Material Safety Data Sheet

Section 1. Chemical Product and Company Identification

<table>
<thead>
<tr>
<th>Common Name/Trade Name</th>
<th>Picric acid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturer</td>
<td>SPECTRUM LABORATORY PRODUCTS INC.</td>
</tr>
<tr>
<td>Commercial Name(s)</td>
<td>Not available.</td>
</tr>
<tr>
<td>Synonym</td>
<td>2,4,6-trinitrophenol; 1,3,5-Trinitrophenol</td>
</tr>
<tr>
<td>The Picric is wetted with a minimum of 30% water to keep it stabilized</td>
<td></td>
</tr>
<tr>
<td>Chemical Name</td>
<td>Picric Acid</td>
</tr>
<tr>
<td>Chemical Family</td>
<td>Not available.</td>
</tr>
<tr>
<td>Chemical Formula</td>
<td>C6H2(NO3)3OH</td>
</tr>
<tr>
<td>Supplier</td>
<td>SPECTRUM LABORATORY PRODUCTS INC.</td>
</tr>
</tbody>
</table>

| Catalog Number(s)      | YY1271, P1691, P1145 |
| CAS#                   | 88-89-1 |
| RTECS                  | TJ7875000 |
| TSCA                   | TSGA 8(b) inventory: Picric acid |
| CI#                    | Not available. |

IN CASE OF EMERGENCY
CHEMTREC (24hr) 800-424-9300
CALL (310) 516-8000

Section 2. Composition and Information on Ingredients

<table>
<thead>
<tr>
<th>Name</th>
<th>CAS #</th>
<th>TWA (mg/m³)</th>
<th>STEL (mg/m³)</th>
<th>CEIL (mg/m³)</th>
<th>% by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Picric acid</td>
<td>88-89-1</td>
<td>0.1</td>
<td></td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

Toxicological Data on Ingredients

Picric acid: ORAL (LD50): Acute: 200 mg/kg [Rat].

Section 3. Hazards Identification

Potential Acute Health Effects

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

Continued on Next Page
**Section 4. First Aid Measures**

**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 and Explosion Data**

**Flammability of the Product**
Flammable.

**Auto-Ignition Temperature**
300°C (572°F)

**Flash Points**
CLOSED CUP: 150°C (302°F).

**Flammable Limits**
Not available.

**Products of Combustion**
These products are carbon oxides (CO, CO2), nitrogen oxides (NO, NO2...).

**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.

*Continued on Next Page*
### Picric acid

#### 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**
- 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.

#### 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. Keep away from heat. Keep away from sources of ignition. Keep away from direct sunlight or 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.

**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 30% 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. Mist and dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves (impervious).

**Personal Protection in Case of a Large Spill**
- Splash goggles. Full suit. Mist 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^3) from OSHA (PEL) [United States]
- TWA: 0.1 (mg/m^3) from ACGIH (TLV) [United States]
- TWA: 0.1 STEL: 0.3 (mg/m^3) from NIOSH [United States]
- TWA: 0.1 STEL: 0.3 (mg/m^3) [United Kingdom (UK)]
- Consult local authorities for acceptable exposure limits.

Continued on Next Page
### Section 9. Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Physical state and appearance</th>
<th>Solid. (Crystals solid.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Odor</td>
<td>Odorless.</td>
</tr>
<tr>
<td>Taste</td>
<td>Bitter.</td>
</tr>
<tr>
<td>Color</td>
<td>Yellow.</td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>229.11 g/mole</td>
</tr>
<tr>
<td>pH (1% soln/water)</td>
<td>Not available.</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>Not available.</td>
</tr>
<tr>
<td>Melting Point</td>
<td>122.5°C (252.5°F)</td>
</tr>
<tr>
<td>Critical Temperature</td>
<td>Not available.</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>1.763 (Water = 1)</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>7.9 (Air = 1)</td>
</tr>
<tr>
<td>Volatility</td>
<td>Not available.</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>Not available.</td>
</tr>
<tr>
<td>Water/Oil Dist. Coef.</td>
<td>The product is equally soluble in oil and water; log(oil/water) = -0.02</td>
</tr>
<tr>
<td>Ionicity (in Water)</td>
<td>Not available.</td>
</tr>
<tr>
<td>Dispersion Properties</td>
<td>See solubility in water, diethyl ether, acetone.</td>
</tr>
<tr>
<td>Solubility</td>
<td>Easily soluble in acetone.</td>
</tr>
<tr>
<td></td>
<td>Soluble in hot water, diethyl ether.</td>
</tr>
<tr>
<td></td>
<td>Partially soluble in cold water.</td>
</tr>
<tr>
<td></td>
<td>Soluble in ethanol.</td>
</tr>
<tr>
<td></td>
<td>Solubility in ethanol: 1 g/12 ml ethanol @ 25 deg. C</td>
</tr>
<tr>
<td></td>
<td>Solubility in water: 1.27 x 10+4 mg/l @ 25 C; 1g/78 ml water @ 25 C; 1 g/15 ml boiling water.</td>
</tr>
<tr>
<td></td>
<td>Solubility in Benzene: 1 g/10 ml @ 25 deg. C.</td>
</tr>
<tr>
<td></td>
<td>Solubility in Chloroform: 1 g/35 ml @ 25 deg. C.</td>
</tr>
<tr>
<td></td>
<td>Solubility in Ether: 1 g/65 ml @ 25 deg. C.</td>
</tr>
</tbody>
</table>

### Section 10. Stability and Reactivity Data

<table>
<thead>
<tr>
<th>Stability</th>
<th>The product is stable.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instability Temperature</td>
<td>Not available.</td>
</tr>
<tr>
<td>Conditions of Instability</td>
<td>Incompatible materials, 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%. May form shock-sensitive mixtures on contact with metals.</td>
</tr>
<tr>
<td>Incompatibility with various substances</td>
<td>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.</td>
</tr>
<tr>
<td>Corrosivity</td>
<td>Non-corrosive in presence of glass.</td>
</tr>
<tr>
<td>Special Remarks on Reactivity</td>
<td>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 aluminum 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.</td>
</tr>
</tbody>
</table>

Continued on Next Page
Picric acid

Corroses metals

Polymerization

Will not occur.

Section 11. Toxicological Information

Routes of Entry
Absorbed through skin. Eye contact. 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. May cause damage to the following organs: kidneys, liver, skin, eyes.

Other Toxic Effects on Humans
Very hazardous in case of skin contact (irritant), of ingestion. Hazardous in case of skin contact (sensitizer), 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
Acute Potential Health Effects:
Skin: Causes severe skin irritation and possible burns. It may dye the skin yellow. It may be absorbed by the skin, particularly through broken skin. If it is absorbed through the skin and it can cause symptoms similar to those of ingestion.
Eyes: Causes severe eye irritation and possible burns. May result in corneal injury. May cause a strange visual effect known as "yellow-tainted vision."
Inhalation: Inhalation of mist may cause respiratory tract irritation with coughing and shortness of breath. In normal use,Picric acid is a wetted solid or solution that does not readily form a vapor. This material has a low vapor pressure, so exposure to vapor is not likely under normal handling conditions.
Ingestion: Harmful if swallowed! May cause gastrointestinal tract irritation with bitter taste in mouth, abdominal pain, nausea, vomiting, hypermotility, diarrhea, malaise, thirst, increased sweating, bright yellow stools, yellow discoloration of skin, and possible corrosion and permanent tissue destruction of the esophagus and digestive tract. May affect behavior/central nervous system/nervous system (CNS depression, restlessness, anxiety, excitement, hyperactivity, vertigo, weakness, myalgia, headache, stupor, tremor, convulsions, loss of consciousness, coma), cardiovascular system (tachypnea, dysrhythmias, elevation in blood pressure, rapid pulse), metabolism (marked increases in metabolism and temperature, electrolyte abnormality), respiration (respiratory depression, hyperpnea, dyspnea), kidneys/urinary system (anuria, oliguria, polyuria, hematuria, albuminuria, renal lesions, hemorrhagic nephritis), liver (acute hepatitis, jaundice). High doses may also affect the blood (destruction of red blood cells (hemolytic anemia), agranulocytosis, leukopenia). May also cause cyanosis (a bluish discoloration of the skin due to deficient oxygenation of the blood).

Chronic Potential Health Effects:
Skin: Prolonged or repeated skin contact may cause allergic or sensitization dermatitis. May cause blistering and flaking of the skin, especially around the mouth and sides of nose.
Eyes: Prolonged or repeated eye contact may cause cataracts, conjunctivitis.
Prolonged or repeated skin and eye contact may also cause yellow staining of skin/hair 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**
UNNA: 1344 : Trinitrophenol, wetted with not less than 30% water, by mass  PG: I

**Special Provisions for Transport**
Not available.

**DOT (Pictograms)**

### Section 15. Other Regulatory Information and Pictograms

**Federal and State Regulations**
- 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

**California Proposition 65 Warnings**
- California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: No products were found.
- California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: No products were found.

**Other Regulations**
- EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances (EINECS No. 201-865-9).
- Canada: Listed on Canadian Domestic Substance List (DSL).
- China: Listed on National Inventory.
- Japan: Listed on National Inventory (ENCS).
- Korea: Listed on National Inventory (KECI).
- Philippines: Listed on National Inventory (PICCS).
- Australia: Listed on AICS.

**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)**
- R3- Extreme 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 water.
- S35- This material and its container must be disposed of in a safe way.
- S36/37- Wear suitable protective clothing and 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 | 3 |
| Fire Hazard   | 1 |
| Reactivity    | 1 |

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

- Health 4
- Flammability 4
- Reactivity 1

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**Continued on Next Page**
### Protective Equipment

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

### Section 16. Other Information

<table>
<thead>
<tr>
<th>MSDS Code</th>
<th>P3850</th>
</tr>
</thead>
<tbody>
<tr>
<td>References</td>
<td>Not available.</td>
</tr>
<tr>
<td>Other Special Considerations</td>
<td>Major Uses: In synthesis of dyes; rocket fuel; sensitization of photographic emulsions; explosives; matches</td>
</tr>
</tbody>
</table>

Validated by Sonia Owen on 8/26/2011.

CALL (310) 516-8000

Notice to Reader

Continued on Next Page
<table>
<thead>
<tr>
<th>Picric acid</th>
</tr>
</thead>
</table>

All chemicals may pose unknown hazards and should be used with caution. This Material Safety Data Sheet (MSDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this MSDS. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this MSDS is based on technical data judged to be reliable, Spectrum Quality Products, Inc. assumes no responsibility for the completeness or accuracy of the information contained herein.