

1. IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND OF THE COMPANY / UNDERTAKING

Product identifier:

Product name: FERRIC NITRATE SOLUTION
Other trade names: FERRIC NITRATE SOLUTION 38% - FER NITRATE SOLUTION LF

Relevant identified uses of the substance or mixture and uses advised against :

SU3: Industrial use

Company name: Nexchem Ltd
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Leycroft Road
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LE4 1ET
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2. HAZARDS IDENTIFICATION

Classification of the substance or mixture:

In compliance with EC regulation No. 1272/2008 and its amendments.
Skin corrosion, Category 1B (Skin Corr. 1B, H314).
Serious eye damage, Category 1 (Eye Dam. 1, H318).
This mixture does not present a physical hazard. Refer to the recommendations regarding the other products present on the site.
This mixture does not present an environmental hazard. No known or foreseeable environmental damage under standard conditions of use.

Label elements:

In compliance with EC regulation No. 1272/2008 and its amendments.

Hazard pictograms:



GHS05

Signal Word: DANGER.

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Product identifiers: EC 233-899-5 FER NITRATE
EC 231-714-2 NITRIC ACID

Hazard statements: H314 Causes severe skin burns and eye damage.

Precautionary statements - Prevention:

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...

Precautionary statements - Response:

P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310 Immediately call a POISON CENTER/doctor.

Precautionary statements - Disposal: P501 Dispose of contents/container.

Other hazards:

The mixture does not contain substances classified as 'Substances of Very High Concern (SVHC) >= 0.1%' published by the European Chemicals Agency (ECHA) under article 57 of REACH: <http://echa.europa.eu/fr/candidate-list-table>

The mixture fulfils neither the PBT nor the vPvB criteria for mixtures in accordance with annexe XIII of the REACH regulations EC 1907/2006.

The mixture does not contain substances > = 0.1% with endocrine-disrupting properties in accordance with the criteria of the Delegated Regulation (EU) 2017/2100 of the Commission or Regulation (EU) 2018/605 of the Commission.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Mixtures:

Composition:

Identification	(EC) 1272/2008	Note	%
CAS: 10421-48-4 EC: 233-899-5 REACH: 01- 2119978293-27-XXXX FER NITRATE	GHS05 Dgr Skin Corr. 1B, H314 Eye Dam. 1, H318		36 <= x % < 42
CAS: 7697-37-2 EC: 231-714-2 REACH: 01- 2119487297-23-XXXX NITRIC ACID	GHS06, GHS05, GHS03 Dgr Ox. Liq. 2, H272 Met. Corr. 1, H290 Skin Corr. 1A, H314 Eye Dam. 1, H318 Acute Tox. 3, H331 EUH:071	B [1]	0 <= x % < 3

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Information on ingredients:

(Full text of H-phrases: see section 16)

[1] Substance for which maximum workplace exposure limits are available.

4. FIRST AID MEASURES

As a general rule, in case of doubt or if symptoms persist, always call a doctor.

NEVER induce swallowing by an unconscious person.

Description of first aid measures:

In the event of exposure by inhalation: If inhaled, move the person to a ventilated area.

Call the Poison Control Centre or doctor if you feel unwell.

If the person is not breathing, give artificial respiration.

In the event of splashes or contact with eyes:

Wash thoroughly with fresh, clean water for 15 minutes holding the eyelids open.

Regardless of the initial state, refer the patient to an ophthalmologist and show him the label.

Remove contact lenses if it is easy to do so.

Immediately call the Poison Control Centre or the doctor

In the event of splashes or contact with the skin:

Remove any soiled or splashed clothing immediately.

Watch out for any remaining product between skin and clothing, watches, shoes, etc.

In the event of an allergic reaction, seek medical attention.

In the event of swallowing:

Do not give the patient anything orally.

Seek medical attention immediately, showing the label.

Do NOT induce vomiting. Rinse mouth with water. Immediately call the Poison Control Centre or doctor.

Most important symptoms and effects, both acute and delayed:

The main known symptoms and effects are described on the labelling (see section 2.2) and/or section 11.

Indication of any immediate medical attention and special treatment needed: No data is available.

5. FIRE-FIGHTING MEASURES

Non-flammable.

Extinguishing media:

Suitable methods of extinction.

In the event of a fire, use:

Water jet.

Carbon dioxide (CO₂).

Alcohol resistant foam.

Dry powder.

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Special hazards arising from the substance or mixture:

A fire will often produce a cloud of thick black smoke.
Exposure to decomposition products may be hazardous to health.
Do not breathe in smoke.

In the event of a fire, the following may be formed:

Carbon monoxide (CO)
Carbon dioxide (CO₂)
Nitrogen oxides (NO_x)
Iron oxides

Advice for firefighters: Wear respiratory protection.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:

Consult the safety measures listed under headings 7 and 8.
Use individual protective gear. Avoid dust formation. Avoid breathing vapours, spray mist or gases. Provide adequate ventilation. Avoid inhalation of dust.

For non-first aid workers: Avoid any contact with the skin and eyes.

For first aid worker: First aid workers will be equipped with suitable personal protective equipment (See section 8).

Environmental precautions: Contain and control the leaks or spills with non-combustible absorbent materials such as sand, earth, vermiculite, and diatomaceous earth in drums for waste disposal.
Prevent any material from entering drains or waterways.
Avoid any further spillage or leakage if it is safe to do so.
Do not let the product enter drains.
All littering must be avoided in the environment.

Methods and material for containment and cleaning up:

Clean preferably with a detergent, do not use solvents.
Soak up with inert absorbent material and dispose of as special waste.
Keep in suitable, closed containers for disposal.

Reference to other sections: For disposal, see section 13.

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7. HANDLING AND STORAGE

Requirements relating to storage premises apply to all facilities where the mixture is handled.

Precautions for safe handling: Always wash hands after handling.
Remove and wash contaminated clothing before re-using.
Emergency showers and eye wash stations will be required in facilities where the mixture is handled constantly.
Provide adequate ventilation. Avoid breathing vapour or mist. Keep away from any flame or source of sparks - No smoking. Keep away from heat and sources of ignition.
For precautions see section 2.2.

Fire prevention: Prevent access by unauthorised personnel.

Recommended equipment and procedures: For personal protection, see section 8.

Observe precautions stated on the label and also industrial safety regulations.

Prohibited equipment and procedures: No smoking, eating or drinking in areas where the mixture is used.

Conditions for safe storage, including any incompatibilities:

Store in a cool place. Keep the container tightly closed in a dry and well-ventilated place.
Carefully close any opened container and store it vertically to avoid any spillage.
Keep away from strong oxidants.

Packaging: Always keep in packaging made of an identical material to the original.

Specific end use(s): Apart from the uses mentioned in section 1.2, no other specific use is foreseen.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters: Does not contain substances with occupational exposure limit values.

Occupational exposure limits:

ACGIH TLV (American Conference of Governmental Industrial Hygienists, Threshold Limit Values, 2010):

CAS	TWA	STEL	Ceiling	Definition	Criteria
7697-37-2		2 ppm		4 ppm	

Germany -AGW (BAuA -TRGS 900, 08/08/2019):

CAS	VME	VME	Excess	Notes
7697-37-2		1 ppm 2.6 mg/m ³		

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France (INRS -ED984 / 2020-1546):

France (INRS -ED984 / 2020-1546):CAS	VME – ppm	VME – mg/m ³	VLE – ppm	VLE-mg/m ³	Notes	TMP No.
7697-37-2	-	-	1	2.6	-	-

Switzerland (SUVAPRO 2019):

CAS	VME	VLE	Valeur plafond	Notation
7697-37-2		2 ppm 5 mg/m ³	2 mg/m ³ 5 fc/m ³	

UK / WEL (Workplace exposure limits, EH40/2005, Fourth Edition 2020):

CAS	TWA	STEL	Ceiling	Definition	Criteria
7697-37-2			1 ppm 2.6 mg/m ³		

Exposure controls:

Personal protection measures, such as personal protective equipment:

Pictogram(s) indicating the obligation of wearing personal protective equipment (PPE):



Use personal protective equipment that is clean and has been properly maintained.
Store personal protective equipment in a clean place, away from the work area.
Never eat, drink or smoke during use. Remove and wash contaminated clothing before re-using. Ensure that there is adequate ventilation, especially in confined areas.

Eye/face protection:

Avoid contact with eyes.
Use eye protectors designed to protect against liquid splashes.
Before handling, wear safety goggles with protective sides by standard EN166.
In the event of high danger, protect the face with a face shield.
Prescription glasses are not considered protection.
Individuals wearing contact lenses should wear prescription glasses during work where they may be exposed to irritant vapours.
Provide eyewash stations in facilities where the product is handled constantly.

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- Hand protection:** Wear suitable protective gloves in the event of prolonged or repeated skin contact.
Use suitable protective gloves that are resistant to chemical agents in accordance with standard EN ISO 374-1.
Gloves must be selected according to the application and duration of use at the workstation.
Protective gloves need to be selected according to their suitability for the workstation in question: other chemical products that may be handled, necessary physical protections (cutting, pricking, heat protection), level of dexterity required.
- Type of gloves recommended:** Natural latex.
Nitrile rubber (butadiene-acrylonitrile copolymer rubber (NBR))
PVC (polyvinyl chloride)
Butyl Rubber (Isobutylene-isoprene copolymer)
- Full contact:** Material: Nitrile rubber
Minimum thickness: 0.11 mm
Break through time: 480 min.
Material tested: Dermatrill® (KCL 740 / Aldrich Z677272, Size M)
- Splash contact:** Material: Nitrile rubber
Minimum thickness: 0.11 mm
Break through time: 480 min.
Material tested: Dermatrill® (KCL 740 / Aldrich Z677272, Size M)
- Body protection:** Avoid skin contact.
Wear suitable protective clothing.
- Suitable type of protective clothing:** In the event of substantial spatter, wear liquid-tight protective clothing against chemical risks (type 3) in accordance with EN14605/A1 to prevent skin contact.
In the event of a risk of splashing, wear protective clothing against chemical risks (type 6) in accordance with EN13034/A1 to prevent skin contact.
Wear suitable protective clothing and an apron and boots. These items of clothing shall be maintained in good condition and cleaned after use.
Impervious clothing, the type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
Work clothing worn by personnel shall be laundered regularly.
After contact with the product, all parts of the body that have been soiled must be washed.
- Respiratory protection:** When the risk assessment shows that it is appropriate to wear a respirator, use a full-face mask with multipurpose (US) or ABEK type (EN 14387) cartridge. If the mask is the only means of protection, use a self-contained breathing apparatus with a full-face shield. Use equipment tested and approved by standards such as NIOSH (US) or CEN (EU).
Exposure controls linked to environmental protection.
Avoid any further spillage or leakage if it is safe to do so. Do not let the product enter drains. All littering must be avoided in the environment.

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9. PHYSICAL AND CHEMICAL PROPERTIES**Information on basic physical and chemical properties:****Physical state:****Physical state:** Fluid liquid.**Colour:** Unspecified.**Odour:****Odour threshold:** Not stated.**Melting point:****Melting point/melting range:** Not specified.**Freezing point:****Freezing point / Freezing range:** Not stated.**Boiling point or initial boiling point and boiling range:****Boiling point/boiling range:** 125 °C**Flammability:****Flammability (solid, gas):** Not stated.**Lower and upper explosion limit:****Explosive properties, lower explosivity limit (%):** Not stated.**Explosive properties, upper explosivity limit (%):** Not stated.**Flash point:****Flashpoint interval:** Not relevant.**Auto-ignition temperature:****Self-ignition temperature:** Not specified.**Decomposition temperature:****Decomposition point/decomposition range:** Not specified.**pH:** Not stated.

Neutral.

pH (aqueous solution): < 2**Kinematic viscosity:****Viscosity:** Not stated.**Water solubility:** Insoluble. 825 g/L @ 20°C**Fat solubility:** Not stated.**Partition coefficient n-octanol/water (log value):****Partition coefficient: n-octanol/water:** Not stated.**Vapour pressure (50°C):** Not relevant.**Density and/or relative density:****Density:** 1.38 - 1.46**Relative vapour density:****Vapour density:** Not stated.**Other information:** No data available.**Information with regard to physical hazard classes:** No data is available.**Other safety characteristics:** No data is available.

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10. STABILITY AND REACTIVITY

Reactivity: No data is available.

Chemical stability: This mixture is stable under the recommended handling and storage conditions in section 7.

Possibility of hazardous reactions: No data available

Conditions to avoid:

Avoid: Frost

Incompatible materials: Keep away from Strong oxidisers.

Hazardous decomposition products:

The thermal decomposition may release/form:

Carbon monoxide (CO)

Carbon dioxide (CO₂)

Nitrogen oxides (NO_x)

Iron oxides

11. TOXICOLOGICAL INFORMATION

Information on hazard classes as defined in Regulation (EC) No 1272/2008:

May cause irreversible damage to the skin; namely, visible necrosis through the epidermis and into the dermis, following exposure between three minutes and one hour.

Corrosive reactions are typified by ulcers, bleeding, bloody scabs, and, by the end of observation at 14 days, by discolouration due to blanching of the skin, complete areas of alopecia, and scars.

Substances:

Acute toxicity:

NITRIC ACID (CAS: 7697-37-2)

Inhalation route (Vapours): LC50 > 2.65 mg/l

Species: Rat

OECD Guideline 403 (Acute Inhalation Toxicity)

Duration of exposure: 4 h

FER NITRATE (CAS: 10421-48-4)

Oral route: LD50 > 2000 mg/kg

Species: Rat

OECD Guideline 401 (Acute Oral Toxicity)

Dermal route: LD50 > 2000 mg/kg

Species: Others

OECD Guideline 402 (Acute Dermal Toxicity)

[cont...]

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Skin corrosion/skin irritation:

FER NITRATE (CAS: 10421-48-4)

Species: Rabbit
OECD Guideline 404 (Acute Dermal Irritation / Corrosion)

Serious damage to eyes/eye irritation:

FER NITRATE (CAS: 10421-48-4)

The substance produces at least one animal effect on the cornea that is not expected to reverse or have not fully reversed within an observation period of normally 21 days.

Species: Rabbit
OECD Guideline 405 (Acute Eye Irritation / Corrosion)

Respiratory or skin sensitisation:

FER NITRATE (CAS: 10421-48-4)

Local lymph node stimulation test: Non-Sensitiser.

Species: Others
OECD Guideline 429 (Skin Sensitisation: Local Lymph Node Assay)

Carcinogenicity:

FER NITRATE (CAS: 10421-48-4)

Carcinogenicity Test: Negative.
No carcinogenic effect.

Species: Rat
OECD Guideline 451 (Carcinogenicity Studies)

Specific target organ systemic toxicity - repeated exposure:

FER NITRATE (CAS: 10421-48-4)

Oral route: C \geq 57 mg/kg body weight/day
Duration of exposure: 90 days
OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity in Rodents)

Mixture

Skin corrosion/skin irritation: The 'corrosive' classification is based on the low/high pH which has been confirmed by tests.

Serious damage to eyes/eye irritation: Causes serious eye damage.

The mixture produces at least one animal effect on the cornea, iris or conjunctiva that are not expected to reverse or has not fully reversed within an observation period of normally 21 days.

The risk of serious ocular lesions is based on the low/high pH and has been confirmed by tests.

12. ECOLOGICAL INFORMATION

Toxicity:

Mixtures: No aquatic toxicity data available for the mixture.

Persistence and degradability:

Substances: FER NITRATE (CAS: 10421-48-4)

Biodegradability: No degradability data is available, the substance is considered as not degrading quickly.

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Bio-accumulative potential: No data available.

Mobility in soil: No data available.

Results of PBT and vPvB assessment:

This substance/mixture contains no ingredients considered to be persistent, bioaccumulating and toxic (PBT), or very persistent and very bioaccumulating (vPvB) at levels of 0.1% or more.

Other adverse effects: No data available.

13. DISPOSAL CONSIDERATIONS

Proper waste management of the mixture and/or its container must be determined in accordance with Directive 2008/98/EC.

Waste treatment methods: Do not pour into drains or waterways.

Give surplus and non-recyclable solutions to a licensed waste disposal company. Waste must be disposed of in accordance with the Waste Directive 2008/98/EC and applicable local and national regulations. Leave chemicals in original containers. No mixing with other waste.

Treat uncleaned containers as the product itself.

Waste: Waste management is carried out without endangering human health, without harming the environment and, in particular without risk to water, air, soil, plants or animals.

Recycle or dispose of waste in compliance with current legislation, preferably via a certified collector or company.

Do not contaminate the ground or water with waste, and do not dispose of waste in the environment.

Soiled packaging: Empty the container completely. Keep label(s) on the container.

Give to a certified disposal contractor.

14. TRANSPORT INFORMATION

Transport products in compliance with provisions of the ADR for road, RID for rail, IMDG for sea and ICAO/IATA for air transport (ADR2021 -IMDG 2020 -ICAO/IATA 2021).

UN number: 3264

UN proper shipping name: UN3264, CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.
(fer nitrate, nitric acid)

Transport hazard class(es):

Classification: 8

Packing group: II

Environmental hazards: -

[cont...]

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Special precautions for the user:

ADR/RID:

Class	Code	Pack gr.	Label	Ident	LQ	Provis.	EQ	Cat	Tunnel
8	C1	II	8	80	1 L	274	E2	2	E

IMDG:

Class	2°Label	Pack gr.	LQ	EMS	Provis.	EQ	Stowage Handling	Segregation
8	-	II	1 L	F-A. S-B	274	E2	Category B SW2	SGG1 SG36 SG49

IATA:

Class	2°Label	Pack gr.	Passager	Passager	Cargo	Cargo	Note	EQ
8	-	II	851	1 L	855	30 L	A3 A803	E2
8	-	II	Y840	0.5L	-	-	A3 A803	E2

For limited quantities, see part 2.7 of the OACI/IATA and chapter 3.4 of the ADR and IMDG.

For excepted quantities, see part 2.6 of the OACI/IATA and chapter 3.5 of the ADR and IMDG.

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code: No data is available.

15. REGULATORY INFORMATION

Safety, health and environmental regulations legislation specific for the substance or mixture:

Classification and labelling information included in section 2:

The following regulations have been used:

EU Regulation No. 1272/2008 amended by EU Regulation No. 2021/643 (ATP 16)

EU Regulation No. 1272/2008 amended by EU Regulation No. 2021/849 (ATP 17)

Container information: No data available.

Particular provisions: No data available.

Chemical Safety Assessment: No data is available.

Note: The regulatory information given above only indicates the principal regulations specifically applicable to the product described in the safety data sheet. The user's attention is drawn to the possible existence of additional provisions which complete these regulations. Refer to all applicable national, international and local regulations or provisions.

[cont...]

16. OTHER INFORMATION**Acronyms:**

@ - at

< - less than

> - more than

ADR – European Agreement concerning the International Carriage of Dangerous Goods by Road

CAS – Chemical Abstracts Service

Cat. – Category

CSA – Chemical Safety Assessment

DNEL – Derived No-Effect Level

EC – Effective Concentration

EC OEL – European Commission Occupational Exposure Limit

EINECS - European Inventory of Existing Commercial Chemical Substances

GHS – Globally Harmonized System of Classification and Labelling of Chemicals

H** - Hazard Statements

IATA – International Air Transport Association

IMDG – International Maritime Code for Dangerous Goods

L – Litre

LC50 – Lethal Concentration, 50 per cent

LD50 – Lethal dose, 50 per cent

m³ – metre cubed.

mg – milligram

ml – millilitre

n.o.s. – Not Otherwise Specified

°C – degrees Centigrade

P** - Precautionary Statements

PBT – Persistent, bioaccumulative and Toxic

pH – Potential of Hydrogen

PNEC – Predicted No-Effect Level

RID – Regulations Concerning the International Transport of Dangerous Goods by Rail

SDS – Safety Data Sheet

SG – specific gravity

UN – United Nations

vPvB – very Persistent, very Bioaccumulative

Wording of the phrases mentioned in section 3:

H272 May intensify fire, oxidiser.

H290 May be corrosive to metals.

H314 Causes severe skin burns and eye damage.

H318 Causes serious eye damage.

H331 Toxic if inhaled.

EUH071 Corrosive to the respiratory tract.

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Legal disclaimer:

The information contained in this SDS does not constitute a risk assessment, and should not replace the user's own assessment of risks as required by other health and safety legislation. This advice is given by Nexchem Ltd who accept no legal liability for it except otherwise provided by law. The information contained herein is based on the present state of our knowledge and is intended to describe our products from the point of view of safety requirements. It should not therefore be construed as guaranteeing specific properties.