Material Safety Data Sheet: Pyruvic Acid Tubes

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Pyruvic Acid Tubes
SYNONYMS: Perchloric Acid
PRODUCT CODES: 16567

MANUFACTURER: ARUP Laboratories Inc.
DIVISION: Reagent Lab
ADDRESS: 500 Chipeta Way
Salt lake City, UT 84108

EMERGENCY PHONE: 801-583-2787
OTHER CALLS: 800-242-2787
FAX PHONE: 800-522-2706

CHEMICAL NAME: Perchloric Acid, in aqueous solution
CHEMICAL FORMULA: HClO₄

PREPARED BY: ARUP Corporate Safety
REVISION DATE: 2/8/2016

SECTION 2: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:
OSHA Hazards:
DANGER! STRONG OXIDIZER. CONTACT WITH OTHER MATERIAL MAY CAUSE FIRE OR EXPLOSION. CORROSIVE. CAUSES SEVERE IRRITATION AND BURNS TO EVERY AREA OF CONTACT. HARMFUL IF SWALLOWED OR INHALED

GHS Classification
Skin Corrosion/Irritation (Category 1)
Eye Damage/Irritation (Category 1)
Specific Target Organs/Systemic Toxicity Following Single Exposure (Category 1)
Corrosive to Metal (Category 1)

GHS Label Elements, Including Precautionary Statements

Pictogram

Signal Word   Danger

Hazard Statement(s)
H290 May be corrosive to metals.
H314 Causes severe skin burns and eye damage.
H318 Causes serious eye damage.
H370 Causes damage to organs.

Precautionary statement(s)
P234 Keep only in original container.
P260 Do not breathe dust, fumes or mist.
P264 Wash arms, hands and face thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P280 Wear protective gloves and eye protection.
P301+P330+P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P303+P361+P353 IF ON SKIN immediately take off all contaminated clothing. Rinse skin with water.
SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>CAS NO.</th>
<th>Concentration</th>
<th>SARA 13 Reportable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perchloric acid</td>
<td>7601-90-3</td>
<td>8.0% (w/v)</td>
<td>No</td>
</tr>
<tr>
<td>NANOpure water</td>
<td>None</td>
<td>N/A</td>
<td>No</td>
</tr>
</tbody>
</table>

SECTION 4: FIRST AID MEASURES

In case of eye contact:
Immediately flush eyes with copious amounts of water for at least 15 minutes. Get medical attention immediately.

In case of skin contact:
Immediately flush skin with copious amounts of water for at least 15 minutes while removing contaminated clothing and shoes if necessary. Call a physician, immediately. Wash clothing before reuse.

In case of ingestion:
Do not induce vomiting. Get medical attention immediately.

In case of inhalation:
Remove to fresh air. If not breathing give artificial respiration. If breathing is difficult give oxygen. Consult a physician.

SECTION 5: FIRE-FIGHTING MEASURES

Conditions of flammability
Not flammable or combustible

Suitable extinguishing media
Use water spray, dry chemical or carbon dioxide extinguisher

Special protective equipment for fire fighters
Wear self-contained breathing apparatus for firefighting if necessary

Hazardous combustion products
Carbon oxides, arsenic oxides

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions
Use person protective equipment. Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Vapors can accumulate in low areas.

Environmental precautions
Prevent further leakage of spillage if safe to do so. Do not let product enter drains or sewer system.

Methods and materials for containment and clean-up
Cover the spill with Sodium Carbonate or a soda ash-slaked lime mixture (50:50). Mix and add water to form slurry. Decant the liquid to the drain with excess water. Treat the solid residue as normal refuse. Wash site with soda ash solution. Always dispose of in accordance with local regulations.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapor or mist. Avoid the formation of dusts or aerosols. Protect from freezing and physical damage.
Wash hand thoroughly after using.
Do not allow perchloric acid to come into contact with strong dehydrating agents (concentrated sulfuric acid, anhydrous phosphorous pentoxide, etc.). Keep the quantities of perchloric acid handled at the bare minimum for safety. Handling acid on wooden floors is dangerous, especially after the acid has dried. The wooden floor will then become sensitive to ignition by friction. Perchloric acid mist and vapor can condense in ventilation systems to form metallic perchlorates, which can be explosive.

Conditions for safe storage
Do not store near combustible materials. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Avoid storage on wood floors. Perchloric acid should be stored segregated from all other chemicals & inside secondary containment. It must not be stored near organic acids, near bases, or near other organic or flammable material.
Shelves and floor material should be non-combustible and acid-resistant. Protect from freezing.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

This product contains no substances with occupational exposure limits.

Respiratory protection:
Where respiratory protection, when necessary, as determined by a risk assessment. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Eye protection:
Safety goggles.

Hand protection:
Handle with gloves.

Skin and body protection:
Choose body protection according to the amount and concentrations of dangerous goods in the workplace.

Work hygiene practices:
Handle in accordance with good industrial hygiene and safety practices. Wash hands before breaks, after removal of gloves and at the end of the workday.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance:
Colorless to slight yellow liquid

Odor:
Strong pungent odor

Physical state:
Liquid
pH: No data available

BOILING POINT:
F: No data available
C: No data available

MELTING POINT:
F: No data available
C: No data available

FREEZING POINT:
F: No data available
C: No data available

VAPOR PRESSURE (mmHg) @:
F: No data available
VAPOR DENSITY (AIR = 1) @:
F:  No data available
C:  No data available

SPECIFIC GRAVITY (H2O = 1) @:
F:  No data available
C:  No data available

EVAPORATION RATE:
  BASIS (=1):  No data available

Solubility in water:
Infinitely soluble in water.

Percent solids by weight:
  8% w/v

Percent volatile:
No data available

Volatile organic compounds (VOC):
N/A

Molecular weight:
100.46

Viscosity:
No data available

SECTION 10: STABILITY AND REACTIVITY

Stability:
Unstable at ordinary temperature and pressure and can undergo explosive decomposition, especially at elevated temperatures or if allowed to dehydrate.

Possibility of hazardous reaction:
No data available

Conditions to avoid:
Heat, incompatibles.

Material to avoid:
Incompatible with numerous materials, including combustible materials, organic chemicals, strong dehydrating agents, reducing and oxidizing agents. Reacts violently with benzene, calcium hydride, wood, acetic acid, charcoal, olefins, ethanol, sulfur and sulfuric acid.

Hazardous decomposition or by-products:
Hazardous decomposition products formed under fire conditions.

SECTION 11: TOXICOLOGICAL INFORMATION

Acute toxicity
Oral LD50
Oral rat LD50: 1100 mg/kg.

Inhalation LC50
No data available

Dermal LD50
No data available

Other information of acute toxicity
No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available
Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available.

Carcinogenicity
No data available

Reproductive toxicity
No data available

Teratogenicity
No data available

Specific target organ toxicity- single exposure (Globally Harmonized System)
No data available

Specific target organ toxicity- repeat exposure (Globally Harmonized System)
No data available

Aspiration Hazard
No data available

Potential health effects

Inhalation
Corrosive. Inhalation of vapors or mists will cause irritation with coughing, choking, and inflammation of the nose, throat, and upper respiratory tract.

Ingestion
Corrosive. May cause burns of mouth, throat, and stomach, nausea, vomiting and diarrhea.

Skin
Corrosive. Can cause severe burns with discoloration and pain.

Eye
Corrosive. Permanent visual damage may occur. Highly corrosive to tissue.

Aggravated Medical Condition
Persons with pre-existing skin disorders or impaired respiratory function may be more susceptible to the effects of the substance.

Signs and Symptoms of exposure
No data available.

Synergistic effect
No data available

SECTION 12: ECOLOGICAL INFORMATION

Toxicity
LC 20/2,000 ppm/goldfish/24hr. This material may be toxic to aquatic life.

Persistence and degradability
No data available

Bio-accumulative potential
No data available

Mobility in soil
No data available

PBT and vPvB assessment
No data available

Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Components are very toxic to aquatic life.
Product
Contact a licensed professional waste disposal service to dispose of this material. Burn in a chemical incinerator.

Contaminated packaging
Dispose of as unused product

SECTION 14: TRANSPORT INFORMATION

DOT:
Shipping Name: Corrosive Liquid, Acidic, Inorganic, N.O.S., (Perchloric Acid)
Hazard Class: 8
UN Number: UN3264
Packing Group: III

IATA:
UN3264
Shipping Name: Corrosive Liquid, Acidic, Inorganic, N.O.S., (Perchloric Acid)
Class 8
Packing Group III

SECTION 15: REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS
OSHA Hazards
Not listed

SARA 302 components
Not listed

SARA 313 components
Not listed

SARA 311/312 Hazards
Not listed

Massachusetts Right to Know Components
- Perchloric acid 7601-90-3 Present

Pennsylvania Right to Know components
- Perchloric acid 7601-90-3 Present
- Water 7732-18-5 Present

New Jersey Right to Know Components
- Perchloric acid 7601-90-3 reactive-third degree
- Perchloric acid 7601-90-3 s n 2637
- Water 7732-18-5

California Prop. 65 Components
Not listed

Canada Domestic Substances List/ Non-Domestic Substances List (DSL/NDSL)
- Perchloric acid 7601-90-3 Present
- Water 7732-18-5 Present

United States of America Toxic Substances Control Act (TSCA) List
- Perchloric acid 7601-90-3 Present
- Water 7732-18-5 Present
DISCLAIMER:
The foregoing information is offered in good faith as accurate, but without guarantee of any kind. ARUP assumes no liability whatsoever for the accuracy or completeness of the information contained herein. The material(s) described above may present unknown hazards and should be used with caution. Although certain hazards are described above, we cannot guarantee that these are the only hazards that exist. Conditions of use and suitability of these materials for particular uses are beyond ARUP’s control. Final determination of suitability of any material is therefore the sole responsibility of the user. Appropriate warnings and safe handling procedures are also the responsibility of the handlers and users of the materials described herein. All risks associated with use of such materials are assumed by the user. ARUP EXPRESSLY DISCLAIMS ALL WARRANTIES OF EVERY KIND AND NATURE IN CONNECTION WITH THE FOREGOING INFORMATION OR THE USE OF THE MATERIALS, WHETHER EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, ACCURACY AND COMPLETENESS.