

## 1. Identification

<b>Product identifier</b>	<b>4-Nitrobenzoic Acid</b>		
<b>Other means of identification</b>			
<b>Catalog number</b>	1466572		
<b>Synonym(s)</b>	1-Carboxy-4-nitrobenzene * P-Nitrobenzoic acid		
<b>Recommended use</b>	Specified quality tests and assay use only.		
<b>Recommended restrictions</b>	Not for use as a drug. Not for administration to humans or animals.		
<b>Manufacturer/Importer/Supplier/Distributor information</b>			
<b>Manufacturer</b>			
<b>Company name</b>	U. S. Pharmacopeia		
<b>Address</b>	12601 Twinbrook Parkway Rockville MD 20852-1790 United States		
<b>Telephone</b>	RS Technical Services	301-816-8129	
<b>Website</b>	www.usp.org		
<b>E-mail</b>	RSTECH@usp.org		
<b>Emergency phone number</b>	CHEMTREC within US & Canada	1-800-424-9300	
	CHEMTREC outside US & Canada	+1 703-527-3887	

## 2. Hazard(s) identification

<b>Physical hazards</b>	Not classified.	
<b>Health hazards</b>	Acute toxicity, oral	Category 4
	Serious eye damage/eye irritation	Category 2A
<b>Environmental hazards</b>	Not classified.	
<b>OSHA defined hazards</b>	Not classified.	
<b>Label elements</b>		



<b>Signal word</b>	Warning	
<b>Hazard statement</b>	Harmful if swallowed. Causes serious eye irritation.	
<b>Precautionary statement</b>		
<b>Prevention</b>	Wash thoroughly after handling. Wear eye/face protection.	
<b>Response</b>	If swallowed: Call a poison center/doctor if you feel unwell. Rinse mouth. 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.	
<b>Storage</b>	Not available.	
<b>Disposal</b>	Dispose of contents/container in accordance with local/regional/national/international regulations.	
<b>Hazard(s) not otherwise classified (HNOC)</b>	Not classified.	
<b>Other hazards which do not result in classification</b>	None known.	

## 3. Composition/information on ingredients

### Substance

Chemical name	Common name and synonyms	CAS number	%
4-Nitrobenzoic Acid	1-Carboxy-4-nitrobenzene P-Nitrobenzoic acid	62-23-7	100

## 4. First-aid measures

<b>Inhalation</b>	If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. Call a physician if symptoms develop or persist.
<b>Skin contact</b>	Rinse skin with water/shower. Get medical attention if irritation develops and persists.
<b>Eye contact</b>	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.
<b>Ingestion</b>	Rinse mouth. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Get medical advice/attention if you feel unwell.
<b>Most important symptoms/effects, acute and delayed</b>	Severe eye irritation.
<b>Indication of immediate medical attention and special treatment needed</b>	Provide general supportive measures and treat symptomatically.
<b>General information</b>	Remove from exposure. Remove contaminated clothing. For treatment advice, seek guidance from an occupational health physician or other licensed health-care provider familiar with workplace chemical exposures. In the United States, the national poison control center phone number is 1-800-222-1222. If person is not breathing, give artificial respiration. If breathing is difficult, give oxygen if available. Persons developing serious hypersensitivity (anaphylactic) reactions must receive immediate medical attention.

## 5. Fire-fighting measures

<b>Suitable extinguishing media</b>	Water. Foam. Dry chemical or CO2. Use fire-extinguishing media appropriate for surrounding materials.
<b>Unsuitable extinguishing media</b>	None known.
<b>Specific hazards arising from the chemical</b>	No unusual fire or explosion hazards noted.
<b>Special protective equipment and precautions for firefighters</b>	Wear suitable protective equipment.
<b>Fire-fighting equipment/instructions</b>	Use water spray to cool unopened containers. As with all fires, evacuate personnel to a safe area. Firefighters should use self-contained breathing equipment and protective clothing.
<b>Specific methods</b>	Use standard firefighting procedures and consider the hazards of other involved materials.

## 6. Accidental release measures

<b>Personal precautions, protective equipment and emergency procedures</b>	Keep unnecessary personnel away. Wear appropriate personal protective equipment. Avoid inhalation of dust from the spilled material. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. For personal protection, see section 8 of the SDS.
<b>Methods and materials for containment and cleaning up</b>	For waste disposal, see section 13 of the SDS. Avoid the generation of dusts during clean-up. Sweep up or vacuum up spillage and collect in suitable container for disposal. Clean surface thoroughly to remove residual contamination.

## 7. Handling and storage

<b>Precautions for safe handling</b>	As a general rule, when handling USP Reference Standards, avoid all contact and inhalation of dust, mists, and/or vapors associated with the material. Clean equipment and work surfaces with suitable detergent or solvent after use. After removing gloves, wash hands and other exposed skin thoroughly.
<b>Conditions for safe storage, including any incompatibilities</b>	Store in tight container as defined in the USP-NF. This material should be handled and stored per label instructions to ensure product integrity.

## 8. Exposure controls/personal protection

### Exposure limit values

#### Industrial Use Material

	Type	Value
4-Nitrobenzoic Acid (CAS 62-23-7)	TWA	2 mg/m3

**Biological limit values** No biological exposure limits noted for the ingredient(s).

<b>Appropriate engineering controls</b>	Airborne exposure should be controlled primarily by engineering controls such as general dilution ventilation, local exhaust ventilation, or process enclosure. Local exhaust ventilation is generally preferred to general exhaust because it can control the contaminant at its source, preventing dispersion into the work area. An industrial hygiene survey involving air monitoring may be used to determine the effectiveness of engineering controls. Effectiveness of engineering controls intended for use with highly potent materials should be assessed by use of nontoxic surrogate materials. Local exhaust ventilation such as a laboratory fume hood or other vented enclosure is recommended, particularly for grinding, crushing, weighing, or other dust-generating procedures.
<b>Individual protection measures, such as personal protective equipment</b>	
<b>Eye/face protection</b>	Safety glasses with sideshields are recommended. Face shields or goggles may be required if splash potential exists or if corrosive materials are present. Approved eye protection (e.g., bearing the ANSI Z87 or CSA stamp) is preferred. Maintain eyewash facilities in the work area.
<b>Skin protection</b>	
<b>Hand protection</b>	Chemically compatible gloves. For handling solutions, ensure that the glove material is protective against the solvent being used. Use handling practices that minimize direct hand contact. Employees who are sensitive to natural rubber (latex) should use nitrile or other synthetic nonlatex gloves. Use of powdered latex gloves should be avoided due to the risk of latex allergy.
<b>Other</b>	For handling of laboratory scale quantities, a cloth lab coat is recommended. Where significant quantities are handled, work clothing may be necessary to prevent take-home contamination.
<b>Respiratory protection</b>	Where respirators are deemed necessary to reduce or control occupational exposures, use NIOSH-approved respiratory protection and have an effective respirator program in place (applicable U.S. regulation OSHA 29 CFR 1910.134).
<b>General hygiene considerations</b>	Handle in accordance with good industrial hygiene and safety practice.

## 9. Physical and chemical properties

<b>Appearance</b>	White to light yellow crystalline powder.
<b>Physical state</b>	Solid.
<b>Form</b>	Powder.
<b>Odor</b>	Odorless.
<b>Odor threshold</b>	Not available.
<b>pH</b>	2.8
<b>Melting point/freezing point</b>	458.6 - 464 °F (237 - 240 °C)
<b>Initial boiling point and boiling range</b>	Not available.
<b>Flash point</b>	393.8 - 395.6 °F (201.0 - 202.0 °C) Closed Cup 458.6 °F (237.0 °C) Closed Cup
<b>Evaporation rate</b>	< 1 (Butyl acetate = 1)
<b>Flammability (solid, gas)</b>	Not applicable.
<b>Upper/lower flammability or explosive limits</b>	
<b>Flammability limit - lower (%)</b>	Not available.
<b>Flammability limit - upper (%)</b>	Not available.
<b>Explosive limit - lower (%)</b>	Not available.
<b>Explosive limit - upper (%)</b>	Not available.
<b>Vapor pressure</b>	0.0000003 kPa at 25 °C
<b>Vapor density</b>	Not available.
<b>Relative density</b>	Not available.
<b>Solubility in water</b>	Soluble in hot water.
<b>Auto-ignition temperature</b>	572 °F (300 °C)
<b>Decomposition temperature</b>	Not available.
<b>Viscosity</b>	Not available.
<b>Other information</b>	
<b>Molecular formula</b>	C7-H5-N-O4
<b>Molecular weight</b>	167.12 g/mol
<b>Percent volatile</b>	0 %
<b>Solubility (other)</b>	Soluble in alcohol and in methanol.
<b>Specific gravity</b>	1.61 at 20 °C
<b>VOC (Weight %)</b>	0 %

## 10. Stability and reactivity

<b>Reactivity</b>	None known.
<b>Chemical stability</b>	Material is stable under normal conditions.
<b>Possibility of hazardous reactions</b>	No dangerous reaction known under conditions of normal use.
<b>Conditions to avoid</b>	Contact with incompatible materials.
<b>Incompatible materials</b>	Strong oxidizing agents. Strong bases. Reducing agents. Cyanides. Potassium hydroxide.
<b>Hazardous decomposition products</b>	Irritating and/or toxic fumes or gases. Emits toxic fumes under fire conditions.

## 11. Toxicological information

### Information on likely routes of exposure

<b>Ingestion</b>	Harmful if swallowed.
<b>Inhalation</b>	Classification not possible.
<b>Skin contact</b>	Classification not possible.
<b>Eye contact</b>	Causes serious eye irritation.

**Symptoms related to the physical, chemical, and toxicological characteristics**      Gastrointestinal disturbances.

**Acute toxicity**      Harmful if swallowed.

<b>Product</b>	<b>Species</b>	<b>Test Results</b>
4-Nitrobenzoic Acid (CAS 62-23-7)		
<b>Acute</b>		
<b>Oral</b>		
LD50	Mouse	1470 mg/kg
	Rat	1960 mg/kg

**Skin corrosion/irritation**      Not classified.

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

### Local effects

Eye irritancy test  
Result: Slightly to moderately irritant.  
Species: Rabbit  
Skin irritancy test ((OECD 404)  
Result: Non-irritant.  
Species: Rabbit

### Respiratory or skin sensitization

**Respiratory sensitization**      Classification not possible.

**Skin sensitization**      Classification not possible.

**Germ cell mutagenicity**      Classification not possible.  
Data from germ cell mutagenicity tests were not found.

### Mutagenicity

B. subtilis recombinant assay  
Result: Positive.  
Chromosomal aberration assays in Chinese hamster ovary cells  
Result: Positive without activation; negative with activation.  
HGPRT assay  
Result: Negative.  
In vivo micronucleus assay in mouse peripheral erythrocytes  
Result: Negative.  
Mutagenicity in S. typhimurium  
Result: Mixed.  
Sister chromatid exchange assays in Chinese hamster ovary cells  
Result: Positive without activation; negative with activation.  
Unscheduled DNA synthesis assay in rat primary hepatocytes  
Result: Negative.

**Carcinogenicity**      Not classified.  
This material is not considered to be a carcinogen by IARC, NTP, or OSHA.

1 - 5000 ppm Carcinogenicity study, administered in feed.  
 Result: No evidence of carcinogenicity in males; some evidence of carcinogenicity in females.  
 Species: Rat  
 Test Duration: 2 years  
 1 - 5000 ppm carcinogenicity study, administered in feed.  
 Result: No evidence of carcinogenicity.  
 Species: Mouse  
 Test Duration: 2 years

**Reproductive toxicity** Classification not possible.

**Reproductivity**

0.35 - 1.5 % Reproductivity and development study, administered in feed.  
 Result: Adverse effects on fetal development and increased incidence of still births.  
 Species: Mouse

**Specific target organ toxicity - single exposure** Not classified.

**Specific target organ toxicity - repeated exposure** Not classified.

0 - 4900 mg/kg Toxicity study, administered in feed.  
 Result: No organ-specific toxicity noted.  
 Species: Mouse  
 Test Duration: 13 weeks  
 0 - 680 mg/kg Toxicity study, administered in feed.  
 Result: No organ-specific toxicity noted.  
 Species: Rat  
 Test Duration: 13 weeks

**Aspiration hazard** Not classified.

**12. Ecological information**

**Ecotoxicity**

Product	Species	Test Results
4-Nitrobenzoic Acid (CAS 62-23-7)		
<b>Aquatic</b>		
<i>Acute</i>		
Crustacea	EC50	Daphnia magna > 50 mg/l, 48 hours
Fish	LC50	Fathead minnow (Pimephales promelas) > 500 mg/l, 96 hours Zebra danio (Danio rerio) > 500 mg/l, 96 hours static

**Persistence and degradability** Not available.

**Bioaccumulative potential** Not available.

**Mobility in soil** Not available.

**Other adverse effects** Not available.

**13. Disposal considerations**

**Disposal instructions** Dispose in accordance with all applicable regulations. Under RCRA, it is the responsibility of the user of the product to determine, at the time of disposal, whether the product meets RCRA criteria for hazardous waste.

**Local disposal regulations** Dispose in accordance with all applicable regulations.

**Hazardous waste code** The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

**Waste from residues / unused products** Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

**Contaminated packaging** Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

**14. Transport information**

**DOT**

Not regulated as dangerous goods.

**IATA**

Not regulated as dangerous goods.

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** Not available.

**General information** It is the shipper's responsibility to determine the correct transport classification at the time of shipment.

## 15. Regulatory information

**US federal regulations** This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.  
All components are on the U.S. EPA TSCA Inventory List.

### Superfund Amendments and Reauthorization Act of 1986 (SARA)

**Hazard categories** Immediate Hazard - Yes  
Delayed Hazard - No  
Fire Hazard - No  
Pressure Hazard - No  
Reactivity Hazard - No

#### SARA 302 Extremely hazardous substance

Not listed.

**SARA 311/312 Hazardous chemical** Yes

**SARA 313 (TRI reporting)**  
Not regulated.

### Other federal regulations

**Safe Drinking Water Act (SDWA)** Not regulated.

**Food and Drug Administration (FDA)** Not regulated.

### US state regulations

#### US. California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

### International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

\*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

## 16. Other information, including date of preparation or last revision

**Issue date** 10-27-2015

**Revision date** 11-25-2015

**Version #** 02

**Further information** Not available.

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**Revision Information**

This document has undergone significant changes and should be reviewed in its entirety.