

1. Identification

Product identifier	Acetaminophen Related Compound F	
Other means of identification		
Catalog number	1003064	
Chemical name	4-Nitrophenol	
Synonym(s)	4-Hydroxynitrobenzene * p-nitrophenol	
Recommended use	Specified quality tests and assay use only.	
Recommended restrictions	Not for use as a drug. Not for administration to humans or animals.	
Manufacturer/Importer/Supplier/Distributor information		
Company name	U. S. Pharmacopeia	
Address	12601 Twinbrook Parkway Rockville MD 20852-1790 US	
Telephone	RS Technical Services	301-816-8129
Website	www.usp.org	
E-mail	RSTECH@usp.org	
Emergency phone number	CHEMTREC within US & Canada	1-800-424-9300
	CHEMTREC outside US & Canada	+1 703-527-3887

2. Hazard(s) identification

Physical hazards	Not classified.	
Health hazards	Acute toxicity, oral	Category 3
	Acute toxicity, dermal	Category 4
	Acute toxicity, inhalation	Category 4
	Serious eye damage/eye irritation	Category 2A
	Sensitization, skin	Category 1B
	Specific target organ toxicity, repeated exposure	Category 2 (kidney, blood, liver)
OSHA hazard(s)	Not classified.	
Label elements		



Signal word	Danger
Hazard statement	Toxic if swallowed. Harmful in contact with skin. May cause an allergic skin reaction. Causes serious eye irritation. Harmful if inhaled. May cause damage to organs (kidney, blood, liver) through prolonged or repeated exposure.
Precautionary statement	
Prevention	Use only outdoors or in a well-ventilated area. Do not breathe dust. Wash thoroughly after handling. Contaminated work clothing must not be allowed out of the workplace. Wear protective gloves/protective clothing. Wear eye/face protection.
Response	If swallowed: Immediately call a poison center/doctor. Rinse mouth. If on skin: Wash with plenty of water. Call a poison center/doctor if you feel unwell. If skin irritation or rash occurs: Get medical advice/attention. Take off contaminated clothing and wash before reuse. 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. If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor// if you feel unwell.
Storage	Store locked up.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC)

Not classified.

3. Composition/information on ingredients

Substance

Hazardous components

Chemical name	Common name and synonyms	CAS number	%
Acetaminophen Related Compound F	4-Hydroxynitrobenzene p-nitrophenol	100-02-7	100

4. First-aid measures

Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a POISON CENTER or doctor/physician if you feel unwell.
Skin contact	Wash off with soap and plenty of water. For minor skin contact, avoid spreading material on unaffected skin. Call a POISON CENTER or doctor/physician if you feel unwell. If skin irritation or rash occurs: Get medical advice/attention.
Eye contact	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.
Ingestion	Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting without advice from poison control center. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.
Most important symptoms/effects, acute and delayed	Irritation of eyes and mucous membranes. May cause allergic skin reaction. Methemoglobinemia.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically.
General information	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

Suitable extinguishing media	Water spray, dry chemical, carbon dioxide, or foam as appropriate for surrounding fire and materials.
Unsuitable extinguishing media	None known.
Specific hazards arising from the chemical	No unusual fire or explosion hazards noted.
Special protective equipment and precautions for firefighters	Wear suitable protective equipment.
Fire-fighting equipment/instructions	As with all fires, evacuate personnel to a safe area. Firefighters should use self-contained breathing equipment and protective clothing.
Specific methods	Cool containers exposed to flames with water until well after the fire is out.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Avoid inhalation of dust from the spilled material. Ensure adequate ventilation. Wear appropriate personal protective equipment.
Methods and materials for containment and cleaning up	Sweep up or vacuum up spillage and collect in suitable container for disposal. Avoid the generation of dusts during clean-up. For waste disposal, see section 13 of the SDS. Wash spill site.

7. Handling and storage

Precautions for safe handling	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. Use of a designated area is recommended for handling of potent materials.
Conditions for safe storage, including any incompatibilities	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

Biological limit values	No biological exposure limits noted for the ingredient(s).
Exposure guidelines	No exposure standards allocated.
Appropriate engineering controls	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.
Individual protection measures, such as personal protective equipment	
Eye/face protection	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.
Skin protection	
Hand protection	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.
Other	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.
Respiratory protection	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).
Thermal hazards	Not available.
General hygiene considerations	Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Appearance	White or slightly yellow crystalline powder.
Physical state	Solid.
Form	Powder.
Odor	Odorless.
Odor threshold	Not available.
pH	Not available.
Melting point/freezing point	228.2 - 237.2 °F (109 - 114 °C)
Initial boiling point and boiling range	534.2 °F (279 °C)
Flash point	336.20 °F (169.00 °C) Closed Cup 377.60 °F (192.00 °C)
Evaporation rate	Not available.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	0.0000055 kPa at 20 °C 0.000013 kPa at 20 °C
Vapor density	Not available.
Relative density	Not available.
Solubility in water	12.4 - 15 g/l Moderately soluble.
Partition coefficient (n-octanol/water)	1.9
Auto-ignition temperature	914 °F (490 °C)
Viscosity	Not available.

Other information

Chemical family	Phenol; nitrated benzene.
Molecular formula	C6H5NO3
Molecular weight	139.11
Solubility (other)	Freely soluble in alcohol, in chloroform, in ether, and in dimethylsulfoxide; soluble in acetone and in toluene.
Specific gravity	1.27 at 20 °C 1.48 at 20 °C

10. Stability and reactivity

Reactivity	No reactivity hazards known.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	None known.
Incompatible materials	Alkaline metals. Strong oxidizing agents. Reducing agents. Strong bases.
Hazardous decomposition products	NOx. Irritating and/or toxic fumes or gases. Emits toxic fumes under fire conditions.

11. Toxicological information

Information on likely routes of exposure

Ingestion	Toxic if swallowed.
Inhalation	Harmful if inhaled.
Skin contact	Harmful in contact with skin. May cause an allergic skin reaction.
Eye contact	Causes serious eye irritation.

Symptoms related to the physical, chemical, and toxicological characteristics Blue or pale lips, fingernails, and skin. Loss of consciousness. Burning or tingling sensations. Sore throat. Headache. Confusion. Irritability. Drowsiness. Dizziness. Weakness. Convulsions. Nausea. Vomiting. Abdominal pain.

Delayed and immediate effects of exposure Methemoglobinemia. Kidney toxicity.

Acute toxicity Toxic if swallowed. Harmful if inhaled. Harmful in contact with skin.

Product	Species	Test Results
Acetaminophen Related Compound F (CAS 100-02-7)		
Acute		
<i>Dermal</i>		
LD50	Rat	1024 mg/kg
<i>Oral</i>		
LD50	Mouse	380 mg/kg
		282 - 470 mg/kg
	Rat	202 - 620 mg/kg

Skin corrosion/irritation Based on available data, the classification criteria are not met.

Serious eye damage/eye irritation Causes serious eye irritation.

Local effects

Eye irritancy test comparable to OECD 405
Result: Slightly irritating
Species: Rabbit
Eye irritancy tests conducted according to FDA guidelines
Result: Slightly irritating (10% solution); Strongly irritating (non-dissolved)
Skin irritancy test comparable to OECD 404
Result: No irritation
Skin irritancy tests conducted according to FDA guidelines
Result: Slightly irritating

Respiratory sensitization Due to lack of data the classification is not possible.

Skin sensitization May cause an allergic skin reaction.

Sensitization

Guinea pig maximization test
 Result: Slightly sensitizing
 Organ: Skin
 Human patch tests
 Result: Sensitizing
 Organ: Skin

Germ cell mutagenicity Based on available data, the classification criteria are not met.

Mutagenicity

Ames test in Salmonella typhimurium, with and without activation
 Result: Negative
 HGPR T mutation assay in Chinese hamster ovary cells
 Result: Negative
 In vitro chromosome aberration assay in Chinese hamster ovary cells
 Result: Negative (without activation); positive (with activation)
 Sex-linked recessive lethal mutation assay in Drosophila
 Result: Negative
 Sister chromatid exchange assay in Chinese hamster ovary cells
 Result: Negative

Carcinogenicity Based on available data, the classification criteria are not met.
 This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

0 - 160 mg/kg Long-term study, dermal administration
 Result: Negative
 Species: Mouse
 Test Duration: 78 weeks

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

Reproductivity

250 mg/kg/day Two-generation reproductivity and development study
 Result: No indication of significant adverse effects.
 Species: Rat
 400 mg/kg/day Reproductivity and development study, oral administration during gestation
 Result: Maternal toxicity; no toxic effects on the offspring.
 Species: Mouse

Specific target organ toxicity - single exposure Based on available data, the classification criteria are not met.

Specific target organ toxicity - repeated exposure May cause damage to organs (kidney, blood, liver) through prolonged or repeated exposure.

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

12. Ecological information**Ecotoxicity**

Product	Species	Test Results
Acetaminophen Related Compound F (CAS 100-02-7)		
Aquatic		
Crustacea	EC50	Water flea (Daphnia magna) 3.1 - 7.1 mg/l, 48 hours
Fish	LC50	Fathead minnow (Pimephales promelas) 30.4 mg/l, 96 hours
		Rainbow trout, donaldson trout (Oncorhynchus mykiss) 3.8 mg/l, 96 hours
		Zebra danio (Danio rerio) 14 mg/l, 48 hours

Persistence and degradability No data is available on the degradability of this product.

Bioaccumulative potential Not available.

Mobility in soil Not available.

Other adverse effects Not available.

13. Disposal considerations

Disposal instructions	Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. This product, in its present state, when discarded or disposed of, is not a hazardous waste according to Federal regulations (40 CFR 261.4 (b)(4)). 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. Dispose of contents/container in accordance with local/regional/national/international regulations.
Local disposal regulations	Not available.
Hazardous waste code	U170: Waste p-Nitrophenol
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	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

UN number	UN1663
UN proper shipping name	Nitrophenols
Transport hazard class(es)	6.1
Subsidiary class(es)	Not available.
Packing group	III

IATA

UN number	UN1663
UN proper shipping name	Nitrophenols
Transport hazard class(es)	6.1
Subsidiary class(es)	-
Packaging group	III

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code No information available.

DOT; IATA



15. Regulatory information

US federal regulations 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 - Yes Fire Hazard - No Pressure Hazard - No Reactivity Hazard - No
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SARA 302 Extremely hazardous substance No

SARA 311/312 Hazardous chemical Yes

Other federal regulations

Clean Water Act (CWA) Section 112(r) (40 CFR 68.130) Hazardous substance
Priority pollutant
Toxic pollutant

Safe Drinking Water Act (SDWA) Not regulated.

Food and Drug Administration (FDA) Not regulated.

US state regulations

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)

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

Issue date 02-18-2013

Revision date 07-20-2015

Version # 02

Further information Not available.

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Revision Information

Hazard(s) identification: <INDENT>Response
Hazard(s) identification: <INDENT>Prevention
First-aid measures: General information
Physical & Chemical Properties: Multiple Properties
Stability and reactivity: Hazardous decomposition products
Toxicological information: Sensitization
Toxicological information: Symptoms related to the physical, chemical, and toxicological characteristics
Toxicological information: Delayed and immediate effects of exposure
Disposal considerations: Hazardous waste code
Regulatory Information: United States