

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

| | |
|----------------------|---------------------------------------|
| Product Description: | 4-Nitrophenol |
| Cat No. : | N/3200/48 |
| Synonyms | 4-Hydroxynitrobenzene; p-Nitrophenol. |
| Index No | 609-015-00-2 |
| CAS No | 100-02-7 |
| EC No | 202-811-7 |
| Molecular Formula | C6 H5 N O3 |

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

| | |
|----------------------|--------------------------|
| Recommended Use | Laboratory chemicals. |
| Uses advised against | No Information available |

1.3. Details of the supplier of the safety data sheet

Company

UK entity/business name
Fisher Scientific UK
Bishop Meadow Road, Loughborough,
Leicestershire LE11 5RG, United Kingdom

EU entity/business name
Thermo Fisher Scientific
Janssen Pharmaceuticaaan 3a
2440 Geel, Belgium

E-mail address begel.sdsdesk@thermofisher.com

1.4. Emergency telephone number

Tel: 01509 231166
Chemtrec US: (800) 424-9300
Chemtrec EU: 001-703-527-3887

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

CLP Classification - According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567

Physical hazards

Based on available data, the classification criteria are not met

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Health hazards

Acute oral toxicity
Acute dermal toxicity
Acute Inhalation Toxicity - Dusts and Mists
Specific target organ toxicity - (repeated exposure)

Category 3 (H301)
Category 4 (H312)
Category 4 (H332)
Category 2 (H373)

Environmental hazards

Based on available data, the classification criteria are not met

Full text of Hazard Statements: see section 16

2.2. Label elements



Signal Word

Danger

Hazard Statements

H373 - May cause damage to organs through prolonged or repeated exposure
H301 - Toxic if swallowed
H312 + H332 - Harmful in contact with skin or if inhaled
May form combustible dust concentrations in air

Precautionary Statements

P280 - Wear protective gloves/protective clothing/eye protection/face protection
P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
P260 - Do not breathe dust/fume/gas/mist/vapors/spray

2.3. Other hazards

May form explosible dust-air mixture if dispersed
Toxicity to Soil Dwelling Organisms
Toxic to terrestrial vertebrates
This product does not contain any known or suspected endocrine disruptors

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

| Component | CAS No | EC No | Weight % | CLP Classification - According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567 |
|---------------|----------|-------------------|----------|---|
| p-Nitrophenol | 100-02-7 | EEC No. 202-811-7 | >95 | Acute Tox. 3 (H301) Acute Tox. 4 (H312) Acute Tox. 4 (H332) STOT RE 2 (H373) |

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Full text of Hazard Statements: see section 16

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

| | |
|---|--|
| General Advice | Show this safety data sheet to the doctor in attendance. Immediate medical attention is required. |
| Eye Contact | In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice. |
| Skin Contact | Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required. |
| Ingestion | Call a physician or poison control center immediately. Do NOT induce vomiting. |
| Inhalation | Remove to fresh air. If not breathing, give artificial respiration. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required. |
| Self-Protection of the First Aider | Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. |

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

None reasonably foreseeable.

4.3. Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media

Water spray, carbon dioxide (CO₂), dry chemical, alcohol-resistant foam. Water mist may be used to cool closed containers.

Extinguishing media which must not be used for safety reasons

No information available.

5.2. Special hazards arising from the substance or mixture

Fine dust dispersed in air may ignite. Dust can form an explosive mixture with air. Thermal decomposition can lead to release of irritating gases and vapors. Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products

Nitrogen oxides (NO_x), Carbon monoxide (CO), Carbon dioxide (CO₂).

5.3. Advice for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

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SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment as required. Ensure adequate ventilation. Avoid dust formation. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas.

6.2. Environmental precautions

Do not flush into surface water or sanitary sewer system.

6.3. Methods and material for containment and cleaning up

Sweep up and shovel into suitable containers for disposal. Avoid dust formation.

6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Wear personal protective equipment/face protection. Avoid dust formation. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe (dust, vapor, mist, gas). Do not ingest. If swallowed then seek immediate medical assistance.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands before breaks and after work.

7.2. Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from direct sunlight.

Technical Rules for Hazardous Substances (TRGS) 510 Class 6.1C
Storage Class (LGK) (Germany)

7.3. Specific end use(s)

Use in laboratories

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Exposure limits

List source(s):

Biological limit values

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific

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regulatory bodies

Derived No Effect Level (DNEL) / Derived Minimum Effect Level (DMEL)

No information available

Predicted No Effect Concentration (PNEC)

No information available.

8.2. Exposure controls

Engineering Measures

Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location. Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

Personal protective equipment

Eye Protection

Goggles (European standard - EN 166)

Hand Protection

Protective gloves

| Glove material | Breakthrough time | Glove thickness | EU standard | Glove comments |
|----------------|-------------------|-----------------|-------------|-----------------------|
| Natural rubber | See manufacturers | - | EN 374 | (minimum requirement) |
| Nitrile rubber | recommendations | | | |
| Neoprene | | | | |
| PVC | | | | |

Skin and body protection

Long sleeved clothing.

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatibility, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

Respiratory Protection

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

Large scale/emergency use

Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced
Recommended Filter type: Particulates filter conforming to EN 143

Small scale/Laboratory use

Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
Recommended half mask:- Particle filtering: EN149:2001
When RPE is used a face piece Fit Test should be conducted

Environmental exposure controls

Prevent product from entering drains. Do not allow material to contaminate ground water system.

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SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

| | | |
|---|--------------------------|-----------------------------------|
| Physical State | Solid | |
| Appearance | Brown | |
| Odor | aromatic | |
| Odor Threshold | No data available | |
| Melting Point/Range | > 112 °C / 233.6 °F | |
| Softening Point | No data available | |
| Boiling Point/Range | 279 °C / 534.2 °F | @ 760 mmHg |
| Flammability (liquid) | Not applicable | Solid |
| Flammability (solid,gas) | No information available | |
| Explosion Limits | No data available | |
| Flash Point | 169 °C / 336.2 °F | Method - No information available |
| Autoignition Temperature | 283 °C / 541.4 °F | |
| Decomposition Temperature | 279 °C | |
| pH | 4.4 | 5 g/l aq.sol |
| Viscosity | Not applicable | Solid |
| Water Solubility | 1.6g/100ml (25°C) | |
| Solubility in other solvents | No information available | |
| Partition Coefficient (n-octanol/water) | | |
| Component | log Pow | |
| p-Nitrophenol | 1.95 | |
| Vapor Pressure | No information available | |
| Density / Specific Gravity | No data available | |
| Bulk Density | No data available | |
| Vapor Density | Not applicable | Solid |
| Particle characteristics | No data available | |

9.2. Other information

| | |
|-------------------|------------------------|
| Molecular Formula | C6 H5 N O3 |
| Molecular Weight | 139.11 |
| Evaporation Rate | Not applicable - Solid |

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

None known, based on information available

10.2. Chemical stability

Light sensitive.

10.3. Possibility of hazardous reactions

| | |
|--------------------------|--|
| Hazardous Polymerization | Hazardous polymerization does not occur. |
| Hazardous Reactions | None under normal processing. |

10.4. Conditions to avoid

Avoid dust formation. Incompatible products. Heat, flames and sparks. Temperatures above 75°C. Exposure to light.

10.5. Incompatible materials

Strong oxidizing agents. Strong bases. Combustible material.

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10.6. Hazardous decomposition products

Nitrogen oxides (NOx). Carbon monoxide (CO). Carbon dioxide (CO₂).

SECTION 11: TOXICOLOGICAL INFORMATION

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

Product Information

(a) acute toxicity;

| | |
|------------|------------|
| Oral | Category 3 |
| Dermal | Category 4 |
| Inhalation | Category 4 |

| Component | LD50 Oral | LD50 Dermal | LC50 Inhalation |
|---------------|--------------------------|------------------------------|-----------------------------|
| p-Nitrophenol | LD50 = 230 mg/kg (Rat) | LD50 > 5000 mg/kg (Rabbit) | LC50 > 4.7 mg/L (Rat) 4 h |

(b) skin corrosion/irritation; No data available

(c) serious eye damage/irritation; No data available

(d) respiratory or skin sensitization;

| | |
|-------------|-------------------|
| Respiratory | No data available |
| Skin | No data available |

(e) germ cell mutagenicity; No data available

Not mutagenic in AMES Test

(f) carcinogenicity; No data available

There are no known carcinogenic chemicals in this product

(g) reproductive toxicity; No data available

(h) STOT-single exposure; No data available

(i) STOT-repeated exposure; Category 2

| | |
|-------------------|----------------|
| Route of exposure | Oral |
| Target Organs | Liver, Kidney. |

(j) aspiration hazard; Not applicable
Solid

Symptoms / effects, both acute and delayed No information available.

11.2. Information on other hazards

Endocrine Disrupting Properties Assess endocrine disrupting properties for human health. This product does not contain any

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known or suspected endocrine disruptors.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Ecotoxicity effects

The product contains following substances which are hazardous for the environment.
Contains a substance which is: Toxic to aquatic organisms.

| Component | Freshwater Fish | Water Flea | Freshwater Algae |
|---------------|---|---|---|
| p-Nitrophenol | LC50: = 10.4 mg/L, 96h static (Brachydanio rerio) LC50: = 3.8 mg/L, 96h static (Oncorhynchus mykiss) LC50: = 7.9 mg/L, 96h flow-through (Oncorhynchus mykiss) LC50: = 14 mg/L, 96h static (Poecilia reticulata) LC50: = 6.6 mg/L, 96h static (Lepomis macrochirus) LC50: = 30.4 mg/L, 96h flow-through (Pimephales promelas) | EC50: 3.1 - 7.1 mg/L, 48h (Daphnia magna) | EC50: 1.95 - 14.6 mg/L, 72h (Pseudokirchneriella subcapitata) EC50: 2.3 - 7.71 mg/L, 96h (Pseudokirchneriella subcapitata) EC50: = 23.7 mg/L, 96h (Desmodesmus subspicatus) |

| Component | Microtox | M-Factor |
|---------------|---|----------|
| p-Nitrophenol | EC50 = 13 mg/L 30 min EC50 = 5.5 mg/L 24 h | |

12.2. Persistence and degradability

Persistence

Degradation in sewage treatment plant

Readily biodegradable
Persistence is unlikely.
Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants.

12.3. Bioaccumulative potential

Bioaccumulation is unlikely

| Component | log Pow | Bioconcentration factor (BCF) |
|---------------|---------|-------------------------------|
| p-Nitrophenol | 1.95 | No data available |

12.4. Mobility in soil

The product is water soluble, and may spread in water systems. Will likely be mobile in the environment due to its water solubility. Highly mobile in soils

12.5. Results of PBT and vPvB assessment

No data available for assessment.

12.6. Endocrine disrupting properties

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

12.7. Other adverse effects

Persistent Organic Pollutant

Ozone Depletion Potential

This product does not contain any known or suspected substance
This product does not contain any known or suspected substance

SECTION 13: DISPOSAL CONSIDERATIONS

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13.1. Waste treatment methods

| | |
|--|--|
| Waste from Residues/Unused Products | Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations. |
| Contaminated Packaging | Dispose of this container to hazardous or special waste collection point. |
| European Waste Catalogue (EWC) | According to the European Waste Catalog, Waste Codes are not product specific, but application specific. |
| Other Information | Do not flush to sewer. Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains. |

SECTION 14: TRANSPORT INFORMATION

IMDG/IMO

| | |
|---|--------------|
| 14.1. UN number | UN1663 |
| 14.2. UN proper shipping name | NITROPHENOLS |
| 14.3. Transport hazard class(es) | 6.1 |
| 14.4. Packing group | III |

ADR

| | |
|---|--------------|
| 14.1. UN number | UN1663 |
| 14.2. UN proper shipping name | NITROPHENOLS |
| 14.3. Transport hazard class(es) | 6.1 |
| 14.4. Packing group | III |

IATA

| | |
|---|--------------|
| 14.1. UN number | UN1663 |
| 14.2. UN proper shipping name | NITROPHENOLS |
| 14.3. Transport hazard class(es) | 6.1 |
| 14.4. Packing group | III |

| | |
|--|----------------------------------|
| 14.5. Environmental hazards | No hazards identified |
| 14.6. Special precautions for user | No special precautions required. |
| 14.7. Maritime transport in bulk according to IMO instruments | Not applicable, packaged goods |

SECTION 15: REGULATORY INFORMATION

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

International Inventories

Europe (EINECS/ELINCS/NLP), China (IECSC), Taiwan (TCSI), Korea (KECL), Japan (ENCS), Japan (ISHL), Canada (DSL/NDSL), Australia (AICS), New Zealand (NZIoC), Philippines (PICCS). US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

| Component | CAS No | EINECS | ELINCS | NLP | IECSC | TCSI | KECL | ENCS | ISHL |
|---------------|----------|-----------|--------|-----|-------|------|----------|------|------|
| p-Nitrophenol | 100-02-7 | 202-811-7 | - | - | X | X | KE-26012 | X | X |

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| Component | CAS No | TSCA | TSCA Inventory notification - Active-Inactive | DSL | NDSL | AICS | NZIoC | PICCS |
|---------------|----------|------|---|-----|------|------|-------|-------|
| p-Nitrophenol | 100-02-7 | X | ACTIVE | X | - | X | X | X |

Legend: X - Listed '-' - Not Listed

KECL - NIER number or KE number (<http://ncis.nier.go.kr/en/main.do>)

Authorisation/Restrictions according to EU REACH

Not applicable

| Component | CAS No | REACH (1907/2006) - Annex XIV - Substances Subject to Authorization | REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances | REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC) |
|---------------|----------|---|---|---|
| p-Nitrophenol | 100-02-7 | - | - | - |

Seveso III Directive (2012/18/EC)

| Component | CAS No | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements |
|---------------|----------|---|--|
| p-Nitrophenol | 100-02-7 | Not applicable | Not applicable |

Regulation (EC) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of dangerous chemicals

Not applicable

Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)?

Not applicable

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work .

National Regulations

UK - Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment

WGK Classification

See table for values

| Component | Germany - Water Classification (AwSV) | Germany - TA-Luft Class |
|---------------|---------------------------------------|-------------------------|
| p-Nitrophenol | WGK2 | |

15.2. Chemical safety assessment

A Chemical Safety Assessment/Report (CSA/CSR) has not been conducted

SECTION 16: OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3

H301 - Toxic if swallowed

FSUN3200

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H312 - Harmful in contact with skin

H332 - Harmful if inhaled

H373 - May cause damage to organs through prolonged or repeated exposure

Legend

CAS - Chemical Abstracts Service

EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

IECSC - Chinese Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List

ENCS - Japanese Existing and New Chemical Substances

AICS - Australian Inventory of Chemical Substances

NZIoC - New Zealand Inventory of Chemicals

WEL - Workplace Exposure Limit

ACGIH - American Conference of Governmental Industrial Hygienists

DNEL - Derived No Effect Level

RPE - Respiratory Protective Equipment

LC50 - Lethal Concentration 50%

NOEC - No Observed Effect Concentration

PBT - Persistent, Bioaccumulative, Toxic

TWA - Time Weighted Average

IARC - International Agency for Research on Cancer Predicted No Effect Concentration (PNEC)

LD50 - Lethal Dose 50%

EC50 - Effective Concentration 50%

POW - Partition coefficient Octanol:Water

vPvB - very Persistent, very Bioaccumulative

ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road

IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code

OECD - Organisation for Economic Co-operation and Development

BCF - Bioconcentration factor

Key literature references and sources for data

<https://echa.europa.eu/information-on-chemicals>

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

ICAO/IATA - International Civil Aviation Organization/International Air Transport Association

MARPOL - International Convention for the Prevention of Pollution from Ships

ATE - Acute Toxicity Estimate

VOC - (Volatile Organic Compound)

Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.

First aid for chemical exposure, including the use of eye wash and safety showers.

Creation Date 06-Feb-2015
Revision Date 20-Oct-2023
Revision Summary Not applicable.

This safety data sheet complies with Regulation UK SI 2019/758 and UK SI 2020/1577 as amended.

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of Safety Data Sheet