PICRIC ACID

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME
PICRIC ACID

OTHER NAMES

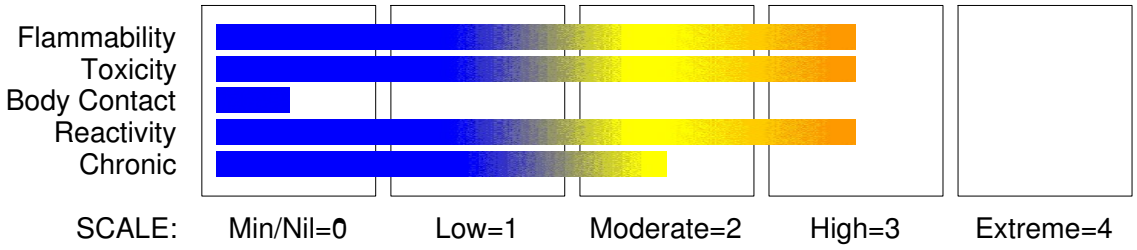
C6-H3-N3-O7, HOC6H2(NO2)3, "carbazotic acid", "C.I. 10305", "2-hydroxy-1, 3, 5 -trinitrobenzene", "2-hydroxy-1, 3, 5-trinitrobenzene", melinite, "nitroxanthic acid", "phenol trinitrate", "picronitric acid", "bitter acid", "2, 4, 6-trinitrophenol", "2, 4, 6-trinitrophenol", "phenol- 2, 4, 6-trinitro-", "phenol- 2, 4, 6-trinitro-", "1, 3, 5 -trinitrophenol"

PROPER SHIPPING NAME
TRINITROPHENOL, WETTED with not less than 30% water, by mass
TRINITROPHENOL, WETTED

PRODUCT USE
Used as a laboratory reagent. Other uses include explosives, matches; in the leather industry; electric batteries; etching copper; manufacture of coloured glass; textile mordant.

SUPPLIER
Company: S D FINE- CHEM LIMITED
Address:
315- 317, T.V. INDUSTRIAL ESTATE,
248, WORLI,
MUMBAI- 400030.INDIA.
technical@sdfine.com
Telephone: 91- 22- 24959898
Telephone: 91- 22- 24959899
Fax: 91- 22- 24937232

HAZARD RATINGS



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Section 2 - HAZARDS IDENTIFICATION

GHS Classification

Acute Aquatic Hazard Category 2
Acute Toxicity (Dermal) Category 3
Acute Toxicity (Inhalation) Category 3
Acute Toxicity (Oral) Category 3
Flammable Solid Category 1
Skin Sensitizer Category 1

EMERGENCY OVERVIEW

HAZARD

DANGER
Determined by using GHS criteria:
H228 H331 H311 H301 H317 H401
Flammable solid
Solid desensitised explosives: high hazard
Toxic if inhaled
Toxic in contact with skin
Toxic if swallowed
May cause allergic skin reaction
Toxic to aquatic life

PRECAUTIONARY STATEMENTS

Prevention

Do not breathe dust/fume/gas/mist/vapours/spray.
Wear protective gloves/clothing
Wash hands thoroughly after handling.
Use only outdoors or in a well ventilated area.
Contaminated clothing should not be allowed out of the workplace.
Avoid breathing dust/fume/gas/mist/vapours/spray.
Do not eat, drink or smoke when using this product.
Use explosion-proof electrical/ventilating/lighting/equipment
Wear protective gloves and eye/face protection.
Keep away from heat/sparks/open flame - No smoking.
Ground/bond container and receiving equipment.

Response

Immediately call a POISON CENTER or doctor/physician.
Wash contaminated clothing before reuse.
If skin irritation or rash occurs, seek medical advice/attention.
IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.
Keep container tightly closed.
IF ON SKIN: Gently wash with plenty of soap and water.
Call a POISON CENTER or doctor/physician if you feel unwell.

continued...

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
Specific treatment: refer to Label or MSDS.
Wash/Decontaminate removed clothing before reuse.
In case of fire, use foam for extinction.
Remove/Take off immediately all contaminated clothing

Storage

Store locked up.

Disposal

Dispose of contents and container in accordance with relevant legislation.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
picric acid	88-89-1	>98
(containing not less than 30% water: for safety)		

Section 4 - FIRST AID MEASURES

SWALLOWED

For advice, contact a Poisons Information Centre or a doctor.
· IF SWALLOWED, REFER FOR MEDICAL ATTENTION, WHERE POSSIBLE, WITHOUT DELAY.
· For advice, contact a Poisons Information Centre or a doctor.
Where Medical attention is not immediately available or where the patient is more than 15 minutes from a hospital or unless instructed otherwise:
· Induce vomiting with fingers down the back of the of the throat, ONLY IF CONSCIOUS.
· Lean patient forward or place on left side (head-down position if possible) to maintain open airway and prevent aspiration.
NOTE: Wear a protective glove when inducing vomiting by mechanical means.
· In the mean time, qualified first-aid personnel should treat the patient following observation and employing supportive measures as indicated by the patient's condition.
· If the services of a medical officer or medical doctor are readily available, the patient should be placed in his/her care and a copy of the MSDS should be provided. Further action will be the responsibility of the medical specialist.
· If medical attention is not available on the worksite or surroundings send the patient to a hospital together with a copy of the MSDS.

EYE

If this product comes in contact with the eyes:
· Immediately hold eyelids apart and flush the eye continuously with running water.
· Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
· Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.
· Transport to hospital or doctor without delay.
· Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

SKIN

If skin contact occurs:
· Immediately remove all contaminated clothing, including footwear.
· Flush skin and hair with running water (and soap if available).
· Seek medical attention in event of irritation.

continued...

INHALED

· If fumes or combustion products are inhaled remove from contaminated area.
· Lay patient down. Keep warm and rested.
· Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
· Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.
· Transport to hospital, or doctor, without delay.

NOTES TO PHYSICIAN

Symptoms of vasodilation and reflex tachycardia may present following organic nitrate overdose; most organic nitrates are extensively metabolised by hydrolysis to inorganic nitrites. Organic nitrates and nitrites are readily absorbed through the skin, lungs, mucosa and gastro-intestinal tract.
The toxicity of nitrates and nitrites result from their vasodilating properties and their propensity to form methaemoglobin.
· Most produce a peak effect within 30 minutes.
· Clinical signs of cyanosis appear before other symptoms because of the dark pigmentation of methaemoglobin.
· Initial attention should be directed towards improving oxygen delivery, with assisted ventilation, if necessary. Hyperbaric oxygen has not demonstrated conclusive benefits.
· Institute cardiac monitoring, especially in patients with coronary artery or pulmonary disease.
· Hypotension should respond to Trendelenburg's position and intravenous fluids; otherwise dopamine may be needed.
· Naloxone, glucose and thiamine should be given if a multiple ingestion is suspected.
· Decontaminate using Ipecac Syrup for alert patients or lavage for obtunded patients who present within 2-4 hours of ingestion.
· Symptomatic patients with methaemoglobin levels over 30% should receive methylene blue.(Cyanosis alone, is not an indication for treatment). The usual dose is 1-2 mg/kg of a 1% solution (10 mg/ml) IV over 5 minutes; repeat, using the same dose if symptoms of hypoxia fail to subside within 1 hour.
[Ellenhorn and Barceloux: Medical Toxicology]
BIOLOGICAL EXPOSURE INDEX - BEI
These represent the determinants observed in specimens collected from a healthy worker who has been exposed at the Exposure Standard (ES or TLV):

Determinant	Index	Sampling Time	Comments
1. Methaemoglobin in blood	1.5% of haemoglobin	During or end of shift	B, NS, SQ

B: Background levels occur in specimens collected from subjects NOT exposed
NS: Non-specific determinant;also observed after exposure to other materials
SQ: Semi-quantitative determinant - Interpretation may be ambiguous; should be used as a screening test or confirmatory test.

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

· DANGER: Deliver media remotely.
· Water spray or fog.
· Flooding quantities only.

FIRE FIGHTING

Alert Fire Brigade and tell them location and nature of hazard.
· May be violently or explosively reactive.

continued...

· Wear full body protective clothing with breathing apparatus.
· Prevent, by any means available, spillage from entering drains or water course.
· Consider evacuation (or protect in place).
Fight fire from a safe distance, with adequate cover.
Cool fire exposed containers with water spray from a protected location.
DO NOT approach containers suspected to be hot.
If safe to do so, remove containers from path of fire.
Equipment should be thoroughly decontaminated after use.

FIRE/EXPLOSION HAZARD
WARNING: EXPLOSION HAZARD!
· Combustible.
· Detonation may occur from heavy impact or excessive heating.
· Mixing with incompatible chemicals may cause expansion, decomposition or detonation.
· Heat affected containers remain hazardous.
· Explosives can supply own oxygen for combustion and smothering action of foam or dry chemical may be ineffective.
· Combustion or decomposition produces oxides of nitrogen (NOx), carbon monoxide (CO) and carbon dioxide (CO_2).
Avoid reaction with oxidising agents, bases and strong reducing agents.
Explosive when dry.

Personal Protective Equipment
Breathing apparatus.
Gas tight chemical resistant suit.
Limit exposure duration to 1 BA set 30 mins.

Section 6 - ACCIDENTAL RELEASE MEASURES

EMERGENCY PROCEDURES

MINOR SPILLS
· Remove all ignition sources.
· Clean up all spills immediately.
· Avoid breathing vapours and contact with skin and eyes.
· Control personal contact by using protective equipment.
· Contain and absorb small quantities with vermiculite or other absorbent material.
· Wipe up.
· Collect residues in a flammable waste container.

MAJOR SPILLS
Clear area of personnel.
Alert Fire Brigade and tell them location and nature of hazard.
· May be violently or explosively reactive.
· Wear breathing apparatus plus protective gloves.
· Prevent, by any means available, spillage from entering drains or water courses.
· Consider evacuation (or protect in place).
Shut off all possible sources of ignition and increase ventilation.
No smoking or naked lights within area.
Contain spill with sand, earth or vermiculite.
DO NOT allow to dry.
Use extreme caution to avoid a violent reaction.
Collect, using a spark-free shovel, and seal in labelled drums for disposal.
Dilute with water.
After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using.
If contamination of drains or waterways occurs, advise emergency services.

continued...

EMERGENCY RESPONSE PLANNING GUIDELINES (ERPG)

The maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour WITHOUT experiencing or developing

life-threatening health effects is:
picric acid 75 mg/m³

irreversible or other serious effects or symptoms which could impair an individual's ability to take protective action is:
picric acid 0.5 mg/m³

other than mild, transient adverse effects without perceiving a clearly defined odour is:
picric acid 0.3 mg/m³

The threshold concentration below which most people will experience no appreciable risk of health effects:
picric acid 0.1 mg/m³

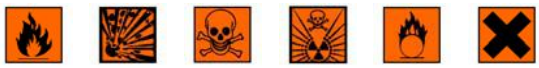
American Industrial Hygiene Association (AIHA)

Ingredients considered according to the following cutoffs

Very Toxic (T+)	>= 0.1%	Toxic (T)	>= 3.0%
R50	>= 0.25%	Corrosive (C)	>= 5.0%
R51	>= 2.5%		
else	>= 10%		

where percentage is percentage of ingredient found in the mixture

SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS



X	X	+	X	X	+

+: May be stored together
O: May be stored together with specific preventions
X: Must not be stored together

Personal Protective Equipment advice is contained in Section 8 of the MSDS.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

Use good occupational work practice. Observe manufacturer's storing and handling recommendations.
Avoid breathing vapours and contact with skin and eyes.
Avoid smoking, naked lights or ignition sources.
Avoid shock and friction.
Use spark-free tools when handling.
Use in a well-ventilated area.
Avoid contact with incompatible materials.
When handling, DO NOT eat, drink or smoke.
Keep containers securely sealed when not in use.
Avoid physical damage to containers.
Always wash hands with soap and water after handling. Work clothes should be laundered separately.

continued...

Launder contaminated clothing before re-use.

SUITABLE CONTAINER

Packaging as recommended by manufacturer.
· Check that containers are clearly labelled.
Polyethylene or polypropylene container.
Store in a dark glass or other suitable light resistant container.

STORAGE INCOMPATIBILITY

Polynitro derivatives of mono- and poly- cyclic systems are often explosives liable to detonate on grinding or impact. The presence of two or more nitro groups (each with 2 oxygen atoms) on an aromatic nucleus often increase the reactivity of other substituents and the tendency towards explosive instability as oxygen balance is approached. In view of the reports of previous violent or explosive reactions, heating of polynitroaryl (particularly di- and tri-nitroaryl) compounds with alkalies, ammonia, or O-ethylsulfuric acid salts, in autoclaves should be avoided. Nitroaromatic and in particular polynitroaromatic compounds may present a severe explosion risk if subjected to shock or heated rapidly and uncontrollably as in fire situations. In addition, when such compounds are heated more moderately with caustic alkalies, even when water or organic solvents are present, there is also a risk of violent decomposition or explosion. Several industrial accidents, which probably were due to such interactions, have occurred; this potential hazard often remains unacknowledged.
A range of exothermic decomposition energies for nitro compounds is given as 220-410 kJ/mol. The relationship between energy of decomposition and processing hazards has been the subject of discussion; it is suggested that values of energy released per unit of mass, rather than on a molar basis (J/g) be used in the assessment. For example, in "open vessel processes" (with man-hole size openings, in an industrial setting), substances with exothermic decomposition energies below 500 J/g are unlikely to present a danger, whilst those in "closed vessel processes" (opening is a safety valve or bursting disk) present some danger where the decomposition energy exceeds 150 J/g.
BRETHERICK: Handbook of Reactive Chemical Hazards, 4th Edition
.
Avoid storage with metals, metal salts, ammonia, lime and oxidisers.
Do not store on uncoated concrete.

STORAGE REQUIREMENTS

Observe manufacturer's storing and handling recommendations.
Store in original containers.
Keep containers securely sealed.
Store away from sources of heat or ignition / naked lights.
Store in a cool, dry and well-ventilated area.
Store away from incompatible materials.
DO NOT use unlined steel containers.
Protect containers against physical damage.
Check regularly for spills and leaks.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

The following materials had no OELs on our records

- picric acid: CAS:88- 89- 1 CAS:857370- 42- 4 CAS:856993- 13- 0 CAS:856615- 63- 9 CAS:190402- 10- 9 CAS:189195- 39- 9 CAS:29663- 11- 4

continued...

EMERGENCY EXPOSURE LIMITS

Material	Revised IDLH Value (mg/m3)	Revised IDLH Value (ppm)
picric acid	75	

MATERIAL DATA

The TLV-TWA is thought to be protective against the development of systemic toxicity but may not, however, prevent the development of dermatitis or sensitisation in some workers exposed at the 8-hour TWA. An earlier skin notation has been deleted since available data does not substantiate the ability of picric acid to penetrate intact skin.

PERSONAL PROTECTION




EYE

· Chemical goggles.
· Full face shield may be required for supplementary but never for primary protection of eyes
· Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59].

HANDS/FEET

Neoprene gloves.
Butyl rubber gloves.
PVC gloves.
Protective footwear.

OTHER

· Eyewash unit.
· Barrier cream.
· Impervious protective clothing.
Ensure there is ready access to a safety shower.

GLOVE SELECTION INDEX

Glove selection is based on a modified presentation of the:
" Forsberg Clothing Performance Index" .
The effect(s) of the following substance(s) are taken into account in the computer- generated selection: picric acid

Protective Material.

NEOPRENE	B
NITRILE	B

continued...

PVC	C
NATURAL RUBBER	C

A: Best Selection
B: Satisfactory; may degrade after 4 hours continuous immersion
C: Poor to Dangerous Choice for other than short term immersion
NOTE: As a series of factors will influence the actual performance of the glove, a final selection must be based on detailed observation. -
* Where the glove is to be used on a short term, casual or infrequent basis, factors such as "feel" or convenience (e.g. disposability), may dictate a choice of gloves which might otherwise be unsuitable following long-term or frequent use. A qualified practitioner should be consulted.

RESPIRATOR

Protection Factor	Half- Face Respirator	Full- Face Respirator	Powered Air Respirator
10 x ES	AB P1 Air- line*	- -	AB PAPR- P1 -
50 x ES	Air- line**	AB P2	AB PAPR- P2
100 x ES	-	AB P3	-
		Air- line*	-
100+ x ES	-	Air- line**	AB PAPR- P3

* - Negative pressure demand ** - Continuous flow.

The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required.
For further information consult your Occupational Health and Safety Advisor.

ENGINEERING CONTROLS

General exhaust is adequate under normal operating conditions. If risk of overexposure exists, wear SAA approved respirator. Correct fit is essential to obtain adequate protection. Provide adequate ventilation in warehouse or closed storage areas. Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.

Type of Contaminant:	Air Speed:
solvent, vapours, degreasing etc., evaporating from tank (in still air)	0.25- 0.5 m/s (50- 100 f/min)
aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation)	0.5- 1 m/s (100- 200 f/min.)
direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)	1- 2.5 m/s (200- 500 f/min)
grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).	2.5- 10 m/s (500- 2000 f/min.)

Within each range the appropriate value depends on:

Lower end of the range	Upper end of the range
1: Room air currents minimal or favourable to	1: Disturbing room air currents

continued...

capture

2: Contaminants of low toxicity or of nuisance value only
3: Intermittent, low production.
4: Large hood or large air mass in motion

2: Contaminants of high toxicity
3: High production, heavy use
4: Small hood - local control only

Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 1-2 m/s (200-400 f/min.) for extraction of solvents generated in a tank 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

Yellow crystals with a very bitter taste supplied in water as paste.
Becomes Explosive when dry. Soluble in alcohol, ether, acetone, benzene, acetic acid.

PHYSICAL PROPERTIES

Liquid.
Does not mix with water.
Sinks in water.
Toxic or noxious vapours/gas.

Molecular Weight: 229.11 anhydrous
Melting Range (°C): 122- 3 C (anh.)
Solubility in water (g/L): Immiscible
pH (1% solution): Not applicable
Volatile Component (%vol): Not available
Relative Vapour Density (air=1): 7.91 (anh.)
Lower Explosive Limit (%): Not available
Autoignition Temp (°C): 300 (explodes)
State: Non slump paste

Boiling Range (°C): explodes > 300C
Specific Gravity (water=1): 1.76 (anh.)
pH (as supplied): Not applicable
Vapour Pressure (kPa): < 0.26 @ 195C
Evaporation Rate: Not available
Flash Point (°C): 150
Upper Explosive Limit (%): Not available
Decomposition Temp (°C): Not available
Viscosity: Not available

log Kow: 2.03

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

CONDITIONS CONTRIBUTING TO INSTABILITY

· Presence of shock and friction.
Presence of heat source and ignition source.
Presence of incompatible materials.
Stable under normal storage conditions.
Hazardous polymerisation will not occur.

continued...

Section 11 - TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED
Toxic effects may result from the accidental ingestion of the material; animal experiments indicate that ingestion of less than 40 gram may be fatal or may produce serious damage to the health of the individual.

EYE
Although the material is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may produce transient discomfort characterised by tearing or conjunctival redness (as with windburn).

SKIN
Skin contact with the material may produce toxic effects; systemic effects may result following absorption.
The material is not thought to be a skin irritant (i.e. is unlikely to produce irritant dermatitis as described in EC Directives using animal models). Temporary discomfort, however, may result from prolonged dermal exposures. Good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting.
Sensitisation may result in allergic dermatitis responses including rash, itching, hives or swelling of extremities.
Open cuts, abraded or irritated skin should not be exposed to this material.
The material may accentuate any pre-existing skin condition.
Toxic effects may result from skin absorption.

INHALED
The material is not thought to produce respiratory irritation (as classified by EC Directives using animal models). Nevertheless inhalation, of the material, especially for prolonged periods, may produce respiratory discomfort and occasionally, distress.

CHRONIC HEALTH EFFECTS
There exists limited evidence that shows that skin contact with the material is capable either of inducing a sensitisation reaction in a significant number of individuals, and/or of producing positive response in experimental animals.
Principal routes of exposure are by accidental skin and eye contact and inhalation of generated dusts.
The material may accumulate in the human body and progressively cause tissue damage.
As with any chemical product, contact with unprotected bare skin; inhalation of vapour, mist or dust in work place atmosphere; or ingestion in any form, should be avoided by observing good occupational work practice.

TOXICITY AND IRRITATION

TOXICITY	IRRITATION
Oral (rat) LD50: 200 mg/kg	Nil Reported
Intraperitoneal (mouse) LD50: 56.3 mg/kg	
Oral (rabbit) LDLo: 120 mg/kg	
Oral (cat) LDLo: 250 mg/kg	

continued...

Section 12 - ECOLOGICAL INFORMATION

Fish LC50 (96hr.) (mg/l):	30
Daphnia magna EC50 (48hr.) (mg/l):	88
log Pow (Verschueren 1983):	2.03
COD:	0.92
ThOD:	0.98
Half- life Soil - High (hours):	4320
Half- life Soil - Low (hours):	672
Half- life Air - High (hours):	4320
Half- life Air - Low (hours):	672
Half- life Surface water - High (hours):	4320
Half- life Surface water - Low (hours):	672
Half- life Ground water - High (hours):	8640
Half- life Ground water - Low (hours):	48
Aqueous biodegradation - Aerobic - High (hours):	4320
Aqueous biodegradation - Aerobic - Low (hours):	672
Aqueous biodegradation - Anaerobic - High (hours):	300
Aqueous biodegradation - Anaerobic - Low (hours):	48
Aqueous photolysis half- life - High (hours):	360
Photooxidation half- life air - High (hours):	4320
Photooxidation half- life air - Low (hours):	677

The nitrates are of environmental concern because of their high water solubility and consequent leaching, diffusion, and environmental mobility in soil and water. Nitrate can contaminate groundwater to unacceptable levels. Nitrite is formed from nitrate or ammonium ion by micro-organisms in soil, water, sewage and the alimentary tract. The concern with nitrate in the environment is related to its conversion to nitrite.

Methaemoglobinaemia is caused following exposure to high levels of nitrite and produces difficulties in oxygen transport in the blood. Thousands of cases involving poisoning of infants, particularly in rural areas, have been reported as a result of drinking nitrate rich well-water.

Other concerns deriving from exposure to environmental nitrates relate to the production of nitrosamines following the reaction of food nitrites and secondary amines. Other nitroso-compounds may result following reaction with nitrites and amides, ureas, carbamates and other nitrogenous compounds. Nitrosamines produce liver damage, haemorrhagic lung lesions, convulsions and coma in rats, and teratogenic effects in experimental animals.

The N-nitroso class of compounds include potent carcinogens and mutagens: induction of tumors by single doses of N-nitroso compounds testify to this.
log Kow: 2.03
COD: 0.92
ThOD: 0.98

Section 13 - DISPOSAL CONSIDERATIONS

Recycle wherever possible.
Consult manufacturer for recycling options.
Consult State Land Waste Management Authority for disposal.
Incinerate residue at an approved site.
Recycle containers if possible, or dispose of in an authorised landfill.

WASTE DISPOSAL PROCEDURES

continued...

• Collect and package recoverable quantities of picric acid, and place in a labelled container for incineration. Dissolve the acid in a combustible solvent and spray into a furnace equipped with an afterburner and scrubber. Wear nitrile
rubber gloves, protective clothing, and eye protection to control personal contact from picric acid. Work in a well ventilated area and behind a shatter-proof screen. Place 1g of the picric acid in a three necked flask. Use 10mL of water to rinse away acid left over on the glassware or equipment into the flask.
Add 4g of tin and stir the mixture. Whilst cooling the flask, dropwise add 15mL of concentrated hydrochloric acid through a dropping funnel. Once all of the hydrochloric acid has been added, allow the mixture to warm to room temperature and heat under reflux for one hour. Filter the unreacted tin. Wash the precipitate with about 10mL of 2M hydrochloric acid. Neutralise the filtrate with 10% sodium hydroxide solution and refilter. Treat the tin chloride as normal refuse. Package and label the solution containing, 2, 4, 6-triaminophenol and which oxidises rapidly to a black solution. Incinerate the solution. Alternatively, add 150mL if 3M sulfuric acid containing 12g of potassium permanganate. Stir the mixture at room temperature for 24 hours. Add solid sodium bisulfite until the solution is clear. Neutralise with 10% sodium hydroxide solution and empty the liquid portion into the drain with water. Do not handle or touch dry picric acid. Contact disposal authorities, to decompose the dry picric acid by controlled detonation. For dilute aqueous solutions of picric acid, acidify the 100mL of the solution with 2mL of concentrated hydrochloric acid, to a pH of 2. Add 1g of granular tin, and allow the mixture to stand at room temperature. Allow the solution to darken, as the picric acid is reduced. Allow to stand for 14 days. Use this method to dispose of 45 gallon drums of dilute solutions of picric acid. Analyse samples of picric acid to determine when the picric acid has completely reacted. Analyse by thin- layer chromatography on silica gel, eluting with methanol:toluene glacial acetic acid
,
8:45:4. Picric acid has a Rf value of about 0.3 The bright yellow indicating spot is also visible. Increase the detection by developing the plate in iodine vapour [Armour 1996].

SPILLAGE DISPOSAL
• Wear a face shield, goggles, nitrile rubber gloves and protective clothing. Pour water over the spilled picric acid. Cover and contain the spill with a 1:1:1 mixture by weight of sodium carbonate or calcium carbonate, bentonite and sand. Scoop the absorbed contents into a labeled container for incineration. Burn the mixture in an open incinerator or in a furnace equipped with an afterburner and scrubber. Wash the site of the spill with large quantities of water and detergent [Armour 1996].

Section 14 - TRANSPORTATION INFORMATION

Labels Required: FLAMMABLE SOLID
HAZCHEM: None

continued...

Section 14 - TRANSPORTATION INFORMATION

UNDG:

Dangerous Goods Class:	4.1	Subrisk:	None
UN Number:	1344	Packing Group:	I

Shipping Name:TRINITROPHENOL, WETTED with not less than 30% water, by mass

Air Transport IATA:

ICAO/IATA Class:	4.1	ICAO/IATA Subrisk:	None
UN/ID Number:	1344	Packing Group:	I
ERG Code:	3E		

Shipping name:TRINITROPHENOL, WETTED with not less than 30% water, by mass
TRINITROPHENOL, WETTED

Maritime Transport IMDG:

IMDG Class:	4.1	IMDG Subrisk:	None
UN Number:	1344	Packing Group:	I
EMS Number:	F- B, S- J		

Shipping name:TRINITROPHENOL, WETTED with not less than 30% water, by mass
TRINITROPHENOL, WETTED

Section 15 - REGULATORY INFORMATION

REGULATIONS

picric acid (CAS: 88-89-1) is found on the following regulatory lists;
OECD Representative List of High Production Volume (HPV) Chemicals

No data available for picric acid as CAS: 857370-42-4, CAS: 856993-13-0, CAS: 856615-63-9 , CAS: 190402-10-9, CAS: 189195-39-9, CAS: 29663-11-4.

Section 16 - OTHER INFORMATION

INGREDIENTS WITH MULTIPLE CAS NUMBERS

Ingredient Name	CAS
picric acid	88- 89- 1, 857370- 42- 4, 856993- 13- 0, 856615- 63- 9, 190402- 10- 9, 189195- 39- 9, 29663- 11- 4

The above information is believed to be accurate and represent the best information currently available to us, but does not represent any warranty expressed or implied of the properties of the product. User should make their own investigation to determine the suitability of the information for their particular purpose.

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