# Safety Data Sheet

# ORANGE G – PICRIC ACID DIFFERENTIATING SOLUTION

## Section 1 - Chemical Product and Company Identification

**SDS Name:** Orange G – Picric Acid Differentiating Solution
**Catalog Numbers:** F-380-5
**Company Identification:** Transene Company, Inc., DBA ROWLEY BIOCHEMICAL, Inc.
10 ELECTRONICS AVENUE
DANVERS, MA 01923
**For information, call:** 978-739-4883
**Emergency Number:** 800-424-9300
**For CHEMTREC assistance, call:** 800-424-9300

## Section 2 - Hazards Identification

### GHS Classifications

H225-Flammable liquids: 2
H301-Acute toxicity, oral: 3
H315-Skin corrosion/irritation: 2
H317-Sensitisation, skin: 1
H319-Serious eye damage/eye Irritation: 2A
H370-Specific target organ toxicity, single exposure: 1
H372-Specific target organ toxicity, repeated exposure: 1

### Pictograms or Hazard symbols and Hazard statement(s):

Signal word: Danger

### Hazard statements:

H225-Highly flammable liquid and vapour
H301-Toxic if swallowed

H315-Causes skin irritation
H317-May cause an allergic skin reaction
H319-Causes serious eye irritation
H370-Causes damage to organs (target organs: respiratory system, central nervous system, optic nerve, kidneys, skin, blood, eyes, and liver).
H372-Causes damage to organs through prolonged or repeated exposure (target organs: kidney, liver, and blood).

## Precautionary Statements:

P210-Keep away from heat/sparks/open flames/hot surfaces.-No smoking.
P233-Keep container tightly closed.
P240-Ground/Bond container and receiving equipment.
P241-Use explosion-proof electrical/ventilating/lighting/equipment.
P242-Use only non-sparking tools.
P243-Take precautionary measures against static discharge.
P260-Do not breathe dust/fume/gas/mist/vapours/spray.
P261-Avoid breathing dust/fume/gas/mist/vapours/spray.
P264-Wash thoroughly after handling.
P270-Do not eat, drink, or smoke when using this product.
P272-Contaminated work clothing should not be allowed out of the workplace.
P280-Wear protective gloves/eye protection/face protection.
P301+P310-If swallowed: Immediately call a Poison Center or doctor/physician.
P302+P352-If on skin: Wash with plenty of soap and water.
P303+P361+P353-If on skin (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower.
P305+P351+P338-If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P307+P311-If exposed: Call a Poison Center or doctor/physician.
P314-Get medical advice/attention if you feel unwell.
P330-Rinse mouth.
P332+P313-If skin irritation occurs: Get medical advice/attention.
P333+P313-If skin irritation or rash occurs: Get medical advice/attention.
P337+P313-If eye irritation persists: Get medical advice/attention.
P362-Take off contaminated clothing and wash before reuse.
P363-Wash contaminated clothing before reuse.
P370+P378-In case of fire: Use dry chemical, carbon dioxide, dry sand, water spray or alcohol-resistant foam to extinguish.
P403+P235-Store in a well-ventilated place. Keep cool.
P405-Store locked up.
P501-Dispose of contents/container in accordance with local/regional/national/international regulations.

## Section 3 - Composition, Information on Ingredients

| CAS# | Chemical Name | Percent |
|---|---|---|
| 88-89-1 | Picric acid | 2.3 w/v |
| 1936-15-8 | Orange G | 0.06 w/v |
| 64-17-5 | Ethyl alcohol | 76 v/v |
| 67-56-1 | Methyl alcohol | 4 v/v |
| 7732-18-5 | Water | Balance |

## Section 4 - First Aid Measures

**Eye Exposure:** In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

**Dermal Exposure:** In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Seek medical attention.

**Oral Exposure:** If swallowed, seek immediate medical advice. Rinse mouth with water.

**Inhalation Exposure:** If inhaled, remove to fresh air. If breathing becomes difficult, call a physician.

## Section 5 - Fire Fighting Measures

**General Information:** Containers can build up pressure if exposed to heat and/or fire. As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Vapors may form an explosive mixture with air. Vapors can travel to a source of ignition and flash back. Will burn if involved in a fire. Flammable Liquid. Can release vapors that form explosive mixtures at temperatures above the flashpoint. Use water spray to keep fire-exposed containers cool. Containers may explode in the heat of a fire.

**Extinguishing Media:** For small fires, use dry chemical, carbon dioxide, dry sand, water spray or alcohol-resistant foam. For large fires, use water spray, fog, or alcohol-resistant foam. Use water spray to cool fire-exposed containers. Water may be ineffective. Do NOT use straight streams of water.

**Hazardous Combustion Products:** Carbon oxides, nitrogen oxides, sulfur oxides, sodium oxides, irritating toxic fumes and gases.

**Flash Point:** Not available
**Autoignition Temperature:** Not available
**Explosion Limits, Lower:** Not available
**Upper:** Not available
**NFPA Rating:** (estimated) Health: 2; Flammability: 4; Instability: 0

NOTE: Static discharge could act as an ignition source.

Note: Picric acid can explode on contact when dry. **Do not allow this material to dry out.** Do not let dry picric acid (crystals) form in container or on the cap threads of the container. A severe explosion hazard when shocked or exposed to heat. Dried out picric acid may explode if exposed to heat, flame, friction, or shock. May form shock-sensitive mixtures on contact with metals. Can violently decompose at elevated temperatures.

## Section 6 - Accidental Release Measures

**Procedure(s) of Personal Precaution(s):**
Wear personal protective equipment. Do not ingest or inhale. Do not get on skin or clothing. Do not get in eyes. Ensure adequate ventilation. Keep away from heat. Eliminate all sources of ignition. Take precautionary measures against static discharge.

**Methods for Cleaning up:** Absorb with sand, earth, or vermiculite. Never allow spilled material to dry. Carefully absorb with material that is dampened with water and containerize for proper disposal. Use spark-proof tools and explosion-proof equipment. Do not release to the environment. Do not release to drains.

## Section 7 - Handling and Storage

Use care when handling. Wear personal protective equipment. Wash thoroughly after handling. Use with adequate ventilation. Avoid contact with eyes, skin, and clothing. Avoid ingestion and inhalation. Store in a cool, dry, well-ventilated area. Keep in a tightly closed and non-metal container. Keep away from incompatible materials. Protect from heat. Vapors heavier than air may travel considerable distance and ignite or explode. Use only non-sparking tools. Take precautionary measures against static discharges. To avoid ignition of vapors by static electricity discharge, all metals parts of the equipment must be grounded.

NOTE: Static discharge could act as an ignition source.

Note: Picric acid can explode on contact when dry. **Do not allow this material to dry out.** Do not let dry picric acid (crystals) form in container or on the cap threads of the container. A severe explosion hazard when shocked or exposed to heat. Dried out picric acid may explode if exposed to heat, flame, friction, or shock. May form shock-sensitive mixtures on contact with metals. Can violently decompose at elevated temperatures.

## Section 8 - Exposure Controls, Personal Protection

**Engineering Controls:** Use explosion-proof ventilation equipment. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.
**Personal Protective Equipment**
**Eyes:** Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
**Skin:** Wear appropriate protective gloves to prevent skin exposure.
**Clothing:** Wear appropriate protective clothing to prevent skin exposure.
**Respirators:** A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant a respirator's use.

**Exposure Limits**:

| Chemical Name | ACGIH | NIOSH | OSHA - Final PELs |
|---|---|---|---|
| Picric Acid<br>CAS#88-89-1 | 0.1 mg/m3 TWA | 0.1 mg/m3 TWA<br>0.3 mg/m3 STEL | 0.1 mg/m3 TWA |
| Orange G<br>CAS#1936-15-8 | Not listed | Not listed | Not listed |
| Ethanol<br>CAS#64-17-5 | 1000 ppm STEL | 1000 ppm TWA<br>1900 mg/m3 TWA<br>3300 ppm IDLH | 1000 ppm TWA<br>1900 mg/m3 TWA |
| Methanol<br>CAS#67-56-1 | 200 ppm TWA<br>250 ppm STEL | 200 ppm TWA<br>260 mg/m3 TWA<br>250 ppm STEL<br>325 mg/m3 STEL<br>6000 ppm IDLH | 200 ppm TWA<br>260 mg/m3 TWA<br>250 ppm STEL<br>325 mg/m3 STEL |

**OSHA Vacated PELs:** Ethanol: 1000 ppm TWA; 1900 mg/m3 TWA
Methanol: 200 ppm TWA; 260 mg/m3 TWA; 250 ppm STEL; 325 mg/m3 STEL

## Section 9 - Physical and Chemical Properties

**Physical State:** Liquid
**Appearance:** Yellow-Orange

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**Odor:** Alcohol-like
**Vapor Pressure:** Not available
**Odor threshold:** Not available
**Vapor Density:** Not available
**pH:** Not available
**Relative density:** Not available
**Melting point/freezing point:** Not available
**Solubility:** Soluble in water
**Boiling Point:** Not available
**Flash point:** Not available
**Evaporation Rate:** Not available
**Flammability (solid, gas):** Not available

**Partition coefficient: n-octanol/water:** Not available
**Auto-ignition temperature:** Not available
**Decomposition temperature:** Not available
**Viscosity:** Not available
**Specific Gravity/Density:** Not available

NOTE: Static discharge could act as an ignition source.

## Section 10 - Stability and Reactivity

**Chemical Stability:** Stable under normal temperatures and pressures. Reacts violently with oxidizers: Risk of fire/explosion. Heat and sunlight can contribute to instability. 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 the container. Dry picric acid is explosive. It can explode if water content is below 10%.
**Conditions to Avoid:** Direct sunlight. Extremely high or low temperatures. Open flame. Incompatible materials, ignition sources, excess heat, oxidizers, shock, and friction. 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!
**Incompatibilities with Other Materials:** Oxidizing agents, reducing agents, acids, alkali metals, ammonia, hydrazine, peroxides, sodium, acid anhydrides, calcium hypochlorite, chromyl chloride, nitrosyl perchlorate, bromine pentafluoride, perchloric acid, silver nitrate, mercuric nitrate, potassium-tert-butoxide, magnesium perchlorate, acid chlorides, platinum, uranium hexafluoride, silver oxide, iodine heptafluoride, acetyl bromide, disulfuryl difluoride, tetrachlorosilane + water, acetyl chloride, permanganic acid, ruthenium (VIII) oxide, uranyl perchlorate, potassium dioxide, bases, metals, copper, lead, zinc, heavy metal salts, plaster, concrete, ammonia, albumin, gelatin, and uranium perchlorate.
**Hazardous Decomposition Products:** Carbon oxides, nitrogen oxides, sulfur oxides, sodium oxides, irritating toxic fumes and gases.

Note: Picric acid can explode on contact when dry. **Do not allow this material to dry out.** Do not let dry picric acid (crystals) form in container or on the cap threads of the container. A severe explosion hazard when shocked or exposed to heat. Dried out picric acid may explode if exposed to heat, flame, friction, or shock. May form shock-sensitive mixtures on contact with metals. Can violently decompose at elevated temperatures.

## Section 11 - Toxicological Information

**CAS#88-89-1: Picric Acid: RTECS#: TJ7875000**
LD50 Oral: 200 mg/kg (rat)
LD50 Dermal: Not available
LC50 Inhalation: Not available

**Carcinogenicity:** Picric Acid CAS#88-89-1 is not listed by IARC, NTP, ACGIH, OSHA, or California Prop 65.

**CAS#1936-15-8 Orange G: RTECS#: QJ6500000**
LD50 Oral: Not available

LD50 Dermal: Not available
LC50 Inhalation: Not available

**Carcinogenicity:** Orange G CAS#1936-15-8 is not listed by NTP, ACGIH, OSHA, or California Prop 65. Orange G is listed by IARC (Group 3, Not Classifiable as to its Carcinogenicity to Humans).

**CAS#64-17-5 Ethyl Alcohol: RTECS#: KQ6300000**
LD50 Oral: 7060 mg/kg (rat)
LD50 Dermal: Not available
LC50 Inhalation: 20000 ppm (rat) 10h

Draize test, rabbit, eye: 500 mg Severe.
Draize test, rabbit, eye: 500 mg/24H Mild.
Draize test, rabbit, skin: 20 mg/24H Moderate.

**Carcinogenicity:** Ethyl Alcohol CAS#64-17-5 is listed by IARC (Group 1, Carcinogenic to Humans), NTP, and ACGIH (A3, Animal Carcinogen). Ethyl Alcohol is listed by California Prop. 65 as a developmental carcinogen (alcoholic beverages).

**CAS#67-56-1 Methyl Alcohol: RTECS#: PC1400000**
LD50 Oral: 6200 mg/kg (rat)
LD50 Dermal: 15800 mg/kg (rabbit)
LC50 Inhalation: 64000 ppm (rat) 4h

**Carcinogenicity:** Methyl Alcohol CAS#67-56-1 is not listed by IARC, NTP, ACGIH, or OSHA. Methyl Alcohol is listed by California Prop. 65 as a developmental carcinogen.

**Epidemiology:** Ethanol has been shown to produce fetotoxicity in the embryo or fetus of laboratory animals. Prenatal exposure to ethanol is associated with a distinct pattern of congenital malformations that have collectively been termed the "fetal alcohol syndrome".
**Teratogenicity:** Oral, Human - woman: TDLo = 41 gm/kg (female 41 week(s) after conception) Effects on Newborn - Apgar score (human only) and Effects on Newborn - other neonatal measures or effects and Effects on Newborn - drug dependence.
**Reproductive Effects:** Intrauterine, Human - woman: TDLo = 200 mg/kg (female 5 day(s) pre-mating) Fertility - female fertility index (e.g. # females pregnant per # sperm positive females; # females pregnant per # females mated).
**Neurotoxicity:** Not available.
**Mutagenicity:** DNA Inhibition: Human, Lymphocyte = 220 mmol/L.; Cytogenetic Analysis: Human, Lymphocyte = 1160 gm/L.; Cytogenetic Analysis: Human, Fibroblast = 12000 ppm.; Cytogenetic Analysis: Human, Leukocyte = 1 pph/72H (Continuous).; Sister Chromatid Exchange: Human, Lymphocyte = 500 ppm/72H (Continuous).
**Other Studies:** Standard Draize Test(Skin, rabbit) = 20 mg/24H (Moderate) Standard Draize Test: Administration into the eye (rabbit) = 500 mg (Severe).
**Specific Organ Toxicity, Single Exposure:** Respiratory system, central nervous system, optic nerve, kidneys, skin, blood, eyes, and liver.
**Specific Organ Toxicity, Repeated Exposure:** Kidney, liver, and blood.

**The toxicological properties of this material have not been thoroughly investigated.**

Note: Picric acid causes skin irritation and it may be absorbed through the skin. It has been shown to cause symptoms when absorbed through the skin; like those when ingested. Will

cause eye irritation and may result in corneal injury leading to blindness. Toxic if swallowed. May cause gastrointestinal tract irritation with abdominal pain, nausea, vomiting, and 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). Prolonged or repeated skin contact may cause allergic or sensitization dermatitis. Causes serious eye irritation. May cause conjunctivitis in the eyes and yellow staining of the skin and eyes. May cause corneal injury. May cause a strange visual effect known as "yellow-tainted vision."

## Section 12 - Ecological Information

**Ecotoxicity:** Do not release to the environment. Do not release to drains. Toxic to aquatic life with long lasting effects.

**CAS#64-17-5 Ethyl Alcohol:**
EC50, freshwater algae: 275 mg/L (chlorella vulgaris) 72h
LC50 , freshwater fish: 14200 mg/L (pimephales promelas)(fathead minnow) 96h
EC50, water flea: 9268 mg/L 48h, 10800 mg/L 24h
EC50, water flea: 10800 mg/L 24h
IC50, bacteria: >1000 mg/L 3h (activated sludge)
EC50, microtox: 34634 mg/L 30min (photobacterium phosphoreum)
EC50, microtox: 35470 mg/L 5min (photobacterium phosphoreum)

**CAS#67-56-1 Methyl Alcohol:**
LC50, freshwater fish: >10000 mg/L (pimephales promelas)(fathead minnow) 96h
EC50, water flea: >10000mg/L 24 h
ErC50, algae: 22000 mg/L 96h (pseudokirchneriella subcapitata)(green algae)
IC50, bacteria: >1000 mg/L 3h (activated sludge)
EC50, microtox: 39000 mg/L 25min
EC50, microtox: 40000 mg/L 15min
EC50, microtox: 43000 mg/L 5min

**Persistence and degradability:** Not available.
**Bio-accumulative potential:** Not available.
**Mobility:** Will likely be mobile in the environment due to its water solubility and volatility.

## Section 13 - Disposal Considerations

**DISPOSAL:** Dispose of in accordance with all federal, state, and local regulations.

## Section 14 – Transport Information

**DOT**
Proper shipping name: Alcohols, N.O.S.
UN1987
PG ll
Hazard class 3 (flammable)

## Section 15 - Regulatory Information

**Canada Regulatory Information**

WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the SDS contains all the information required by the CPR.

## Section 16 - Additional Information

**SDS Creation Date:** 10-20-22

*The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Rowley Biochemical, Inc. be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Rowley Biochemical, Inc. has been advised of the possibility of such damages.*