

# SAFETY DATA SHEET

Creation Date 28-May-2003

Revision Date 19-Dec-2025

Revision Number 6

This safety data sheet was created pursuant to the requirements of: US OSHA Hazard Communication Standard 2024 (29 CFR 1910.1200)

## 1. Identification

**Product Name** 4-Nitrophenyl isocyanate

**Cat No. :** AC296700000; AC296700050; AC296700250

**CAS No** 100-28-7

**Synonyms** Benzene, 1-Isocyanato-4-Nitro

**Recommended Use** Laboratory chemicals.

**Uses advised against** Food, drug, pesticide or biocidal product use.

### Details of the supplier of the safety data sheet

#### Company

Fisher Scientific Company  
One Reagent Lane  
Fair Lawn, NJ 07410  
Tel: (201) 796-7100

Acros Organics  
One Reagent Lane  
Fair Lawn, NJ 07410

#### **Emergency Telephone Number**

For information **US** call: 001-800-227-6701 / **Europe** call: +32 14 57 52 11  
Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99  
**CHEMTREC** Tel. No. **US**:001-800-424-9300 / **Europe**:001-703-527-3887

## 2. Hazard(s) identification

### Classification

This chemical is considered hazardous according to [US] OSHA (29 CFR 1910.1200, 2024)

|  |            |
|--|------------|
| Acute oral toxicity                              | Category 4 |
| Acute Inhalation Toxicity - Dusts and Mists      | Category 4 |
| Skin Corrosion/Irritation                        | Category 2 |
| Serious Eye Damage/Eye Irritation                | Category 2 |
| Respiratory Sensitization                        | Category 1 |
| Specific target organ toxicity (single exposure) | Category 3 |
| Target Organs - Respiratory system.              |            |

### Label Elements

**Signal Word**  
Danger

**Hazard Statements**

Causes skin irritation  
 Causes serious eye irritation  
 May cause allergy or asthma symptoms or breathing difficulties if inhaled  
 May cause respiratory irritation  
 Harmful if swallowed or if inhaled

**Precautionary Statements****Prevention**

Wash face, hands and any exposed skin thoroughly after handling  
 Do not eat, drink or smoke when using this product  
 Avoid breathing dust/fume/gas/mist/vapors/spray  
 Use only outdoors or in a well-ventilated area  
 Wear protective gloves/protective clothing/eye protection/face protection  
 In case of inadequate ventilation wear respiratory protection

**Inhalation**

IF INHALED: Remove person to fresh air and keep comfortable for breathing  
 If experiencing respiratory symptoms: Call a POISON CENTER or doctor

**Skin**

IF ON SKIN: Wash with plenty of soap and water  
 If skin irritation occurs: Get medical advice/attention  
 Take off contaminated clothing

**Eyes**

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
 If eye irritation persists: Get medical advice/attention

**Ingestion**

IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell  
 Rinse mouth

**Storage**

Store in a well-ventilated place. Keep container tightly closed  
 Store locked up

**Disposal**

Dispose of contents/container to an approved waste disposal plant

**Hazards not otherwise classified (HNOC)**

None identified

**Hazards classified under paragraph (d)(1)(ii) of 1910.1200**

No information available

### 3. Composition/information on Ingredients

| Component                      | CAS No   | Weight % |
|--------------------------------|----------|----------|
| Benzene, 1-isocyanato-4-nitro- | 100-28-7 | > 95     |

### 4. First-aid measures

**General Advice**

If symptoms persist, call a physician.

|  |  |
|--|--|
| <b>Eye Contact</b>                         | Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.  |
| <b>Skin Contact</b>                        | Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.  |
| <b>Inhalation</b>                          | Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.   |
| <b>Ingestion</b>                           | Clean mouth with water and drink afterwards plenty of water. Get medical attention if symptoms occur.  |
| <b>Most important symptoms and effects</b> | May cause allergy or asthma symptoms or breathing difficulties if inhaled. Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing |
| <b>Notes to Physician</b>                  | Treat symptomatically  |

## 5. Fire-fighting measures

|   |  |
|---|--|
| <b>Suitable Extinguishing Media</b>     | Water spray. Carbon dioxide (CO <sub>2</sub> ). Dry chemical. Chemical foam. |
| <b>Unsuitable Extinguishing Media</b>   | No information available   |
| <b>Flash Point</b>                      | > 110 °C / > 230 °F  |
| <b>Method -</b>                         | No information available   |
| <b>Autoignition Temperature</b>         | No information available   |
| <b>Explosion Limits</b>                 |  |
| <b>Upper</b>                            | No data available  |
| <b>Lower</b>                            | No data available  |
| <b>Sensitivity to Mechanical Impact</b> | No information available   |
| <b>Sensitivity to Static Discharge</b>  | No information available   |

### Specific Hazards Arising from the Chemical

Keep product and empty container away from heat and sources of ignition.

### Hazardous Combustion Products

Nitrogen oxides (NO<sub>x</sub>). Carbon monoxide (CO). Carbon dioxide (CO<sub>2</sub>).

### Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

### NFPA

|                    |                          |                         |                                |
|--------------------|--------------------------|-------------------------|--------------------------------|
| <b>Health</b><br>2 | <b>Flammability</b><br>1 | <b>Instability</b><br>1 | <b>Physical hazards</b><br>N/A |
|--------------------|--------------------------|-------------------------|--------------------------------|

## 6. Accidental release measures

|   |  |
|---|--|
| <b>Personal Precautions</b>                 | Ensure adequate ventilation. Use personal protective equipment as required. Avoid dust formation.            |
| <b>Environmental Precautions</b>            | Should not be released into the environment.   |
| <b>Methods for Containment and Clean Up</b> | Sweep up and shovel into suitable containers for disposal. Keep in suitable, closed containers for disposal. |

## 7. Handling and Storage

|                 |   |
|-----------------|---|
| <b>Handling</b> | Wear personal protective equipment/face protection. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Avoid dust formation. |
|-----------------|---|

**Storage.** Keep container tightly closed in a dry and well-ventilated place. Keep under nitrogen. To maintain product quality: Keep refrigerated. Incompatible Materials. Strong oxidizing agents. Strong acids.

## 8. Exposure controls / personal protection

**Exposure Guidelines** This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

**Engineering Measures** Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

### Personal Protective Equipment

**Eye/face Protection** Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

**Skin and body protection** Wear appropriate protective gloves and clothing to prevent skin exposure.

**Respiratory Protection** Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

**Recommended Filter type:** Particulates filter conforming to EN 143.

**Hygiene Measures** Handle in accordance with good industrial hygiene and safety practice.

## 9. Physical and chemical properties

### Appearance

**Physical State** Solid  
**Color** Yellow  
**Odor** Odorless  
**Odor Threshold** No information available

### Property

**Melting Point/Range** 56 - 62 °C / 132.8 - 143.6 °F  
**Softening Point** No data available  
**Boiling Point/Range** No information available  
**Flash Point** > 110 °C / > 230 °F  
**Flammability (liquid)** Not applicable  
**Flammability (solid,gas)** No information available  
**Explosion Limits** No data available

### Remarks      • Method

**Method -** No information available  
 Solid

**Autoignition Temperature** No data available  
**Decomposition Temperature** No data available  
**pH** No information available  
**Viscosity** Not applicable  
**Water Solubility** No information available  
**Solubility in other solvents** No information available  
**Partition Coefficient (n-octanol/water)**  
**Vapor Pressure** No data available  
**Density / Specific Gravity** No data available  
**Bulk Density** No data available  
**Vapor Density** Not applicable  
**Particle characteristics** No data available

Solid

Solid

**Other Information**

|                          |                        |
|--------------------------|------------------------|
| <b>Molecular Formula</b> | C7 H4 N2 O3            |
| <b>Molecular Weight</b>  | 164.12                 |
| <b>Evaporation Rate</b>  | Not applicable - Solid |

## 10. Stability and reactivity

|   |  |
|---|--|
| <b>Reactive Hazard</b>                  | None known, based on information available                                     |
| <b>Stability</b>                        | Moisture sensitive.  |
| <b>Conditions to Avoid</b>              | Incompatible products. Exposure to moist air or water.                         |
| <b>Incompatible Materials</b>           | Strong oxidizing agents, Strong acids  |
| <b>Hazardous Decomposition Products</b> | Nitrogen oxides (NOx), Carbon monoxide (CO), Carbon dioxide (CO <sub>2</sub> ) |
| <b>Hazardous Polymerization</b>         | No information available.  |
| <b>Hazardous Reactions</b>              | None under normal processing.  |

## 11. Toxicological information

**Information on expected route of exposure**

|                   |  |
|-------------------|--|
| <b>Inhalation</b> | Not an expected route of exposure.             |
| <b>Ingestion</b>  | May be harmful if swallowed.                   |
| <b>Eyes</b>       | Avoid contact with eyes. Irritating to eyes.   |
| <b>Skin</b>       | Avoid contact with skin. May cause irritation. |

**Toxicology data for the components**

| Component                      | LD50 Oral                 | LD50 Dermal | LC50 Inhalation |
|--------------------------------|---------------------------|-------------|-----------------|
| Benzene, 1-isocyanato-4-nitro- | LD50 = 1600 mg/kg ( Rat ) | -           | -               |

**Toxicologically Synergistic Products** No information available

**(b) skin corrosion/irritation;** Category 2

**(c) serious eye damage/irritation;** Category 2

**(d) respiratory or skin sensitization;**  
**Respiratory** Category 1  
**Skin** No data available

**(e) germ cell mutagenicity;** No data available

**(f) carcinogenicity;**

The table below indicates whether each agency has listed any ingredient as a carcinogen

| Component                      | CAS No   | IARC       | NTP        | ACGIH      | OSHA       | Mexico     |
|--------------------------------|----------|------------|------------|------------|------------|------------|
| Benzene, 1-isocyanato-4-nitro- | 100-28-7 | Not listed | Not listed | Not listed | Not listed | Not listed |

|  |  |
|--|--|
| <b>(g) reproductive toxicity;</b>                | No data available  |
| <b>(h) STOT-single exposure;</b>                 | Category 3   |
| <b>Results / Target organs</b>                   | Respiratory system.  |
| <b>(i) STOT-repeated exposure;</b>               | No data available  |
| <b>Target Organs</b>                             | No information available.  |
| <b>(j) aspiration hazard;</b>                    | Not applicable<br>Solid  |
| <b>Other Adverse Effects</b>                     | The toxicological properties have not been fully investigated.   |
| <b>Symptoms / effects,both acute and delayed</b> | Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing. |
| <b>Other Adverse Effects</b>                     | The toxicological properties have not been fully investigated.   |
| <b>Endocrine Disrupting Properties</b>           | This product does not contain any known or suspected endocrine disruptors.   |

## 12. Ecological information

### Ecotoxicity

Do not empty into drains.

|                                      |                           |
|--------------------------------------|---------------------------|
| <b>Persistence and Degradability</b> | No information available  |
| <b>Bioaccumulation/ Accumulation</b> | No information available. |
| <b>Mobility</b>                      | No information available. |

## 13. Disposal considerations

|                               |   |
|-------------------------------|---|
| <b>Waste Disposal Methods</b> | Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification. |
|-------------------------------|---|

## 14. Transport information

### DOT

|                                |                                  |
|--------------------------------|----------------------------------|
| <b>UN-No</b>                   | UN3335                           |
| <b>Proper Shipping Name</b>    | AVIATION REGULATED SOLID, N.O.S. |
| <b>Technical Shipping Name</b> | 4-Nitrophenyl isocyanate         |
| <b>Hazard Class</b>            | 9                                |

### TDG

|                                |                                  |
|--------------------------------|----------------------------------|
| <b>UN-No</b>                   | UN3335                           |
| <b>Proper Shipping Name</b>    | AVIATION REGULATED SOLID, N.O.S. |
| <b>Technical Shipping Name</b> | 4-Nitrophenyl isocyanate         |
| <b>Hazard Class</b>            | 9                                |

### IATA

|                                |                                  |
|--------------------------------|----------------------------------|
| <b>UN-No</b>                   | UN3335                           |
| <b>Proper Shipping Name</b>    | AVIATION REGULATED SOLID, N.O.S. |
| <b>Technical Shipping Name</b> | 4-Nitrophenyl isocyanate         |
| <b>Hazard Class</b>            | 9                                |

|                                |                                  |
|--------------------------------|----------------------------------|
| <b>Packing Group</b>           | III                              |
| <b>IMDG/IMO</b>                |                                  |
| <b>UN-No</b>                   | UN3335                           |
| <b>Proper Shipping Name</b>    | AVIATION REGULATED SOLID, N.O.S. |
| <b>Technical Shipping Name</b> | 4-Nitrophenyl isocyanate         |
| <b>Hazard Class</b>            | 9                                |

## 15. Regulatory Information

### United States of America Inventory

| Component                      | CAS No   | TSCA | TSCA Inventory notification - Active-Inactive | TSCA - EPA Regulatory Flags |
|--------------------------------|----------|------|---|-----------------------------|
| Benzene, 1-isocyanato-4-nitro- | 100-28-7 | X    | ACTIVE  | -                           |

#### Legend:

**TSCA** US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

X - Listed

'-' - Not Listed

**TSCA - Per 40 CFR 751, Regulation of Certain Chemical Substances & Mixtures, Under TSCA Section 6(h) (PBT)** Not applicable

**TSCA 12(b)** - Notices of Export Not applicable

### International Inventories

Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

| Component                      | CAS No   | DSL | NDSL | EINECS    | PICCS | ENCS | ISHL | AICS | IECSC | KECL |
|--------------------------------|----------|-----|------|-----------|-------|------|------|------|-------|------|
| Benzene, 1-isocyanato-4-nitro- | 100-28-7 | -   | X    | 202-836-3 | -     | -    |      | -    | -     | -    |

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

### U.S. Federal Regulations

#### SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

#### SARA 311/312 Hazard Categories

Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

**CWA (Clean Water Act)** Not applicable

**Clean Air Act** Not applicable

**OSHA** - Occupational Safety and Health Administration Not applicable

#### CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

**California Proposition 65** This product does not contain any Proposition 65 chemicals.

**U.S. State Right-to-Know Regulations** Not applicable

**U.S. Department of Transportation**

Reportable Quantity (RQ): N  
 DOT Marine Pollutant N  
 DOT Severe Marine Pollutant N

**U.S. Department of Homeland Security** This product does not contain any DHS chemicals.

**Other International Regulations**

**Mexico - Grade** No information available

**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) |
|--------------------------------|----------|---|---|---|
| Benzene, 1-isocyanato-4-nitro- | 100-28-7 | -   | -   | -   |

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

| Component                      | CAS No   | OECD HPV       | Persistent Organic Pollutant | Ozone Depletion Potential | Restriction of Hazardous Substances (RoHS) |
|--------------------------------|----------|----------------|------------------------------|---------------------------|--|
| Benzene, 1-isocyanato-4-nitro- | 100-28-7 | Not applicable | Not applicable               | Not applicable            | Not applicable                             |

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

Not applicable

**Other International Regulations**

| 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 | Rotterdam Convention (PIC) | Basel Convention (Hazardous Waste) |
|--------------------------------|----------|---|--|----------------------------|------------------------------------|
| Benzene, 1-isocyanato-4-nitro- | 100-28-7 | Not applicable  | Not applicable   | Not applicable             | Not applicable                     |

## 16. Other Information

**Prepared By** Product stewardship (Regulatory Affairs)  
 Thermo Fisher Scientific  
 email - begel.sdsdesk@thermofisher.com

**Creation Date** 28-May-2003

**Revision Date** 19-Dec-2025

**Print Date** 19-Dec-2025

**Revision Summary** Updated to the U.S. Department of Labor's Occupational Safety and Health Administration



(OSHA) which published its Final Rule in the Federal Register revising the Hazard Communication Standard (HCS/HazCom), 29 CFR 1910.1200 (2024) (HCS §1910.1200, 2024), May 20, 2024, effective July 19, 2024.

**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 SDS**