

# Picric Acid

## Section 1: Identification of the substance/mixture and of the company/undertaking

### 1.1 Product identifier

Product name: Picric Acid  
CAS Number: 88-89-1  
EC Number: 201-865-9

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

Recommended use: Laboratory chemicals, Industrial & for professional use only.

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

Company name: East Harbour Group Ltd  
20 Clough Road, Severalls Industrial Park  
Colchester, Essex, CO4 9QS  
United Kingdom

Telephone: +44 (0) 333 242 0100  
Email: [info@eastharbourgroup.com](mailto:info@eastharbourgroup.com)

### 1.4 Emergency telephone number

Emergency telephone: 0800 246 1274

## Section 2: Hazardous identification

### 2.1 Classification of the substance or mixture

#### Classification according to Regulation (EC) No 1272/2008

Flammable solids (Category 1), H228

Acute toxicity, Oral (Category 3), H301

Acute toxicity, Inhalation (Category 4), H332

Acute toxicity, Dermal (Category 3), H311

For the full text of the H-Statements mentioned in this Section, see Section 16

### 2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008

Pictogram



Flammable Acute toxicity

Signal Word

Danger

## Picric Acid

### Hazard statement(s)

H228	Flammable solid.
H301 + H311	Toxic if swallowed or in contact with skin
H332	Harmful if inhaled.

### Precautionary statement(s)

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P280	Wear protective gloves/ protective clothing.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
P312	Call a POISON CENTER or doctor/ physician if you feel unwell.

### Supplemental Hazard information (EU)

EUH001	Explosive when dry.
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### 2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Explosive when dry.

### Potential Acute Health Effects

Very hazardous in case of skin contact (irritant), of eye contact (irritant). Hazardous in case of ingestion, of inhalation. Slightly hazardous in case of skin contact (permeator). Corrosive to eyes and skin. The amount of tissue damage depends on length of contact. Eye contact can result in corneal damage or blindness. Skin contact can produce inflammation and blistering. Inhalation of dust will produce irritation to gastro-intestinal or respiratory tract, characterized by burning, sneezing and coughing. Severe over-exposure can produce lung damage, choking, unconsciousness or death. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

### Potential Chronic Health Effects

Slightly hazardous in case of skin contact (sensitizer). CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Mutagenic for bacteria and/or yeast. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to mucous membranes. The substance may be toxic to blood, kidneys, liver. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure of the eyes to a low level of dust can produce eye irritation. Repeated skin exposure can produce local skin destruction, or dermatitis. Repeated inhalation of dust can produce varying degree of respiratory irritation or lung damage. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

## Section 3: Composition/information on ingredients

### Composition

Name	CAS #	% by Weight
Picric acid	88-89-1	100

## Section 4: First aid measures

## Picric Acid

### Eye Contact

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. WARM water MUST be used. Get medical attention.

### Skin Contact

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

### Serious Skin Contact

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

### Inhalation

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

### Serious Inhalation

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

### Ingestion

If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

### Serious Ingestion

Not available.

## Section 5: Fire-fighting measures

### Flammability of the Product

Flammable.

### Auto-Ignition Temperature

300°C (572°F)

### Flash Points

CLOSED CUP: 150°C (302°F).

### Flammable Limits

Not available.

## Picric Acid

### Products of Combustion

These products are carbon oxides (CO, CO<sub>2</sub>), nitrogen oxides (NO, NO<sub>2</sub>...).

### Fire Hazards in Presence of Various Substances

Slightly flammable to flammable in presence of open flames and sparks, of heat.

### Explosion Hazards in Presence of Various Substances

Explosive in presence of open flames and sparks, of shocks, of heat, of metals, of alkalis.

### Fire Fighting Media and Instructions

Explosive. Flammable solid. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion. Do not fight fire. Evacuate surrounding areas.

### Special Remarks on Fire Hazards

Dry mixtures of picric acid and aluminum powder are inert, but addition of water causes ignition after a delay depending upon the quantity added. Flammable solid when exposed to heat or flame.

### Special Remarks on Explosion Hazards

Picric acid and bases form explosive salts. Ammonia and metals with picric acid give results similar to bases. Contact between picric acid and concrete floors leads to the formation of explosion-sensitive salts, such as calcium picrate. Mixtures with uranium perchlorate are extremely powerful explosives. It forms unstable salts with concrete, ammonia, and bases. Many of these are heat, friction, or impact sensitive. An explosive mixture results when the aqueous solution crystallizes. Keep Picric acid wet with water. Do not let dry picric acid (crystals) form in container or on the cap threads of container. A severe explosion hazard when shocked or exposed to heat. Dried out material may explode if exposed to heat, flame, friction or shock; treat as an explosive. Keep material wet with water or treat as an explosive. Explodes when heated to 300°C.

## Section 6: Accidental release measures

### Small Spill

Use appropriate tools to put the spilled solid in a convenient waste disposal container.

### Large Spill

Explosive. Explosive, class 1.4. Flammable solid. Corrosive solid. Poisonous solid. Stop leak if without risk. Do not touch damaged container or spilled material. Do not clean-up or dispose except under supervision of a specialist. Do not operate radio transmitters within 100 m of an electric detonator. Do not get water inside container. Do not touch spilled material. Use water spray curtain to divert vapor drift. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

## Picric Acid

### Section 7: Handling and storage

#### Precautions

Do not allow this material to dry out. Do not let dry picric acid (crystals) form in container or on the cap threads of container. strong incandescent light. Ground all equipment containing material. Empty containers may contain hazardous residue and pose a fire risk. Do not ingest. Do not breathe dust. Take precautionary measures against electrostatic discharges. Avoid shock and friction. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, reducing agents, metals, alkalis. Keep away from heat. Keep away from sources of ignition. Keep away from direct sunlight or

#### Storage

Store in a segregated, approved and labeled area away from acute fire hazards and powerful oxidizing materials. Isolate from Organic materials. Do not store in metal containers. Keep container in a cool, well-ventilated area. Do not allow this material to dry out. Keep Picric acid wetted with a minimum of 40% water. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).

### Section 8: Exposure controls/personal protection

#### Engineering Controls

Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

#### Personal Protection

Splash goggles. Synthetic apron. Vapor and dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

#### Personal Protection in Case of a Large Spill

Splash goggles. Full suit. Vapor and dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

#### Exposure Limits

TWA: 0.1 (mg/m<sup>3</sup>) from ACGIH (TLV) [United States] Consult local authorities for acceptable exposure limits.

## Picric Acid

### Section 9: Physical and chemical properties

<b>Physical state and appearance</b>	Solid. (Crystals solid.)
<b>Odor</b>	Odorless.
<b>Taste</b>	Bitter.
<b>Molecular Weight</b>	229.11 g/mole
<b>Colour</b>	Yellow.
<b>pH (1% soln/water)</b>	Not available.
<b>Boiling Point</b>	Not available.
<b>Melting Point</b>	122°C (252.5°F)
<b>Critical Temperature</b>	Not available.
<b>Specific Gravity</b>	1.763 (Water = 1)
<b>Vapor Pressure</b>	Not applicable.
<b>Vapor Density</b>	7.9 (Air = 1)
<b>Volatility</b>	Not available.
<b>Odor Threshold</b>	Not available.
<b>Water/Oil Dist. Coeff.</b>	The product is equally soluble in oil and water; log(oil/water) = -0.02
<b>Ionicity (in Water)</b>	Not available.
<b>Dispersion Properties</b>	See solubility in water, diethyl ether, acetone.

#### Solubility

Easily soluble in acetone. Soluble in hot water, diethyl ether. Partially soluble in cold water. Soluble in ethanol. Solubility in ethanol: 1 g/12 ml ethanol @ 25 deg. C Solubility in water:  $1.27 \times 10^4$  mg/l @ 25 C; 1g/78 ml water @ 25 C; 1 g/15 ml boiling water. Solubility in Benzene: 1 g/10 ml @ 25 deg. C. Solubility in Chloroform: 1 g/35 ml @ 25 deg. C. Solubility in Ether: 1 g/65 ml @ 25 deg. C

### Section 10: Stability and Reactivity

#### Stability

The product is stable.

#### Instability Temperature

Not available.

#### Conditions of Instability

High temperatures, mechanical shock, ignition sources. Keep Picric acid wet with water. Do not allow water to evaporate from product. An explosive mixture results when the aqueous solution crystallizes. Do not let dry picric acid (crystals) form in container or on the cap threads of container. Dry picric acid is explosive. It can explode on impact if water content is below 10%.

#### Incompatibility with various substances

## Picric Acid

Highly reactive with metals, alkalis. Reactive with oxidizing agents, reducing agents. The product may undergo hazardous decomposition, condensation or polymerization, it may react violently with water to emit toxic gases or it may become self-reactive under conditions of shock or increase in temperature or pressure.

### Corrosivity

Non-corrosive in presence of glass.

### Special Remarks on Reactivity

Incompatible with copper, lead, zinc and other metals, salts, plaster, concrete, ammonia, oxidizing materials, reducing agents, albumin, gelatin, alkaloids(bases). Can react vigorously with oxidizing materials. Dry mixtures of picric acid and aluminium powder are inert, but addition of water causes ignition after a delay depending upon the quantity added. Picric acid and bases form explosive salts. Contact between picric acid and concrete floors leads to the formation of explosion-sensitive salts, such as calcium picrate. Mixtures with uranium perchlorate are extremely powerful explosives. It forms unstable salts with concrete, ammonia, and bases. Many of these are heat, friction, or impact sensitive.

### Special Remarks on Corrosivity

Corrodes metals.

### Polymerization

Will not occur.

## Section 11: Toxicological Information

### Routes of Entry

Absorbed through skin. Inhalation. Ingestion.

### Toxicity to Animals

Acute oral toxicity (LD50): 200 mg/kg [Rat].

### Chronic Effects on Humans

MUTAGENIC EFFECTS: Mutagenic for bacteria and/or yeast. Causes damage to the following organs: mucous membranes. May cause damage to the following organs: blood, kidneys, liver.

### Other Toxic Effects on Humans

Very hazardous in case of skin contact (irritant). Hazardous in case of ingestion, of inhalation. Slightly hazardous in case of skin contact (permeator).

### Special Remarks on Toxicity to Animals

Not available.

### Special Remarks on Chronic Effects on Humans

May affect genetic material (mutagenic)

### Special Remarks on other Toxic Effects on Humans

## Picric Acid

Acute Potential Health Effects: Skin: Causes skin irritation. It may be absorbed by the skin. If it is absorbed through the skin and it can cause symptoms similar to those of ingestion. Eyes: Causes eye irritation. May result in corneal injury. Inhalation: May cause respiratory tract irritation. May cause effects similar to those for ingestion. May affect the kidneys. Ingestion: Harmful if swallowed! May cause gastrointestinal tract irritation with abdominal pain, nausea, vomiting, diarrhea. May affect behavior/central nervous system (vertigo, headache, stupor, tremor, convulsions), cardiovascular system, metabolism, kidneys/urinary system (anuria, oliguria, renal lesions, hemorrhagic nephritis), liver (acute hepatitis, jaundice). Chronic Potential Health Effects: Skin: Prolonged or repeated skin contact may cause allergic or sensitization dermatitis. Eyes: Prolonged or repeated eye contact may cause conjunctivitis. Prolonged or repeated skin and eye contact may also cause yellow staining of skin and eyes, and "yellow vision." Ingestion: Prolonged or repeated ingestion will cause symptoms similar to that of acute ingestion.

### Section 12: Ecological Information

**Ecotoxicity**

Not available.

**BOD5 and COD**

Not available.

**Products of Biodegradation**

Possibly hazardous short/long term degradation products are to be expected.

**Toxicity of the Products of Biodegradation**

The products of degradation are less toxic than the product itself.

**Special Remarks on the Products of Biodegradation**

Not available.

### Section 13: Disposal considerations

**Waste Disposal**

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

### Section 14: Transport Information

**DOT Classification**

CLASS 4.1: Flammable solid.

**Identification**

Trinitrophenol, wetted with not less than 40% water, by mass UNNA: 1344 PG: I

**Special Provisions for Transport**

# Picric Acid

Not available.

## Section 15: Regulatory Information

### Federal and State Regulations

Connecticut hazardous material survey.: Picric acid Illinois toxic substances disclosure to employee act: Picric acid Rhode Island RTK hazardous substances: Picric acid Pennsylvania RTK: Picric acid Minnesota: Picric acid Massachusetts RTK: Picric acid Massachusetts spill list: Picric acid New Jersey: Picric acid New Jersey spill list: Picric acid California Director's List of Hazardous Substances: Picric acid TSCA 8(b) inventory: Picric acid SARA 313 toxic chemical notification and release reporting: Picric acid.

### Other Regulations

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

### Other Classifications

#### WHMIS (Canada)

CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC). CLASS D-2B: Material causing other toxic effects (TOXIC). CLASS E: Corrosive solid. CLASS F: Dangerously reactive material.

#### DSCL (EEC)

R2- Risk of explosion by shock, friction, fire or other sources of ignition. R4- Forms very sensitive explosive metallic compounds. R23/24/25- Toxic by inhalation, in contact with skin and if swallowed. S28- After contact with skin, wash immediately with plenty of [\*\*\*] S35- This material and its container must be disposed of in a safe way. S37- Wear suitable gloves. S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

#### HMIS (U.S.A.)

Health Hazard	2
Fire Hazard	1
Reactivity	4
Personal Protection	x

#### National Fire Protection Association (U.S.A.)

Health	3
Flammability	4
Reactivity	4
Specific hazard	

### Protective Equipment

Gloves. Synthetic apron. Vapor and dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

## Picric Acid

### Section 16: Other Information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product.

