Section 1: Identification

MANUFACTURER: PACE Technologies
3601 E. 34th St.
Tucson, AZ 85713

INFORMATION PHONE: 520-882-6598

EMERGENCY PHONE: CHEMTREC 800-424-9300 (US) Day or night
Customer No. 16568

TRADE NAME: Ammonium persulfate solutions

CHEMICAL FAMILY: Ammonium persulfate solutions: CAS Number – 7727-54-0

Section 2: Hazard(s) Identification

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Oxidizing solids (Category 3), H272
Acute toxicity, Oral (Category 4), H302
Acute toxicity, Dermal (Category 4), H312
Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319
Respiratory sensitization (Category 1), H334
Skin sensitization (Category 1), H317
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335
Acute aquatic toxicity (Category 3), H402
Chronic aquatic toxicity (Category 3), H412

PICTOGRAM(s):

SIGNAL WORD: Danger

HAZARD STATEMENTS:

Hazard Statement(s):
H272 - May intensify fire; oxidizer
H302 - Harmful if swallowed
H312 - Harmful in contact with skin
H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H319 - Causes serious eye irritation
H334- May cause allergy or asthma symptoms or breathing difficulties if inhaled
H335- May cause respiratory irritation
H412- Harmful to aquatic life with long lasting effects
PRECAUTIONARY STATEMENTS:

Precautionary Statement(s):

Preventions:
P210- Keep away from heat/sparks/open flames/hot surfaces. — No smoking.
P220- Keep/Store away from clothing combustible materials.
P221- Take any precaution to avoid mixing with combustibles.
P261- Avoid breathing dust/fume/gas/mist/vapors/spray.
P264- Wash skin thoroughly after handling.
P271- Use only outdoors or in a well-ventilated area.
P273- Avoid release to the environment.
P280- Wear protective gloves/protective clothing/eye protection/face protection.

Response:
P301+312- IF SWALLOWED: call a POISON CENTER or doctor/physician IF you feel unwell.
P302+352- IF ON SKIN: wash with plenty of soap and water.
P304+P340-IF INHALED: Remove victim to fresh air and Keep at rest in a position comfortable for breathing.
P305+P351+P338- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P312- Call a POISON CENTER or doctor/physician if you feel unwell.
P321- Specific treatment (see Section 4 SDS).
P322- Specific measures (see Section 4 SDS).
P330- Rinse mouth.
P332+P313- IF SKIN irritation occurs: Get medical advice/attention.
P337- P313- IF eye irritation persists: Get medical advice/attention.
P362- Take off contaminated clothing and wash before reuse. P270- Do not eat, drink or smoke when using this product.
P363- Wash contaminated clothing before reuse.
P370+P378- In case of fire: Do Not Use water for extinction.
P391- Collect spillage. Hazardous to the aquatic environment.

Storage:
P403+P233- Store in a well-ventilated place. Keep container tightly closed.
P405- Store locked up.

Disposal:
P501- Dispose of contents/container to Federal, State and Local Regulations.

Emergency Overview

DANGER! STRONG OXIDIZER. CONTACT WITH OTHER MATERIAL MAY CAUSE FIRE. HARMFUL IF SWALLOWED OR INHALED, MAY CAUSE BURNS TO SKIN AND EYES. MAY CAUSE ALLERGIC SKIN OR RESPIRATORY REACTION.

SAF-T-DATA™ Ratings (Provided here for your convenience)

Health Rating: 2 - Moderate (Life)
Flammability Rating: 0 - None
Reactivity Rating: 3 – Severe (Oxidizer)
Contact Rating: 3 - Severe (Oxidizer)
Lab Protective Equip: GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES
Storage Color Code: Yellow (Reactive)

Potential Health Effects

Inhalation:
May irritate the mucous membranes. May cause lung edema. Symptoms may include sore throat, shortness of breath, inflammation of nasal passages, coughing, and wheezing. Any exposure may cause an allergic reaction. Asthma-like symptoms and life-threatening shock may result.

Ingestion:
Corrosive. May produce abdominal pain, nausea and vomiting.
Skin Contact:
Corrosive. May cause skin burns.
Eye Contact:
May cause severe irritation and pain.
Chronic Exposure:
Prolonged skin contact may cause an allergic reaction with dermatitis.
Aggravation of Pre-existing Conditions:
Persons with impaired respiratory function may be more susceptible to the effects of the substance.

Section 3: Composition/Information on Ingredients

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>CAS No</th>
<th>Percent</th>
<th>Hazardous</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium Persulfate</td>
<td>7727-54-0</td>
<td>15 - 25%</td>
<td>Yes</td>
</tr>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>28 - 79%</td>
<td>No</td>
</tr>
</tbody>
</table>

Section 4: First-Aid Measures

Inhalation:
Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician immediately.

Ingestion:
If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Skin Contact:
Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician, immediately. Wash clothing before reuse.
Eye Contact:
Immediately flush eyes with gentle but large stream of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Call a physician immediately.

Section 5: Fire-Fighting Measures

Fire:
Not combustible, but substance is a strong oxidizer and its heat of reaction with reducing agents or combustibles may cause ignition. Heating or contact with water releases oxygen which may intensify combustion in an existing fire.

Explosion:
An explosion hazard when mixed with finely powdered organic matter, metal powder, or reducing agents.

Fire Extinguishing Media:
Use any means suitable for extinguishing surrounding fire. Do not use water.

Special Information:
In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full face-piece operated in the pressure demand or other positive pressure mode. Sealed containers may rupture when heated.

Section 6: Accidental Release Measures

Remove all sources of ignition. Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Spills: Clean up spills in a manner that does not disperse dust into the air. Use non-sparking tools and equipment. Reduce airborne dust and prevent scattering by moistening with water. Pick up spill for recovery or disposal and place in a closed container.

Section 7: Handling and Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Separate from incompatibilities. Store below 25°C. Protect from direct sunlight. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

Section 8: Exposure Controls/ Personal Protection

Airborne Exposure Limits:
-OSHA Permissible Exposure Limit (PEL):
0.1 ppm (as persulfate)

Ventilation System:
A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, "Industrial Ventilation, A Manual of Recommended Practices", most recent edition, for details.

**Personal Respirators (NIOSH Approved):**
For conditions of use where exposure to dust or mist is apparent and engineering controls are not feasible, a particulate respirator (NIOSH type N95 or better filters) may be worn. If oil particles (e.g. lubricants, cutting fluids, glycerine, etc.) are present, use a NIOSH type R or P filter. For emergencies or instances where the exposure levels are not known, use a full-face positive-pressure, air-supplied respirator. WARNING: Airpurifying respirators do not protect workers in oxygen-deficient atmospheres.

**Skin Protection:**
Wear protective gloves and clean body-covering clothing.

**Eye Protection:**
Use chemical safety goggles. Maintain eye wash fountain and quick-drench facilities in work area.

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**Section 9: Physical and Chemical Properties**

**Appearance:**
Clear, colorless solution.

**Odor:**
Odorless.

**Solubility:**
80 g/100 ml water @ 25°C (77°F)

**Specific Gravity:**
1.98 @ 20°C/4°C

**pH:**
No information found

**% Volatiles by volume @ 21°C (70°F):**
0

**Boiling Point:**
No information found

**Melting Point:**
No information found

**Vapor Density (Air=1):**
No information found

**Vapor Pressure (mm Hg):**
No information found

**Evaporation Rate (BuAc=1):**
No information found.
Section 10: Stability and Reactivity

Stability:
Stable under ordinary conditions of use and storage.

Hazardous Decomposition Products:
Decomposed by moisture to form oxygen and ozone. Burning may produce nitrogen oxides, sulfur oxides, and sulfuric acid.

Hazardous Polymerization:
Will not occur.

Incompatibilities:
Reducing agents, organic material, sodium peroxide, water and powdered metals especially aluminum.

Conditions to Avoid:
Combustible materials and incompatibles.

Section 11: Toxicological Information

For ammonium hydroxide:
oral rat LD50: 689 mg/kg

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>NTP Carcinogen</th>
<th>Known</th>
<th>Anticipated</th>
<th>IARC Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium Persulfate (7727-54-0)</td>
<td>No</td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Water (7732-18-5)</td>
<td>No</td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
</tbody>
</table>

Section 12: Ecological Information

Environmental Fate:
No information found.

Environmental Toxicity:
No information found.

Section 13: Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste facility. Although not a listed RCRA hazardous waste, this material may exhibit one or more characteristics of a hazardous waste and require appropriate analysis to determine specific disposal requirements. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.
Section 14: Transportation Information

Domestic (Land, D.O.T.)

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Proper Shipping Name: OXIDIZING LIQUID, N.O.S. (AMMONIUM PERSULFATE)
Hazard Class: 5.1
UN/NA: UN3139
Packing Group: III
Limited Quantity Shipment < 5 L

Section 15: Regulatory Information

WHMIS Classification: D1B, E

---------\Chemical Inventory Status - Part 1\-------------------------------------
Ingredient TSCA EC Japan Australia
Ammonium Persulfate (7727-54-0) Yes Yes Yes Yes
Water (7732-18-5) Yes Yes Yes Yes

---------\Chemical Inventory Status - Part 2\-------------------------------------
Ingredient Korea DSL NDSL Phil.
Ammonium Persulfate (7727-54-0) Yes Yes No Yes
Water (7732-18-5) Yes Yes No Yes

---------\Federal, State & International Regulations - Part 1\------------------
Ingredient -SARA 302- -SARA 313-
Ammonium Persulfate (7727-54-0) No No No No
Water (7732-18-5) No No No No

---------\Federal, State & International Regulations - Part 2\------------------
Ingredient -RCRA- -TSCA-
Ammonium Persulfate (7727-54-0) No No No No
Water (7732-18-5) No No No No

Chemical Weapons Convention: No TSCA 12(b): No CDTA: No
SARA 311/312: Acute: Yes Chronic: Yes Fire: Yes Pressure: No
Reactivity: No (Mixture / Liquid)

Australian Hazchem Code: 2P
Poison Schedule: Non allocated

WHMIS:
This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

Section 16: Other Information

16.1 NFPA 704

Top, Flammability: 3 – Severe Hazard
Left, Health Hazard: 3 – Severe Hazard
Right, Reactivity: 2 – Moderate Hazard
Bottom, Special Notice: COR – Corrosive

Label First Aid:
In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. In all cases get medical attention immediately.

Product Use:
Laboratory Reagent.

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