

1. Identification

Product identifier:	Agro Fe OP
Product code:	---
Supplier Name:	Agro-100 Ltée 990 Chemin des Prairies Joliette, Québec Canada, J6E 0L4
Telephone:	(450) 759-8887
Emergency tel. number:	(450) 759-8887
Available hours:	8h00 - 16h00 Monday to Friday
Recommended use:	Liquid nutrient solution for foliar application
Restriction on use:	Respect application recommendations and suggested rates

2. Hazard identification

Signal word: DANGER

Product classification:



Skin corrosion - Category 1B. Serious eye damage - Category 1. Health hazards not otherwise classified - Category 1 Corrosive. Corrosive to metals - Category 1.

Reproductive toxicity - Category 2.

Hazard statement(s):

- H314 - Causes severe skin burns and eye damage.
- H374 - Causes serious injury to the respiratory tract.
- H290 - May be corrosive to metals.
- H361 - Suspected of damaging fertility or the unborn child.

Precautionary statement(s)

Prevention: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep only in original packaging. Do not breathe mist, vapors and spray. Wear protective gloves, protective clothing, eye and face protection. Wash hands thoroughly after handling and any other part of the body that may have been exposed to the product.

Response: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. Immediately call a doctor. IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF exposed or concerned: Get medical advice. Wash contaminated clothing before reuse. Absorb spillage to prevent material-damage.

Storage: Store in a corrosive resistant container with a resistant inner liner. Store locked up.

Disposal: Dispose of contents/container in accordance with local, regional, national and/or international regulations in force.

Other hazards: Moderately toxic by intravenous, intraperitoneal and subcutaneous routes.

See toxicological information, section 11

3. Composition/ Information on ingredients

No	CAS No :	Common name and synonyms	Concentration % (w/w)
1	7782-63-0	Iron(II) sulfate heptahydrate	25.00
2	77-92-9	Citric acid	8.60
3	7664-38-2	Phosphoric acid	0.10 - 1.00 *

* The actual concentration range is withheld as a trade secret.

4. First-aid measures

If swallowed, irritation, any type of overexposure or symptoms of overexposure occur during use of the product or persists after use, immediately contact a POISON CENTER, an EMERGENCY ROOM or a PHYSICIAN; ensure that the product safety data sheet is available.

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 as soon as possible.

Skin contact: Remove contaminated clothing immediately. Wash the skin with soap and water. Thoroughly wet contaminated clothing. If irritation persists, consult a doctor.

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

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.

Symptoms: This product is irritating and corrosive to skin, eyes, respiratory and digestive tracts. The severity of symptoms can vary depending on the exposure conditions (contact time, product concentration, etc.).

Effects (acute or delayed): If on skin, this product causes severe burns. Contact with eyes may cause redness, tearing, edema, pain, corneal opacity and even blindness. Inhalation of high concentrations vapors can cause severe burns to the mouth and airways leading to the lungs. High concentration exposure can lead to severe lesions and ulcerations of the esophageal mucosa and gastrointestinal tract. Studies suggest the possibility of an increase in congenital malformations.

Immediate medical attention and special treatment: Probable mucosal damage may contraindicate the use of gastric lavage. Warning: risk of gastric perforation.

5. Fire-fighting measures

Suitable extinguishing media: Use dry chemical, CO₂, water spray (fog) or foam.

Unsuitable extinguishing media: Jets of water can facilitate the spread of fire.

Specific hazards arising from the hazardous product: Releases dangerous fumes.

Hazardous combustion products: Hydrocyanic acid. Phosphine. Acetone. Carbon monoxide and dioxide.

Special protective equipment and precautions 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 if you do not have suitable training or protection. Evacuate surrounding areas. Do not touch or walk through spilled material. Shut off all heating and ignition sources. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).

Protective equipment and emergency procedures: Avoid dispersal of spilled material, runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution. Use inert absorbent or retention tubes in the event of a large spill.

Methods and materials for containment and cleaning up: Stop leak if without risk. Move containers from spill area. Contain leaks and pick up with non-combustible absorbent materials such as sand, earth or vermiculite. Then, place in an appropriate waste disposal container according to local regulations. Dispose of via a licensed waste disposal contractor.

7. Handling and storage

Precautions for safe 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. Remove contaminated clothing and protective equipment before entering eating areas. Avoid exposure - obtain special instructions before use. Avoid contact with eyes, skin and clothing. Do not ingest. Avoid breathing vapor or mist. 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. Do not reuse container.

The handling of this product must comply with local regulations. Store in an airtight container located in a dry, well ventilated and soil corrosion resistant cemented. Refer to the storage of the ROHS standards and NFC. Keep away from combustible materials and bases. If the product is stored with other dangerous substances, refer to the NFC segregation table. Containers for corrosive substances shall be kept closed, carry clear identification of their contents and be handled with care. Note: this product attacks certain types of plastic, rubber or coating.

Conditions for safe storage: Store in accordance with local regulations. Store in a segregated and approved area. 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.

Store in a closed container, if possible within a overpackaging that is impermeable to the corrosive vapours.

Incompatibility: Bases and oxidizers. Reductive agents. Chlorinated products. Nitrates and nitrites. Aluminum, magnesium, tin, zinc, copper, silver, nickel and their alloys.

8. Exposure Controls/ Personal protection

Alberta

No	CAS No :	Common name and synonyms	8-hour occupational exposure limit (TWA)		15-minute occupational exposure limit (STEL)		Ceiling occupational exposure limit	
			ppm	mg/m ³	ppm	mg/m ³	ppm	mg/m ³
1	7782-63-0	Iron(II) sulfate heptahydrate	N/A	N/A	N/A	N/A	N/A	N/A
2	77-92-9	Citric acid	N/A	N/A	N/A	N/A	N/A	N/A
3	7664-38-2	Phosphoric acid	N/A	1	N/A	3	N/A	N/A

British-Columbia

No	CAS No :	Common name and synonyms	8-hour occupational exposure limit (TWA)		15-minute occupational exposure limit (STEL)		Ceiling occupational exposure limit	
			ppm	mg/m ³	ppm	mg/m ³	ppm	mg/m ³
1	7782-63-0	Iron(II) sulfate heptahydrate	N/A	N/A	N/A	N/A	N/A	N/A
2	77-92-9	Citric acid	N/A	N/A	N/A	N/A	N/A	N/A
3	7664-38-2	Phosphoric acid	N/A	1	N/A	3	N/A	N/A

Ontario

No	CAS No :	Common name and synonyms	8-hour occupational exposure limit (TWA)		15-minute occupational exposure limit (STEL)		Ceiling occupational exposure limit	
			ppm	mg/m ³	ppm	mg/m ³	ppm	mg/m ³
1	7782-63-0	Iron(II) sulfate heptahydrate	N/A	N/A	N/A	N/A	N/A	N/A
2	77-92-9	Citric acid	N/A	N/A	N/A	N/A	N/A	N/A
3	7664-38-2	Phosphoric acid	N/A	N/A	N/A	N/A	N/A	N/A

Quebec

No	CAS No :	Common name and synonyms	8-hour occupational exposure limit (TWA)		15-minute occupational exposure limit (STEL)		Ceiling occupational exposure limit	
			ppm	mg/m ³	ppm	mg/m ³	ppm	mg/m ³
1	7782-63-0	Iron(II) sulfate heptahydrate	N/A	N/A	N/A	N/A	N/A	N/A
2	77-92-9	Citric acid	N/A	N/A	N/A	N/A	N/A	N/A
3	7664-38-2	Phosphoric acid	N/A	1	N/A	3	N/A	N/A

Saskatchewan

No	CAS No :	Common name and synonyms	8-hour occupational exposure limit (TWA)		15-minute occupational exposure limit (STEL)		Ceiling occupational exposure limit	
			ppm	mg/m ³	ppm	mg/m ³	ppm	mg/m ³
1	7782-63-0	Iron(II) sulfate heptahydrate	N/A	N/A	N/A	N/A	N/A	N/A
2	77-92-9	Citric acid	N/A	N/A	N/A	N/A	N/A	N/A
3	7664-38-2	Phosphoric acid	N/A	1	N/A	3	N/A	N/A

United States

No	CAS No :	Common name and synonyms	IDLH NIOSH	Regulatory Limits			Recommended Limits	
				OSHA PEL		California / OSHA PEL	NIOSH REL	ACGIH® 2019 TLV®
				ppm	mg/m ³	8-hour TWA (ST) STEL (C) Ceiling	Up to 10-hour TWA (ST) STEL (C) Ceiling	8-hour TWA (ST) STEL (C) Ceiling
1	7782-63-0	Iron(II) sulfate heptahydrate	N/A	N/A	N/A	N/A	N/A	N/A
2	77-92-9	Citric acid	N/A	N/A	N/A	N/A	N/A	N/A
3	7664-38-2	Phosphoric acid	4008	N/A	1	1 mg/m ³ (ST) 3 mg/m ³ (C)	1 mg/m ³ (ST) 3 mg/m ³ (C)	1 mg/m ³ (ST) 3 mg/m ³ (C)

IDLH: Immediately Dangerous to Life or Health Concentrations
 NIOSH: National Institute for Occupational Safety and Health
 OSHA: Occupational Safety and Health Administration
 PEL: Permissible Exposure Limits
 California / OSHA: California Division of Occupational Safety and Health
 REL: Recommended Exposure Limits
 ACGIH®: American Conference of Governmental Industrial Hygienists
 TLV®: Threshold Limit Values

Appropriate engineering controls: When a worker is exposed to a substance identified as having a demonstrated or suspected carcinogenic, mutagenic and/or reprotoxic effect on humans, exposure must be kept to a minimum, even when it remains within the expected standards regardless of the duration of exposure. Recirculation must be prohibited. 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.

Individual protection 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.

Eyes: DO NOT WEAR CONTACT LENSES Wear anti-splash safety goggles.

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. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties.

Respiratory: 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. 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.

Others: Wear protective clothing with long sleeves and appropriate safety shoes at all times.

9. Physical and chemical properties

Physical state: Liquid

Colour: Brownish

Odour: Pungent

Melting/Freezing point: 0 °C (32 °F)

Initial boiling point/boiling range: 100 °C (212 °F)

Flammability: Not applicable

Lower flammable/explosive limit: Not applicable

Upper flammable/explosive limit: Not applicable

Flash point: Not applicable

Auto-ignition temperature: Not applicable

Decomposition temperature: Not available

pH: 1,90

Kinematic viscosity: > 20,5 mm²/s (at 40 °C)

Solubility: Soluble

Partition coefficient – n-octanol/water (Log Kow): < 1

Vapour pressure: 17,535 mm Hg at 20 °C

Density and relative density: 1,235 kg/L at 20 °C (water = 1)

Relative vapour density: > 1 (air = 1)

Particle characteristics: Not applicable

10. Stability and reactivity

Reactivity: Stable under recommended conditions of storage and handling.

Chemical stability: The product is chemically stable under normal conditions of use. This product is unstable under the following conditions: The product decomposes when exposed to heat.

Possibility of hazardous reactions: No dangerous or polymerization reactions will not occur under normal conditions of use. Violent reaction or explosion in contact with incompatible compounds. Emits toxic fumes when heated.

Conditions to avoid: Keep away from incompatible products (see section 7).

Incompatible materials: This product attacks metals.

Hazardous decomposition products: Carbon monoxide and dioxide. Sulfur oxides. Nitrogen oxides. Cyanuric acid. Ammonia.

11. Toxicological information

	Oral	Dermal	Inhalation gases	Inhalation vapours	Inhalation dusts/mists
ATE _{producto}	6080 mg/kg	> 5 000 mg/kg	N/A	> 20 mg/l	> 5 mg/l

No	CAS No :	Common name and synonyms	LD ₅₀ oral mg/kg	LD ₅₀ skin mg/kg	LC ₅₀ inhalation ppmV 4h - gases	LC ₅₀ inhalation mg/l 4h - vapours	LC ₅₀ inhalation mg/l 4h - dusts-mist
1	7782-63-0	Iron(II) sulfate heptahydrate	1520	> 5000	N/A	N/A	> 5.00
2	77-92-9	Citric acid	11700	> 5000	N/A	N/A	> 5.00
3	7664-38-2	Phosphoric acid	1530	2740	N/A	N/A	> 5.00

Routes of exposure: This product is absorbed by the respiratory tract, through the skin and by the digestive tract. However, it is unlikely that the product will be absorbed into the body to any significant extent since it exerts a local action which destroys the tissues.

Symptoms: This product is irritating and corrosive to skin, eyes, respiratory and digestive tracts. The severity of symptoms can vary depending on the exposure conditions (contact time, product concentration, etc.).

Delayed and immediate effects: If on skin, this product causes severe burns. Contact with eyes may cause redness, tearing, edema, pain, corneal opacity and even blindness. Inhalation of high concentrations vapors can cause severe burns to the mouth and airways leading to the lungs. High concentration exposure can lead to severe lesions and ulcerations of the esophageal mucosa and gastrointestinal tract. Studies suggest the possibility of an increase in congenital malformations.

Aspiration hazard	N/A
Skin corrosion - Skin irritation	Yes
Serious eye damage - Serious eye irritation - Eye irritation	Yes
Skin sensitization	N/A
Respiratory sensitization	N/A
Specific target organ toxicity – single exposure Category 3 Respiratory tract irritation	N/A
Specific target organ toxicity – single exposure	N/A
Specific target organ toxicity – single exposure Category 3 Narcotic effects	N/A
Specific target organ toxicity – repeated exposure	N/A

No	CAS No :	Common name and synonyms	IARC	ACGIH	Mutagenicity	Effect on reproduction
1	7782-63-0	Iron(II) sulfate heptahydrate	Not listed	Not listed	The data do not allow for an adequate assessment of mutagenic effects.	No effects shown.
2	77-92-9	Citric acid	Not listed	Not listed	No effects shown.	No effects shown.
3	7664-38-2	Phosphoric acid	Not listed	Not listed	No effects shown.	No effects shown.

Cancer classification under IARC (International Agency for Research on Cancer)

Group 1: carcinogenic to humans.
 Group 2A: probably carcinogenic to humans.
 Group 2B: possibly carcinogenic to humans.
 Group 3: not classifiable as to its carcinogenicity to humans.
 Group 4: probably not carcinogenic to humans.

Cancer classification under ACGIH (American Conference of Governmental Industrial Hygienists)

Group A1: confirmed human carcinogen.
 Group A2: suspected human carcinogen.
 Group A3: confirmed animal carcinogen with unknown relevance to humans.
 Group A4: not classifiable as a human carcinogen.
 Group A5: not suspected as a human carcinogen.

12. Ecological information

Ecotoxicity

No	CAS No :	Common name and synonyms	%	Aquatic Ecotoxicity short term	Aquatic Ecotoxicity long term	Terrestrial Ecotoxicity
1	7782-63-0	Iron(II) sulfate heptahydrate	25.00	No known adverse effect to aquatic life.	No known adverse effect to aquatic life.	No known adverse effect to the environment.
2	77-92-9	Citric acid	8.60	No known adverse effect to aquatic life.	No known adverse effect to aquatic life.	No known adverse effect to the environment.
3	7664-38-2	Phosphoric acid	0.10 - 1.00	No known adverse effect to aquatic life.	No known adverse effect to aquatic life.	No known adverse effect to the environment.

Persistence and degradability. Bioaccumulative potential. Other adverse effects

No	CAS No :	Common name and synonyms	%	Persistent	Bio-accumulation	Aquatic ecotoxicity
1	7782-63-0	Iron(II) sulfate heptahydrate	25.00	N.D.	N.D.	N.D.
2	77-92-9	Citric acid	8.60	No	No	No
3	7664-38-2	Phosphoric acid	0.10 - 1.00	Yes	No	No

Degradability: N/A

Mobility in soil: N/A

13. Disposal considerations

Methods of disposal: The generation of waste should be avoided or minimized wherever possible. 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.

14. Transport information

	TDG	DOT	IMDG	IATA
UN Number	3264	3264	3264	3264
Proper shipping name	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Iron(II) sulfate heptahydrate)			
Transport hazard class(es)	8	8	8	8
Packing group	III	III	III	III

Canada - ERAP

Not applicable

United States - Reportable Quantities (RQ)

No	CAS No :	Common name and synonyms	RQ lbs (kg)
1	7664-38-2	Phosphoric acid	5000 (2270)

Transport in bulk (according to Annex II of the International Convention for the Prevention of Pollution From Ships, 1973, as modified by the Protocol of 1978 (MARPOL 73/78), and the International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk (IBC Code)): N/A

Marine pollutant: No

Exemption for limited quantity: 5 L

In accordance with the Canadian Transport of Dangerous Goods regulations by Road, we use the 1.17 exemption when applicable. In accordance with 49 CFR article 172.315 for transportation by a mode other than air, we use the Limited quantities exemption when applicable.

Other exemptions: No other exemption.

Special precautions: Not applicable

15. Regulatory information

Canada

No	CAS No :	Common name and synonyms	%	DSL	NDSL	NPRI
1	7782-63-0	Iron(II) sulfate heptahydrate	25.00	X		
2	77-92-9	Citric acid	8.60	X		
3	7664-38-2	Phosphoric acid	0.10 - 1.00	X		

United States

No	CAS No :	Common name and synonyms	%	TSCA	PROP-65	RTK
1	7782-63-0	Iron(II) sulfate heptahydrate	25.00	X		
2	77-92-9	Citric acid	8.60	X		
3	7664-38-2	Phosphoric acid	0.10 - 1.00	X		X

The customer is responsible for determining the PPE (personal protection equipment) code for this material.

The classification of the product and the SDS were developed in accordance with HPR and HazCom 2012.

16. Other information

Date: 2023-02-03

Version: 2

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