stay upwind, ventilate area. Do not breathe vapours, fumes, or mists. Do not use material handling equipment with exposed metal surfaces.
Environmental precautions:	Prevent material from entering waterways, sewers or confined spaces. Notify local health and wildlife officials. Notify operators of nearby water intakes.
Methods and materials for containment and cleaning up:	SMALL SPILLS: Stop or reduce leak if safe to do so. Clean up spill with non-reactive absorbent and place in suitable, covered, labelled containers. Flush area with water. Contaminated absorbent material may pose the same hazards as the spilled product. LARGE SPILLS: Contact fire and emergency services and supplier for advice.
Special spill response procedures:	In case of transportation accident, contact CANUTEC at (613) 996-6666.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling:	Put on appropriate personal protective equipment. Avoid exposure -obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapour or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. 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.
Conditions for safe storage:	Store in a cool, dry, well-ventilated area, out of direct sunlight, away from heat sources and incompatible materials. Always store in original labelled container. Keep containers tightly closed when not in use and when empty. Empty containers may contain hazardous residues. Protect label and keep it

	visible. Do not transfer to metal containers.
Incompatible materials:	Bases, such as potassium hydroxide, sodium hydroxide, calcium hydroxide (slaked lime), ammonia, carbonates. Metals, such as aluminum, steel, and brass.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters:

Exposure limits

Ingredient	**Exposure limits**
Ferric Sulphate	ACGIH TWA 1 mg/m³**;** ACGIH STEL/Ceiling 2 mg/m³;
Sulfuric acid	ACGIH TWA 0.2 mg/m³
Engineering controls:	Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. Emergency eye wash stations and safety showers should be available in the immediate vicinity of any potential exposure.
Individual protection measures:	Eyes/face: Chemical splash goggles and face shield. Skin: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical. Personal protective equipment for the body should be corrosion proof. Respiratory: 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. If workers are exposed to concentrations above the exposure limit, they must use appropriate, certified respirators. Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Red to dark brown liquid.
Odour:	Odourless.
pH:	< 1.0
Melting point:	<-18 °C
Initial boiling point and boiling range:	Not available
Flash point:	Not applicable
Evaporation rate:	Not available.
Flammability:	Not applicable.
Upper and lower flammability limits:	Not applicable.
Vapour pressure:	Not available
Vapour density:	1.268
Specific Gravity:	1.50-1.62 g/mL @ 20 °C
Solubility:	Soluble.

Auto-ignition temperature:	Not applicable.
Decomposition temperature:	Not available.
Viscosity:	Not available.

SECTION 10: STABILITY AND REACTIVITY

Reactivity:	May be corrosive to metals. Reacts with many metals to liberate hydrogen gas that can form explosive mixtures. Reacts with water to generate heat. Reacts violently with bases.
Chemical stability:	This product is stable if stored according to the recommendations in Section 07.
Possibility of hazardous reactions:	Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid:	Avoid contact with incompatible materials. Avoid high temperatures. Avoid contact with incompatible materials. Keep container tightly sealed. Do not use in areas without adequate ventilation.
Incompatible materials:	Bases, such as potassium hydroxide, sodium hydroxide, calcium hydroxide (slaked lime), ammonia, carbonates. Metals, such as aluminum, steel, and brass.
Hazardous decomposition products:	Thermal decomposition may produce oxides of sulphur.

SECTION 11: TOXICOLOGICAL INFORMATION

Acute Toxicity (LD50 / LC50)

Component	Route	Species	Value	Exposure time
Ferric Sulphate	Oral	Rat	500 mg/kg bw	N/A

Toxic Health Effect Summary:

Chemical characteristics:	This product is not expected to be absorbed by the body. The primary toxic affect is most likely its low pH.
Skin contact:	Causes serious eye damage.
Eye contact:	Causes serious eye damage.
Ingestion:	Causes burns to the mouth and throat. Harmful if swallowed.
Inhalation	Causes severe burns to the mouth and throat (mist).
Sensitization	This product and its components at their listed concentration have no known sensitizing effects.
Mutagenicity	This product and its components at their listed concentration have no known mutagenic effects.
Carcinogenicity	IARC has classified mists from strong inorganic acids as group 1, carcinogenic to humans.
Reproductive toxicity	This product and its components at their listed concentration have no known reproductive effects.
Specific organ toxicity	This product and its components at their listed concentration have no known effects on specific organs.
Aspiration hazard	Not available
Synergistic materials	Not available

SECTION 12 ECOLOGICAL INFORMATION

Ecotoxicity:

Component	Type	Species	Value	Exposure Time
Ferric sulphate	LC50 (pH adjusted)	Rainbow trout	>27.9 mg/L	96 hrs
Ferrous sulphate	EC50 (pH adjusted)	Daphnia magna	5.25 mg/L	24 hrs

Biodegradability: The domestic substance list categorizes Ferric sulphate as persistent.

Bioaccumulation: The domestic substance list categorizes Ferric sulphate as non-bioaccumulative.

Mobility: This product is water soluble, but is expected to adsorb to soil and is not expected to contaminate ground water.

Other adverse effects Not available

SECTION 13: DISPOSAL CONSIDERATIONS

Disposal methods: The generation of waste should be avoided or minimized wherever possible. 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. Dispose of surplus and nonrecyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: TRANSPORT INFORMATION

	TDG
UN Number:	UN3264
UN proper shipping name:	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Ferric Sulphate, Sulphuric Acid)
Transport hazard class:	8
Packing group:	II
Special precautions for user:	**Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

SECTION 15: REGULATORY INFORMATION

CEPA DSL/NDSL Status: All components are listed on or are exempt from listing on the Canadian Domestic Substances List.

TSCA 8 (b) Inventory Status: All components are listed or are exempt from listing on the Toxic Substances Control Act Inventory.

SECTION 16: OTHER INFORMATION

Revision date: February 8, 2024

ATE = Acute Toxicity Estimate

BCF = Bioconcentration Factor

GHS = Globally Harmonized System of Classification and Labelling of Chemicals

IATA = International Air Transport Association

IBC = Intermediate Bulk Container

IMDG = International Maritime Dangerous Goods

LogPow = logarithm of the octanol/water partition coefficient

MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)

UN = United Nations

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