

Safety data sheet according to 1907/2006/EC, Article 31

Printing date 14.11.2023

Version number 13 (replaces version 12)

Revision: 14.11.2023

SECTION 1: Identification of the substance/mixture and of the company/undertaking

· 1.1 Product identifier

- **Product name: Nickel-51 / Phosphate-5 / -103**
- **Catalog number:** 424401, 424076, 424076-0, 424076-05, 424076-10
- **CAS No.:**
7727-54-0

· 1.2 Relevant identified uses of the substance or mixture and uses advised against

- **Application of the substance / the preparation:** Reagent for water analysis

· 1.3 Details of the supplier of the safety data sheet

· **Supplier:**

Tintometer GmbH
Schleefstraße 8-12
44287 Dortmund
Made in Germany
www.lovibond.com

phone: +49 (0)231 94510-0
e-mail: sales@lovibond.com

The Tintometer Limited
Lovibond® House
Sun Rise Way
Amesbury
Wiltshire SP4 7GR
United Kingdom

phone : +44 1980 664800
e-mail: SDS@lovibond.uk

- **Informing department:**
e-mail: sds@lovibond.com
Product Safety Department

- **1.4 Emergency telephone number:**
+44 1235 239670
Languages: English

SECTION 2: Hazards identification

· 2.1 Classification of the substance or mixture

- **Classification according to Regulation (EC) No 1272/2008**



GHS03 flame over circle

Ox. Sol. 3 H272 May intensify fire; oxidiser.



GHS08 health hazard

Resp. Sens. 1 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.



GHS07

Acute Tox. 4 H302 Harmful if swallowed.
Skin Irrit. 2 H315 Causes skin irritation.
Eye Irrit. 2 H319 Causes serious eye irritation.
Skin Sens. 1 H317 May cause an allergic skin reaction.

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STOT SE 3 H335 May cause respiratory irritation.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008

The substance is classified and labelled according to the GB CLP regulation.

Hazard pictograms



Signal word Danger

Hazard-determining components of labelling:

ammonium persulphate

Hazard statements

H272 May intensify fire; oxidiser.

H302 Harmful if swallowed.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H317 May cause an allergic skin reaction.

H335 May cause respiratory irritation.

Precautionary statements

P261 Avoid breathing dust.

P280 Wear protective gloves/protective clothing/eye protection.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

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

P302+P352 IF ON SKIN: Wash with plenty of water.

P313 Get medical advice/attention.

2.3 Other hazards No further relevant information available.

Results of PBT and vPvB assessment

Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

Determination of endocrine-disrupting properties

The product does not contain substances with endocrine disrupting properties.

SECTION 3: Composition/information on ingredients

3.1 Substances

CAS No. Designation:

CAS: 7727-54-0 ammonium persulphate

Identification number(s):

EC No: 231-786-5

Index No: 016-060-00-6

SECTION 4: First aid measures

4.1 Description of first aid measures

General information

Personal protection for the First Aider!

Instantly remove any clothing soiled by the product.

After inhalation

 Supply fresh air or oxygen; call for doctor.

After skin contact

Instantly wash with water and soap and rinse thoroughly.

Seek medical treatment.

After eye contact

 Rinse opened eye for several minutes (at least 15 min) under running water. Then consult doctor.

After swallowing

Rinse out mouth and then drink 1-2 glasses of water.

Seek medical treatment.

4.2 Most important symptoms and effects, both acute and delayed:

allergic reactions

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irritations
 after inhalation:
 coughing
 mucous membrane irritation
 breathing difficulty
 after swallowing:
 absorption
 sickness
 vomiting
 diarrhoea
 after absorption of large amounts:
 headache
 drop in blood pressure
 CNS disorders
 cramps
 narcotic conditions
 respiratory paralysis

· **Danger**

risk of airways sensitization
 risk of skin sensitization

· **4.3 Indication of any immediate medical attention and special treatment needed:** No further relevant information available.

SECTION 5: Firefighting measures

· **5.1 Extinguishing media**

· **Suitable extinguishing agents**

Carbon dioxide (CO₂), Foam, Fire-extinguishing powder
 Water spray jet

· **For safety reasons unsuitable extinguishing agents** Water with a full water jet.

· **5.2 Special hazards arising from the substance or mixture**

The product is not combustible.
 Has a fire-promoting effect due to release of oxygen.
 Formation of toxic gases is possible during heating or in case of fire.
 Can be released in case of fire:

nitrous gases
 Nitrogen oxides (NO_x)
 Sulphur oxides (SO_x)
 NH₃

· **5.3 Advice for firefighters**

· **Protective equipment:**

Wear self-contained breathing apparatus.
 Wear full protective suit.

· **Additional information**

Collect contaminated fire fighting water separately. It must not enter drains.
 Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.
 Cool endangered containers with water spray jet.
 Ambient fire may liberate hazardous vapours.

SECTION 6: Accidental release measures

· **6.1 Personal precautions, protective equipment and emergency procedures**

· **Advice for non-emergency personnel:**

Wear protective equipment. Keep unprotected persons away.
 Avoid substance contact.
 Ensure adequate ventilation
 Avoid breathing dust.

· **Advice for emergency responders:** Protective equipment: see section 8

· **6.2 Environmental precautions:** Do not allow product to reach sewage system or water bodies.

· **6.3 Methods and material for containment and cleaning up:**

Ensure adequate ventilation.
 Collect mechanically.
 Dispose of contaminated material as waste according to item 13.

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6.4 Reference to other sections

- See Section 8 for information on personal protection equipment.
 - See Section 13 for information on disposal.
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SECTION 7: Handling and storage

7.1 Precautions for safe handling
Advice on safe handling:

- Ensure good ventilation/exhaustion at the workplace.
- Provide suction extractors if dust is formed.

Hygiene measures:

- Do not inhale dust / smoke / mist.
- Avoid contact with the skin.
- Avoid contact with the eyes.
- Take off immediately all contaminated clothing.
- Wash hands during breaks and at the end of the work.
- Do not eat, drink or smoke when using this product.

7.2 Conditions for safe storage, including any incompatibilities
Requirements to be met by storerooms and containers:

- Store in cool location.
- Protect from heat.

Information about storage in one common storage facility:

- Store away from flammable substances.
- Store away from reducing agents.
- Do not store together with acids.
- Do not store together with alkalis (caustic solutions).

Further information about storage conditions:

- Store in cool, dry conditions in well sealed containers.
- Protect from heat and direct sunlight.
- Protect from the effects of light.
- Store under dry conditions.
- Protect from humidity and keep away from water.
- This product is hygroscopic.

Recommended storage temperature: 20°C +/- 5°C
7.3 Specific end use(s) No further relevant information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters
Components with limit values that require monitoring at the workplace: Not required.

Recommended monitoring procedures:

- Methods for measurement of the workplace atmosphere have to correspond to the requirements of norms DIN EN 482 and DIN EN 689.

Additional information: The lists that were valid during the compilation were used as basis.

8.2 Exposure controls
Engineering measures:

- Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.
- See item 7.

Individual protection measures, such as personal protective equipment

- Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled.

Eye/face protection Safety glasses

Hand protection

- Protective gloves.
- Preventive skin protection by use of skin-protecting agents is recommended.
- After use of gloves apply skin-cleaning agents and skin cosmetics.

Material of gloves

- nitrile rubber, NBR
- Recommended thickness of the material: ≥ 0.11 mm

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- **Penetration time of glove material**
Breakthrough time: > 480 min
The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Other skin protection (body protection):** Protective work clothing.
- **Breathing equipment:** Use breathing protection against the effects of fumes/dust/aerosol.
- **Recommended filter device for short term use:** Filter P2
- **Environmental exposure controls** Do not allow product to reach sewage system or water bodies.

SECTION 9: Physical and chemical properties

- **9.1 Information on basic physical and chemical properties**
- **Physical state** Solid.
- **Form:** Crystalline powder
- **Colour:** White
- **Odour:** Odourless
- **Odour threshold:** Not applicable.
- **Melting point/Freezing point:** 120°C
- **Boiling point or initial boiling point and boiling range** Not applicable.
Decomposition
- **Flammability** Contact with combustible material may cause fire.
- **Explosive properties:** Product is not explosive.
- **Lower and upper explosion limit**
- **Lower:** Not applicable.
- **Upper:** Not applicable.
- **Flash point:** Not applicable.
- **Auto-ignition temperature:** Not applicable (solid).
- **Decomposition temperature:** > 120 °C
- **pH (100 g/l) at 20°C** 3.2
- **Kinematic viscosity** Not applicable (solid).
- **Solubility**
- **Water at 20°C:** 620 g/l
Readily soluble
- **Partition coefficient n-octanol/water (log value)** Not applicable.
- **Vapour pressure:** Not applicable (solid).
- **Density and/or relative density**
- **Density at 20°C:** 1.98 g/cm³
- **Relative density:** Not determined.
- **Relative gas density** Not applicable (solid).
- **Particle characteristics** Not determined.

- **9.2 Other information**

- **Information with regard to physical hazard classes**
- **Corrosive to metals** Void
- **Other safety characteristics**
- **Oxidising properties:** May intensify fire; oxidiser.
- **Additional information**
- **Solids content:** 100.0 %
- **Organic solvents:** 0.0 %
- **Water:** 0 %

SECTION 10: Stability and reactivity

- **10.1 Reactivity** see section 10.3
- **10.2 Chemical stability** Stable at ambient temperature (room temperature).
- **10.3 Possibility of hazardous reactions**
Aqueous solution reacts acidic.
Aqueous solution reacts with metals.
Reacts with reducing agents
Reacts with powdered metals
Reacts with peroxides
Reacts with strong acids and alkali

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Reacts with ammonia (NH₃).

- **10.4 Conditions to avoid** Strong heating (decomposition)

- **10.5 Incompatible materials:**

combustible substances

organic substances

aluminium

copper

zinc

Iron

- **10.6 Hazardous decomposition products:**

Ammonia (NH₃)

oxygen

In case of fire: see section 5.

SECTION 11: Toxicological information

- **11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008**

- **Acute toxicity** Harmful if swallowed.

- **LD/LC50 values that are relevant for classification:**

CAS: 7727-54-0 ammonium persulphate

Oral	LD50	742 mg/kg (rat) (OECD 401)
Dermal	LD ₀	2000 mg/kg (rat) (MERCK, ECHA)
Inhalative	LC ₀	2.95 mg/l (rat) (4h, OECD 403) (MERCK, ECHA)

- **Skin corrosion/irritation** Causes skin irritation.

- **Serious eye damage/irritation** Causes serious eye irritation.

- **Information on components:**

CAS: 7727-54-0 ammonium persulphate

Irritation of skin	OECD 404	(rabbit: no irritation)
Irritation of eyes	OECD 405	(rabbit: no irritation)

- **Respiratory or skin sensitisation**

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

May cause an allergic skin reaction.

- **Information on components:**

CAS: 7727-54-0 ammonium persulphate

Sensitisation	OECD 406	(guinea pig: positive)
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- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.

- **Carcinogenicity** Based on available data, the classification criteria are not met.

- **Reproductive toxicity** Based on available data, the classification criteria are not met.

- **Information on components:**

OECD 414: Teratogenicity testing

OECD 473: Mutagenicity testing

OECD 471, 474, 476, 487: Germ cell mutagenicity testing

CAS: 7727-54-0 ammonium persulphate

OECD 471	(guinea pig: negative) (Bacterial Reverse Mutation Test - Ames test)
	(Salmonella typhimurium)
OECD 474	(negative) (Mammalian Erythrocyte Micronucleus Test)
	(Merck, In vivo micronucleus test, mouse, male and female, intraperitoneally, Erythrocytes / Bone marrow)

- **STOT (specific target organ toxicity) -single exposure** May cause respiratory irritation.

- **STOT (specific target organ toxicity) -repeated exposure** Based on available data, the classification criteria are not met.

- **Aspiration hazard** Based on available data, the classification criteria are not met.

- **Information on likely routes of exposure**

In persons occupationally exposed to persulphates, skin diseases have been observed very frequently, which were attributed to irritative effects on the one hand, but predominantly to allergic reactions. In addition to the above-mentioned early-type reactions, allergic dermatitis and chronic recurrent eczema have been described as late-type reactions. (GESTIS)

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11.2 Information on other hazards

· **Endocrine disrupting properties** The product does not contain substances with endocrine disrupting properties.

Other information

According to the information available to us, the chemical, physical and toxicological properties of the substances mentioned in Chapter 3 have not been thoroughly investigated.

SECTION 12: Ecological information

12.1 Toxicity
Aquatic toxicity:
CAS: 7727-54-0 ammonium persulphate

EC50	120 mg/l/48h (Daphnia magna) (IUCLID)
LC50	76 mg/l/96h (rainbow trout) (IUCLID)

Bacterial toxicity:
CAS: 7727-54-0 ammonium persulphate

EC10	36 mg/l (Pseudomonas putida) (18h) (IUCLID)
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Other information:

Toxic for fish:

Sulphates > 7 g/l

NH₄⁺ > 0.3 mg/l

· **12.2 Persistence and degradability** No further relevant information available.

· **Other information:** Methods for the determination of biodegradability are not applicable to inorganic substances.

· **12.3 Bioaccumulative potential** No further relevant information available.

· **12.4 Mobility in soil** No further relevant information available.

12.5 Results of PBT and vPvB assessment

Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

· **12.6 Endocrine disrupting properties** The product does not contain substances with endocrine disrupting properties.

12.7 Other adverse effects

Reacts with water to form toxic decomposition products.

Avoid transfer into the environment.

Water hazard:

Do not allow undiluted product or large quantities of it to reach ground water, water bodies or sewage system.

Must not reach sewage water or drainage ditch undiluted or unneutralised.

SECTION 13: Disposal considerations

13.1 Waste treatment methods
Recommendation

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

Hand over to disposers of hazardous waste.

European waste catalogue

16 05 07*	discarded inorganic chemicals consisting of or containing hazardous substances
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Uncleaned packagings:

· **Recommendation:** Disposal must be made according to official regulations.

· **Recommended cleaning agent:** Water, if necessary with cleaning agent.

SECTION 14: Transport information

14.1 UN number or ID number

· **ADR, IMDG, IATA**

UN1444

14.2 UN proper shipping name

· **ADR**

1444 AMMONIUM PERSULPHATE

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· IMDG, IATA	AMMONIUM PERSULPHATE
· 14.3 Transport hazard class(es)	
· ADR	
	
· Class	5.1 (O2) Oxidising substances.
· Label	5.1
· IMDG, IATA	
	
· Class	5.1 Oxidising substances.
· Label	5.1
· 14.4 Packing group	
· ADR, IMDG, IATA	III
· 14.5 Environmental hazards:	Not applicable.
· 14.6 Special precautions for user	Warning: Oxidising substances.
· Kemler Number:	50
· EMS Number:	F-A,S-Q
· Segregation groups	(SGG2) Ammonium compounds
· Stowage Category	A
· 14.7 Maritime transport in bulk according to IMO instruments	Not applicable.
· Transport/Additional information:	
· ADR	
· Limited quantities (LQ)	5 kg
· Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 g Maximum net quantity per outer packaging: 1000 g
· Transport category	3
· Tunnel restriction code	E
· IMDG	
· Limited quantities (LQ)	5 kg
· Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 g Maximum net quantity per outer packaging: 1000 g

SECTION 15: Regulatory information

 · **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

 · **Poisons Act UK**

 · **Regulated explosives precursors**

Substance is not listed.

 · **Regulated poisons**

Substance is not listed.

 · **Reportable explosives precursors**

Substance is not listed.

 · **Reportable poisons**

Substance is not listed.

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· Regulation (EU) 2019/1148 on the marketing and use of explosives precursors not regulated
· Regulation (EU) No 649/2012 concerning the export and import of hazardous chemicals (PIC) Substance is not listed.
· Regulation (EC) No 1334/2000 setting up a Community regime for the control of exports of dual-use items and technology: Substance is not listed.
· Regulation (EC) No 273/2004 on drug precursors Substance is not listed.
· Regulation (EC) No 111/2005 laying down rules for the monitoring of trade between the Community and third countries in drug precursors Substance is not listed.
· Regulation (EC) No 1005/2009 on substances that deplete the ozone layer: Substance is not listed.
· REGULATION (EU) 2019/1021 on persistent organic pollutants (POP) Substance is not listed.
· LIST OF SUBSTANCES SUBJECT TO AUTHORISATION (ANNEX XIV) Substance is not listed.
· Substances of very high concern (SVHC) according to REACH, Article 57 This product does not contain any substances of very high concern above the legal concentration limit of $\geq 0.1\%$ (w / w).
· Substances of very high concern (SVHC) according to UK REACH This product does not contain any substances of very high concern above the legal concentration limit of $\geq 0.1\%$ (w / w).
· Directive 2012/18/EU (SEVESO III):
· Named dangerous substances - ANNEX I Substance is not listed.
· Seveso category P8 OXIDISING LIQUIDS AND SOLIDS
· Qualifying quantity (tonnes) for the application of lower-tier requirements 50 t
· Qualifying quantity (tonnes) for the application of upper-tier requirements 200 t
· REGULATION (EC) No 1907/2006 ANNEX XVII Conditions of restriction: 65
· Information about limitation of use: Employment restrictions concerning young persons must be observed (94/33/EC).
· 15.2 Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

This Safety Data Sheet is in compliance with Regulation (EC) No 1907/2006, Article 31 as amended by Regulation (EU) 2020/878.

· **Training hints** Provide adequate information, instruction and training for operators.

· **Abbreviations and acronyms:**

OECD: Organisation for Economic Co-operation and Development

STOT: specific target organ toxicity

SE: single exposure

RE: repeated exposure

EC50: half maximal effective concentration

IC50: half maximal inhibitory concentration

NOEL or NOEC: No Observed Effect Level or Concentration

ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

SVHC: Substances of Very High Concern

vPvB: very Persistent and very Bioaccumulative

Ox. Sol. 3: Oxidizing solids – Category 3

Acute Tox. 4: Acute toxicity – Category 4

Skin Irrit. 2: Skin corrosion/irritation – Category 2

Eye Irrit. 2: Serious eye damage/eye irritation – Category 2

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Resp. Sens. 1: Respiratory sensitisation – Category 1

Skin Sens. 1: Skin sensitisation – Category 1

STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

Sources

Data arise from safety data sheets, reference works and literature.

IUCLID (International Uniform Chemical Information Database)

ECHA: European Chemicals Agency <http://echa.europa.eu>

GESTIS- Stoffdatenbank (Substance Database, Germany)

· * Data compared to the previous version altered.

GB
