SECTION-1: Identification of the substance / mixture and the company / undertaking

Catalogue Number	CS-EP-00417
Product Name	Picric Acid
CAS No.	88-89-1
Category	Fine Chemicals
Synonyms	Not available
Brand	Clearsynth Labs Ltd.
Identified uses	Laboratory Chemicals
Uses advised against	Not available
Company	Clearsynth Labs Ltd. Mumbai, India
Emergency Phone #	+91-22-245045900
REACH No.	Not available

SECTION 2: Hazards identification

Disclaimer: This is sample MSDS. Please email **sales@clearsynth.com** for more details.

2.1 Classification of the substance or mixture-Regulation (EC) No 1272/2008:

Serious eye damage/eye irritation (Category 2)
Acute toxicity (Category 4)

2.2 Label Elements

Signal Word: Warning

Hazard Statement(s)

Code	Statement
H201	Not available
H301	Not available
H311	Not available

H331	Not available
H301+H311+H331	Not available
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H373	Not available
H411	Toxic to aquatic life with long lasting effects.
H320	Not available
H335	Not available
H370	Not available
H372	Not available
H402	Not available
H228	Not available
H302	Harmful if swallowed.

Precautionary Statement(s)

Code	Statement
P210	Not available
P230	Not available
P240	Not available
P250	Not available
P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P262	Not available
P264	Wash hands thoroughly after handling.
P270	Not available
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P301+P316	Not available
P302+P352	IF ON SKIN: Wash with plenty of water and soap.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P316	Not available

P321	Specific treatment (see … on this label).
P330	Not available
P361+P364	Not available
P370+P380	Not available
P372	Not available
P373	Not available
P401	Not available
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/container in accordance with local/regional/national/international regulatio
P203	Not available
P260	Not available
P264+P265	Not available
P272	Not available
P273	Not available
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if presen
P318	Not available
P319	Get medical help if you feel unwell.
P333+P317	Not available
P337+P317	If eye irritation persists: Get medical help.
P362+P364	Take off contaminated clothing and wash it before reuse.
P391	Not available
P308+P316	Not available
P241	Not available
P301+P317	Not available
P370+P378	Not available

SECTION 3: Composition / information on ingredients

3.1 Substance

Component : Picric Acid

CAS Number : 88-89-1
Molecular Formula : C6H3N3O7
Molecular Weight : 229.1
Parent Chemical : Not available
Synonyms : Not available
Concentration : Not available

SECTION 4: First aid measures

SECTION 4: First-aid measures

4.1 Description of first aid measures
- General advice: Seek medical attention if symptoms occur or persist. Show this SDS to medical personnel.
- Inhalation: Move person to fresh air. Keep at rest. If breathing is difficult, seek medical attention.
- Skin contact: Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water. Seek medical attention if irritation or symptoms develop.
- Eye contact: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. Seek medical attention.
- Ingestion: Rinse mouth. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Seek medical attention.

4.2 Most important symptoms and effects, both acute and delayed
- Not available.

4.3 Indication of any immediate medical attention and special treatment needed
- Treat symptomatically. Special treatment: Not available.

SECTION 5: Firefighting measures

SECTION 5: Fire-fighting measures

5.1 Extinguishing media
- Suitable extinguishing media: Not available.
- Unsuitable extinguishing media: Not available.

5.2 Special hazards arising from the substance or mixture
- May present fire and/or explosion hazard under certain conditions.
- Hazardous combustion products: Not available.

5.3 Advice for firefighters
- Wear self-contained breathing apparatus (SCBA) and full protective gear.
- Fight fire from a safe distance and protected location.
- Cool unopened containers exposed to fire with water spray.

SECTION 6: Accidental release measures

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
- Evacuate unnecessary personnel.

- Avoid breathing dust/fume. Avoid contact with skin and eyes.
- Use appropriate personal protective equipment (see Section 8).

6.2 Environmental precautions
- Prevent further leakage or spillage if safe to do so.
- Avoid release to the environment. Prevent entry into drains, surface waters, or soil.

6.3 Methods and material for containment and cleaning up
- Avoid generating dust.
- Collect spillage using non-sparking tools and place in a suitable, closed container for disposal.
- Clean contaminated area with appropriate methods. Do not allow washings to enter drains.

6.4 Reference to other sections
- See Section 8 for personal protective equipment and Section 13 for disposal considerations.

SECTION-7: Handling and storage

SECTION 7: Handling and storage

7.1 Precautions for safe handling
- Handle in accordance with good industrial hygiene and safety practice.
- Avoid contact with skin and eyes. Avoid breathing dust.
- Keep away from heat, sparks, open flames, and other ignition sources.
- Use non-sparking tools and explosion-proof equipment where applicable.
- Do not allow material to dry out if supplied wetted; dried material may present increased hazard.

7.2 Conditions for safe storage, including any incompatibilities
- Store in a cool, dry, well-ventilated place.
- Keep container tightly closed.
- Store away from incompatible materials.
- Protect from heat and sources of ignition.
- Specific storage conditions: Not available.

7.3 Specific end use(s)
- Not available.

SECTION 8: Exposure controls / personal protection

SECTION 8: Exposure controls/personal protection

8.1 Control parameters
- Occupational exposure limits: Not available.
- Biological limit values: Not available.

8.2 Exposure controls
- Engineering controls: Use local exhaust ventilation or general ventilation to minimize exposure.
- Personal protective equipment (PPE):
- Eye/face protection: Safety glasses with side shields or chemical splash goggles.
- Skin protection: Protective gloves and protective clothing.
- Respiratory protection: Use appropriate respiratory protection if ventilation is inadequate or dust is generated.
- Hygiene measures: Wash hands thoroughly after handling. Remove contaminated clothing and wash before reuse.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Test	Result
Appearance	No data available
IR spectrum	No data available
pH	No data available
Solubility	No data available

Property	Value
a) Physical State	No data available
b) Color	No data available
c) Odor	No data available
d) pH	No data available
e) Vapour Pressure	No data available
f) Viscosity	No data available
g) Initial Boiling Point and boiling range	No data available
h) Melting Point / Freezing Point	No data available
i) Auto Ignition Temperature	No data available
j) Flash Point	No data available
k) Explosion Limit, Lower	No data available
l) Explosion Limit, Upper	No data available
m) Decomposition Temperature	No data available
n) Loss on Drying	No data available
o) Relative Density	No data available
p) Solubility (in DMSO)	No data available
q) Oxidizing Properties	No data available

SECTION 10: Stability and reactivity

SECTION 10: Stability and reactivity

10.1 Reactivity
- Not available.

10.2 Chemical stability
- Not available.

10.3 Possibility of hazardous reactions
- Not available.

10.4 Conditions to avoid
- Heat, sparks, open flame, impact, friction, and other ignition sources.
- Avoid drying out if supplied wetted.

10.5 Incompatible materials
- Not available.

10.6 Hazardous decomposition products
- Not available.

SECTION 11: Toxicological information

11.1 Information on toxicological effects
- Acute toxicity: IDENTIFICATION AND USE: Picric acid is a yellow solid. It is used in explosives, matches, electric batteries, in the leather industry, for etching copper, in the manufacture colored glass, and as a textile mordant. It is also a reagent for preparation of organic derivatives for chemical identification. HUMAN STUDIES: Picric acid dust or fumes cause irritation of eyes, and this may be aggravated by sensitization. Skin contact with the dry powder of picric acid or ammonium picrate powder caused sensitization dermatitis among workers. The face was usually involved, especially around the mouth and sides of the nose. Edema, papules, vesicles, and finally desquamation developed. Potential symptoms of overexposure also include yellow stained hair and skin, weakness, myalgia, anuria, polyuria, bitter taste, GI disturbances, hepatitis, hematuria, albuminuria, and nephritis. Systemic poisoning following the absorption of picric acid caused symptoms of headache, vertigo, nausea, vomiting, and diarrhea. Yellow coloration of the skin and conjunctiva have occurred, and there have been reports of darkened or port wine-colored urine. During the 1920's and 30's picric acid was used both alone and in combination with butyl aminobenzoate as an antiseptic surgical dressing for treatment of burns. A serious dysfunction of the central nervous system following topical application of picric acid was reported. Approximately 4% of the patients treated with picric acid were sensitive and developed a local dermatitis. ANIMAL STUDIES: Blood gas analysis indicated severe acidosis during acute intoxication. After an acute lethal dose of picric acid, dogs died from respiratory paralysis. Autopsy results demonstrated the presence of yellow staining of the subcutaneous fat, lung, intestines and blood vessels. Swelling of the liver and glomerulitis were also observed. Sublethal doses of picric acid less than or equal to 50 mg/kg in dogs have resulted in transitory changes in the kidney, including glomerulitis and other changes in kidney ultrastructure. Mutagenic assays of picric acid were carried out with histidine-requiring strains of Salmonella typhimurium. Picric acid (10 micrograms per plate) demonstrated mutagenicity (both frame shift and base substitution-type mutations) only after metabolic activation. Picric acid was reported to be positive for the induction of sex-linked recessive lethal mutations in Drosophila melanogaster. ECOTOXICITY STUDIES: No significant inhibition of growth was observed for rainbow trout exposed to 0.45 and 0.05 mg/L picric acid. American oysters exposed to 0.45 and 0.05 mg/L picric acid showed significant inhibition of shell deposition during exposure period. Discoloration of nacre layer of the shell and body mass was observed in oysters. /SIGNS AND SYMPTOMS/ Systemic poisoning following the absorption of picric acid caused symptoms of headache, vertigo, nausea, vomiting,

and diarrhea. Yellow coloration of the skin and conjunctiva occurred, and there were reports of darkened or port wine-colored urine. High doses caused destruction of the erythrocytes and produced gastroenteritis, hemorrhagic nephritis and acute hepatitis.
- Skin corrosion/irritation: No data available.
- Serious eye damage/eye irritation: Dust or fumes cause eye irritation that can be aggravated by sensitization.
- Respiratory or skin sensitization: Dust or fumes cause eye irritation that can be aggravated by sensitization. IDENTIFICATION AND USE: Picric acid is a yellow solid. It is used in explosives, matches, electric batteries, in the leather industry, for etching copper, in the manufacture colored glass, and as a textile mordant. It is also a reagent for preparation of organic derivatives for chemical identification. HUMAN STUDIES: Picric acid dust or fumes cause irritation of eyes, and this may be aggravated by sensitization. Skin contact with the dry powder of picric acid or ammonium picrate powder caused sensitization dermatitis among workers. The face was usually involved, especially around the mouth and sides of the nose. Edema, papules, vesicles, and finally desquamation developed. Potential symptoms of overexposure also include yellow stained hair and skin, weakness, myalgia, anuria, polyuria, bitter taste, GI disturbances, hepatitis, hematuria, albuminuria, and nephritis. Systemic poisoning following the absorption of picric acid caused symptoms of headache, vertigo, nausea, vomiting, and diarrhea. Yellow coloration of the skin and conjunctiva have occurred, and there have been reports of darkened or port wine-colored urine. During the 1920's and 30's picric acid was used both alone and in combination with butyl aminobenzoate as an antiseptic surgical dressing for treatment of burns. A serious dysfunction of the central nervous system following topical application of picric acid was reported. Approximately 4% of the patients treated with picric acid were sensitive and developed a local dermatitis. ANIMAL STUDIES: Blood gas analysis indicated severe acidosis during acute intoxication. After an acute lethal dose of picric acid, dogs died from respiratory paralysis. Autopsy results demonstrated the presence of yellow staining of the subcutaneous fat, lung, intestines and blood vessels. Swelling of the liver and glomerulitis were also observed. Sublethal doses of picric acid less than or equal to 50 mg/kg in dogs have resulted in transitory changes in the kidney, including glomerulitis and other changes in kidney ultrastructure. Mutagenic assays of picric acid were carried out with histidine-requiring strains of Salmonella typhimurium. Picric acid (10 micrograms per plate) demonstrated mutagenicity (both frame shift and base substitution-type mutations) only after metabolic activation. Picric acid was reported to be positive for the induction of sex-linked recessive lethal mutations in Drosophila melanogaster. ECOTOXICITY STUDIES: No significant inhibition of growth was observed for rainbow trout exposed to 0.45 and 0.05 mg/L picric acid. American oysters exposed to 0.45 and 0.05 mg/L picric acid showed significant inhibition of shell deposition during exposure period. Discoloration of nacre layer of the shell and body mass was observed in oysters.
- Germ cell mutagenicity: IDENTIFICATION AND USE: Picric acid is a yellow solid. It is used in explosives, matches, electric batteries, in the leather industry, for etching copper, in the manufacture colored glass, and as a textile mordant. It is also a reagent for preparation of organic derivatives for chemical identification. HUMAN STUDIES: Picric acid dust or fumes cause irritation of eyes, and this may be aggravated by sensitization. Skin contact with the dry powder of picric acid or ammonium picrate powder caused sensitization dermatitis among workers. The face was usually involved, especially around the mouth and sides of the nose. Edema, papules, vesicles, and finally desquamation developed. Potential symptoms of overexposure also include yellow stained hair and skin, weakness, myalgia, anuria, polyuria, bitter taste, GI disturbances, hepatitis, hematuria, albuminuria, and nephritis. Systemic poisoning following the absorption of picric acid caused symptoms of headache, vertigo, nausea, vomiting, and diarrhea. Yellow coloration of the skin and conjunctiva have occurred, and there have been reports of darkened or port wine-colored urine. During the 1920's and 30's picric acid was used both alone and in combination with butyl aminobenzoate as an antiseptic surgical dressing for treatment of burns. A serious dysfunction of the central nervous system following topical application of picric acid was reported. Approximately 4% of the patients treated with picric acid were sensitive and developed a local dermatitis. ANIMAL STUDIES: Blood gas analysis indicated severe acidosis during acute intoxication. After an acute lethal dose of picric acid, dogs died from respiratory

paralysis. Autopsy results demonstrated the presence of yellow staining of the subcutaneous fat, lung, intestines and blood vessels. Swelling of the liver and glomerulitis were also observed. Sublethal doses of picric acid less than or equal to 50 mg/kg in dogs have resulted in transitory changes in the kidney, including glomerulitis and other changes in kidney ultrastructure. Mutagenic assays of picric acid were carried out with histidine-requiring strains of Salmonella typhimurium. Picric acid (10 micrograms per plate) demonstrated mutagenicity (both frame shift and base substitution-type mutations) only after metabolic activation. Picric acid was reported to be positive for the induction of sex-linked recessive lethal mutations in Drosophila melanogaster. ECOTOXICITY STUDIES: No significant inhibition of growth was observed for rainbow trout exposed to 0.45 and 0.05 mg/L picric acid. American oysters exposed to 0.45 and 0.05 mg/L picric acid showed significant inhibition of shell deposition during exposure period. Discoloration of nacre layer of the shell and body mass was observed in oysters. /GENOTOXICITY/ A strain of Pseudomonas aeruginosa reduced 2,4,6-trinitrophenol (picric acid) to 2-amino-4,6-dinitrophenol (picramic acid) under anaerobic conditions. Mutagenic assays of picric acid and picramic acid were carried out with histidine-requiring strains of Salmonella typhimurium. Picric acid (10 micrograms per plate) demonstrated mutagenicity (both frame shift and base substitution-type mutations) only after activation with a rat liver homogenate preparation. Picramic acid (1 microgram per plate) induced both base pair substitution and frame shift-type mutations without activation by the rat liver preparation.
- Carcinogenicity: Inadequate information to assess carcinogenic potential
- Reproductive toxicity: /AQUATIC SPECIES/ A toxicity database for ordnance compounds was generated using eight compounds of concern /including picric acid/ and marine toxicity tests with five species from different phyla. Toxicity tests and endpoints included fertilization success and embryological development with the sea urchin Arbacia punctulata; zoospore germination, germling length, and cell number with the green macroalga Ulva fasciata; survival and reproductive success of the polychaete Dinophilus gyrociliatus; larvae hatching and survival with the redfish Sciaenops ocellatus; and survival of juveniles of the opossum shrimp Americamysis bahia (formerly Mysidopsis bahia). ... The most sensitive toxicity test endpoints overall were the macroalga zoospore germination and the polychaete reproduction tests. The most toxic ordnance compounds overall were tetryl and 1,3,5-trinitrobenzene. These were also the most degradable compounds, often being reduced to very low or below-detection levels at the end of the test exposure. Among the dinitro- and trinitrotoluenes and benzenes, toxicity tended to increase with the level of nitrogenation. Picric acid and RDX were the least toxic chemicals tested overall.
- STOT-single exposure: No data available.
- STOT-repeated exposure: /LABORATORY ANIMALS: Subchronic or Prechronic Exposure/ The toxicity of oral 2,4,6-trinitrophenol (TNP) was determined in newborn rats, and compared with that in young rats. In newborn rats, males and females were given TNP at 0, 16.3, 81.4 or 407 mg/kg per day on postnatal days (PND) 4-17 for the dose-finding study, and at 0, 4.1, 16.3 or 65.1 mg/kg per day on PND 4-21 for the main study. Deaths, lower body weight (BW) and behavioral changes were found at 81.4 and 407 mg/kg per day in the dose-finding study, and lower BW was observed in males at 65.1 mg/kg per day during the dosing period of the main study. In young rats, 5-week-old males and females were given TNP at 0, 20, 100 or 500 mg/kg per day for 14 days as the dose-finding study and at 0, 4, 20 or 100 mg/kg per day for 28 days as the main study. Deaths were observed at 500 mg/kg per day in the dose-finding study. Deaths or changes in BW were not found at 100 mg/kg per day or less. At 100 mg/kg per day, hemolytic anemia and testicular toxicity were found. In conclusion, toxicity profiles induced by TNP were ... different between newborn and young rats.
- Aspiration hazard: No data available.

Likely routes of exposure
- IDENTIFICATION AND USE: Picric acid is a yellow solid. It is used in explosives, matches, electric batteries, in the leather industry, for etching copper, in the manufacture colored glass, and as a textile mordant. It is also a reagent for preparation of organic derivatives for chemical identification. HUMAN STUDIES: Picric acid dust or fumes cause irritation of eyes, and this may be aggravated by sensitization. Skin contact with the dry powder of picric acid or

ammonium picrate powder caused sensitization dermatitis among workers. The face was usually involved, especially around the mouth and sides of the nose. Edema, papules, vesicles, and finally desquamation developed. Potential symptoms of overexposure also include yellow stained hair and skin, weakness, myalgia, anuria, polyuria, bitter taste, GI disturbances, hepatitis, hematuria, albuminuria, and nephritis. Systemic poisoning following the absorption of picric acid caused symptoms of headache, vertigo, nausea, vomiting, and diarrhea. Yellow coloration of the skin and conjunctiva have occurred, and there have been reports of darkened or port wine-colored urine. During the 1920's and 30's picric acid was used both alone and in combination with butyl aminobenzoate as an antiseptic surgical dressing for treatment of burns. A serious dysfunction of the central nervous system following topical application of picric acid was reported. Approximately 4% of the patients treated with picric acid were sensitive and developed a local dermatitis. ANIMAL STUDIES: Blood gas analysis indicated severe acidosis during acute intoxication. After an acute lethal dose of picric acid, dogs died from respiratory paralysis. Autopsy results demonstrated the presence of yellow staining of the subcutaneous fat, lung, intestines and blood vessels. Swelling of the liver and glomerulitis were also observed. Sublethal doses of picric acid less than or equal to 50 mg/kg in dogs have resulted in transitory changes in the kidney, including glomerulitis and other changes in kidney ultrastructure. Mutagenic assays of picric acid were carried out with histidine-requiring strains of Salmonella typhimurium. Picric acid (10 micrograms per plate) demonstrated mutagenicity (both frame shift and base substitution-type mutations) only after metabolic activation. Picric acid was reported to be positive for the induction of sex-linked recessive lethal mutations in Drosophila melanogaster. ECOTOXICITY STUDIES: No significant inhibition of growth was observed for rainbow trout exposed to 0.45 and 0.05 mg/L picric acid. American oysters exposed to 0.45 and 0.05 mg/L picric acid showed significant inhibition of shell deposition during exposure period. Discoloration of nacre layer of the shell and body mass was observed in oysters.

Symptoms related to the physical, chemical and toxicological characteristics
- Potential symptoms of overexposure are irritation of eyes, skin ... .

SECTION 12: Ecological information

SECTION 12: Ecological information

12.1 Toxicity
- Not available.

12.2 Persistence and degradability
- Not available.

12.3 Bioaccumulative potential
- Not available.

12.4 Mobility in soil
- Not available.

12.5 Results of PBT and vPvB assessment
- Not available.

12.6 Endocrine disrupting properties
- Not available.

12.7 Other adverse effects
- Not available.

SECTION 13: Disposal considerations

SECTION 13: Disposal considerations

13.1 Waste treatment methods
- Dispose of contents/container in accordance with local/regional/national/international regulations.
- Do not discharge to drains or the environment.
- Waste treatment options: Not available.
- Contaminated packaging: Dispose of as unused product unless cleaned thoroughly.

SECTION 14: Transport information

SECTION 14: Transport information

- UN number: Not available.
- UN proper shipping name: Not available.
- Transport hazard class(es): Not available.
- Packing group: Not available.
- Environmental hazards: Not available.
- Special precautions for user: Not available.
- Transport in bulk according to IMO instruments: Not available.

SECTION 15: Regulatory information

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
- Not available.

15.2 Chemical safety assessment
- Not available.

SECTION 16: Other information

SECTION 16: Other information

- Product name: Picric Acid
- CAS No.: 88-89-1
- Catalog No.: CS-EP-00417
- Supplier: Clearsynth Labs Ltd., Mumbai, India
- Emergency phone: +91-22-245045900

Disclaimer
- The information provided is believed to be accurate as of the date of preparation; however, no warranty is expressed or implied regarding its accuracy or completeness. Users must determine suitability for their particular purpose and comply with applicable laws and regulations.

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