SAFETY DATA SHEET
Didymium Standard for UV Cert. to USP857, Part Number G6860-80001

Section 1. Identification

Product identifier : Didymium Standard for UV Cert. to USP857, Part Number G6860-80001
Part no. : G6860-80001

Relevant identified uses of the substance or mixture and uses advised against

Material uses : Reagents and Standards for Analytical Chemistry Laboratory Use sealed quartz cuvettes < 3 ml

Supplier/Manufacturer : Agilent Technologies Australia Pty Ltd
679 Springvale Road
Mulgrave
Victoria 3170, Australia
1800 802 402

Emergency telephone number (with hours of operation) : CHEMTREC®: +(61)-290372994

Section 2. Hazard(s) identification

Classification of the substance or mixture

| H272 | OXIDISING LIQUIDS - Category 2 |
| H314 | SKIN CORROSION/IRRITATION - Category 1B |
| H318 | SERIOUS EYE DAMAGE/EYE IRRITATION - Category 1 |
| H373 | SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE - Category 2 |

Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 2%

GHS label elements

Hazard pictograms:

[Image of pictograms]

Signal word : DANGER

Hazard statements:

H272 - May intensify fire; oxidiser.
H314 - Causes severe skin burns and eye damage.
H373 - May cause damage to organs through prolonged or repeated exposure. (thyroid)

Precautionary statements

Prevention:

P280 - Wear protective gloves, protective clothing and eye or face protection.
P210 - Keep away from heat. No smoking.
P220 - Keep away from clothing and other combustible materials.
P221 - Take any precaution to avoid mixing with combustibles.

Response:

P304 + P310 - IF INHALED: Immediately call a POISON CENTER or doctor.

Storage:

Not applicable.

Disposal:

P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

Supplemental label elements

Date of issue/Date of revision : 31/01/2022
Date of previous issue : 01/06/2020
Version : 5
Section 2. Hazard(s) identification

- Additional warning phrases: Not applicable.
- Other hazards which do not result in classification: Causes digestive tract burns.

Section 3. Composition and ingredient information

- Substance/mixture: Mixture
- CAS number/other identifiers

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>% (w/w)</th>
<th>CAS number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perchloric acid</td>
<td>≥10-≤30</td>
<td>7601-90-3</td>
</tr>
</tbody>
</table>

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

- Description of necessary first aid measures

  **Eye contact**: Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician.

  **Inhalation**: Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

  **Skin contact**: Get medical attention immediately. Call a poison center or physician. Rinse immediately contaminated clothing and skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.

  **Ingestion**: Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

**Most important symptoms/effects, acute and delayed**

**Potential acute health effects**

- **Eye contact**: Causes serious eye damage.
- **Inhalation**: No known significant effects or critical hazards.
- **Skin contact**: Causes severe burns.
- **Ingestion**: Corrosive to the digestive tract. Causes burns.

Date of issue/Date of revision: 31/01/2022
Date of previous issue: 01/06/2020
Version: 5
### Section 4. First aid measures

#### Over-exposure signs/symptoms

**Eye contact**
- Adverse symptoms may include the following:
  - pain
  - watering
  - redness

**Inhalation**
- No specific data.

**Skin contact**
- Adverse symptoms may include the following:
  - pain or irritation
  - redness
  - blistering may occur

**Ingestion**
- Adverse symptoms may include the following:
  - stomach pains

#### Indication of immediate medical attention and special treatment needed, if necessary

**Notes to physician**
- Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

**Specific treatments**
- No specific treatment.

**Protection of first-aiders**
- No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

#### See toxicological information (Section 11)

### Section 5. Firefighting measures

**Extinguishing media**
- Suitable extinguishing media
  - Use an extinguishing agent suitable for the surrounding fire.
- Unsuitable extinguishing media
  - None known.

**Specific hazards arising from the chemical**
- Oxidising material. May intensify fire. In a fire or if heated, a pressure increase will occur and the container may burst.

**Hazardous thermal decomposition products**
- Decomposition products may include the following materials:
  - halogenated compounds
  - metal oxide/oxides

**Special protective actions for fire-fighters**
- Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

**Special protective equipment for fire-fighters**
- Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

**Hazchem code**
- 2Y

### Section 6. Accidental release measures

**Personal precautions, protective equipment and emergency procedures**
- **For non-emergency personnel**
  - No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
Section 6. Accidental release measures

For emergency responders: If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions: Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and material for containment and cleaning up

Methods for cleaning up: Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Do not absorb in sawdust or other combustible material. It may lead to a fire risk when it dries out. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Section 7. Handling and storage

Precautions for safe handling

Protective measures: Put on appropriate personal protective equipment (see Section 8). Do not get in eyes or on skin or clothing. Do not breathe vapour or mist. Do not ingest. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Keep away from clothing, incompatible materials and combustible materials. Keep away from heat. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene: Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities: Store between the following temperatures: 4 to 40°C (39.2 to 104°F). Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Separate from reducing agents and combustible materials. Store away from grease and oil. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls and personal protection

Control parameters

Occupational exposure limits

None.

Appropriate engineering controls: If user operations generate dust, fumes, gas, vapour or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Environmental exposure controls: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Date of issue/Date of revision: 31/01/2022
Date of previous issue: 01/06/2020
Version: 5
Section 8. Exposure controls and personal protection

Hygiene measures: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.

Skin protection

Hand protection: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection: Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection: Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties and safety characteristics

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

Appearance

Physical state: Liquid. [Clear.]

Colour: Green.

Odour: Not available.

Odour threshold: Not available.

pH: Not available.

Melting point/freezing point: Not available.

Boiling point, initial boiling point, and boiling range: 100°C (212°F)

Flash point: Not available.

Evaporation rate: Not available.

Flammability: Not applicable.

Lower and upper explosion limit/flammability limit: Not available.

Vapour pressure:

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Vapour Pressure at 20°C</th>
<th>Vapour Pressure at 50°C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mm Hg</td>
<td>kPa</td>
</tr>
<tr>
<td>Water</td>
<td>23.8</td>
<td>3.2</td>
</tr>
<tr>
<td>Perchloric acid</td>
<td>0.53</td>
<td>0.071</td>
</tr>
</tbody>
</table>

Date of issue/Date of revision: 31/01/2022
Date of previous issue: 01/06/2020
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Section 9. Physical and chemical properties and safety characteristics

Relative vapour density: Not available.
Relative density: Not available.
Density: 1 g/cm³
Solubility: Soluble in the following materials: cold water and hot water.
Partition coefficient: n-octanol/water: Not applicable.
Auto-ignition temperature: Not available.
Decomposition temperature: Not available.
Viscosity: Not available.
Particle characteristics
Median particle size: Not applicable.

Section 10. Stability and reactivity

Reactivity: No specific test data related to reactivity available for this product or its ingredients.
Chemical stability: The product is stable.
Possibility of hazardous reactions: Hazardous reactions or instability may occur under certain conditions of storage or use.
Conditions to avoid: Light. Drying on clothing or other combustible materials may cause fire.
Incompatible materials: Reactive or incompatible with the following materials: combustible materials reducing materials
Hazardous decomposition products: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects
Acute toxicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Dose</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>perchloric acid</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>1100 mg/kg</td>
<td>-</td>
</tr>
</tbody>
</table>

Irritation/Corrosion
Not available.
Sensitisation
Not available.

Mutagenicity
Conclusion/Summary: Not available.

Carcinogenicity
Conclusion/Summary: Not available.

Reproductive toxicity
Conclusion/Summary: Not available.

Teratogenicity
Conclusion/Summary: Not available.
Section 11. Toxicological information

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)
Not available.

Specific target organ toxicity (repeated exposure)

<table>
<thead>
<tr>
<th>Name</th>
<th>Category</th>
<th>Route of exposure</th>
<th>Target organs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perchloric acid</td>
<td>Category 2</td>
<td>-</td>
<td>thyroid</td>
</tr>
</tbody>
</table>

Aspiration hazard
Not available.

Information on likely routes of exposure
Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential acute health effects

Eye contact : Causes serious eye damage.
Inhalation : No known significant effects or critical hazards.
Skin contact : Causes severe burns.
Ingestion : Corrosive to the digestive tract. Causes burns.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:
- pain
- watering
- redness
Inhalation : No specific data.
Skin contact : Adverse symptoms may include the following:
- pain or irritation
- redness
- blistering may occur
Ingestion : Adverse symptoms may include the following:
- stomach pains

Potential chronic health effects

General : May cause damage to organs through prolonged or repeated exposure.
Carcinogenicity : No known significant effects or critical hazards.
Mutagenicity : No known significant effects or critical hazards.
Reproductive toxicity : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates
Section 11. Toxicological information

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Oral (mg/kg)</th>
<th>Dermal (mg/kg)</th>
<th>Inhalation (gases) (ppm)</th>
<th>Inhalation (vapours) (mg/l)</th>
<th>Inhalation (dusts and mists) (mg/l)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Didymium Standard for UV Cert. to USP857, Part Number G6860-80001</td>
<td>11000</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Perchloric acid</td>
<td>1100</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Section 12. Ecological information

### Toxicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perchloric acid</td>
<td>Acute EC50 &gt;100 mg/l Fresh water</td>
<td>Daphnia - Daphnia magna</td>
<td>48 hours</td>
</tr>
</tbody>
</table>

### Persistence and degradability

Not available.

### Bioaccumulative potential

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>LogP_{ow}</th>
<th>BCF</th>
<th>Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perchloric acid</td>
<td>-</td>
<td>0.039</td>
<td>low</td>
</tr>
</tbody>
</table>

### Mobility in soil

- **Soil/water partition coefficient (K_{oc})**: Not available.

### Other adverse effects

No known significant effects or critical hazards.

Section 13. Disposal considerations

**Disposal methods**

The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

**ADG / IMDG / IATA**

Not regulated as Dangerous Goods according to the ADG Code.

**Additional information**

- **Hazchem code**: 2Y

**Special precautions for user**

Transport within user’s premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.
Section 14. Transport information

Transport in bulk according to IMO instruments : Not available.

Section 15. Regulatory information

Standard for the Uniform Scheduling of Medicines and Poisons
Not regulated.

Model Work Health and Safety Regulations - Scheduled Substances
No listed substance

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals
Not listed.

Montreal Protocol
Not listed.

Stockholm Convention on Persistent Organic Pollutants
Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)
Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals
Not listed.

Inventory list

Australia : All components are listed or exempted.
Canada : All components are listed or exempted.
China : All components are listed or exempted.
Europe : All components are listed or exempted.
Japan : Japan inventory (CSCL): All components are listed or exempted.
Japan inventory (ISHL): All components are listed or exempted.
New Zealand : All components are listed or exempted.
Philippines : All components are listed or exempted.
Republic of Korea : All components are listed or exempted.
Taiwan : All components are listed or exempted.
Thailand : All components are listed or exempted.
Turkey : Not determined.
United States : All components are active or exempted.
Viet Nam : All components are listed or exempted.

Section 16. Any other relevant information

History

Date of issue/Date of revision : 31/01/2022
Date of previous issue : 01/06/2020
Version : 5
Key to abbreviations : ADG = Australian Dangerous Goods
ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
Section 16. Any other relevant information

IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
N/A = Not available
SUSMP = Standard Uniform Schedule of Medicine and Poisons
UN = United Nations

Procedure used to derive the classification

<table>
<thead>
<tr>
<th>Classification</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>OXIDISING LIQUIDS - Category 2</td>
<td>Expert judgment</td>
</tr>
<tr>
<td>SKIN CORROSION/IRRITATION - Category 1B</td>
<td>Calculation method</td>
</tr>
<tr>
<td>SERIOUS EYE DAMAGE/EYE IRRITATION - Category 1</td>
<td>Calculation method</td>
</tr>
<tr>
<td>SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE - Category 2</td>
<td>Calculation method</td>
</tr>
</tbody>
</table>

References: Not available.

Not available.

Notice to reader

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