

SAFETY DATA SHEET



OQ/PV Standards Kit-2 for UV-VIS Holmium Oxide - Perchloric Acid, Part Number 5063-6521

Section 1. Identification

Product identifier : OQ/PV Standards Kit-2 for UV-VIS Holmium Oxide - Perchloric Acid, Part Number 5063-6521

Part no. (chemical kit) : 5063-6521

Part no. : Holmium Oxide in 10% Perchloric Acid Solution 5063-6521-1
 Perchloric Acid Solution (10% v/v) 5063-6521-2

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

Material uses : Reagents and Standards for Analytical Chemistry Laboratory Use

Holmium Oxide in 10% Perchloric Acid Solution	1 x 10 ml
Perchloric Acid Solution (10% v/v)	1 x 10 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

Holmium Oxide in 10% Perchloric Acid Solution

H272 OXIDISING LIQUIDS - Category 2
 H314 SKIN CORROSION/IRRITATION - Category 1
 H318 SERIOUS EYE DAMAGE/EYE IRRITATION - Category 1



Perchloric Acid Solution (10% v/v)

H272 OXIDISING LIQUIDS - Category 2
 H314 SKIN CORROSION/IRRITATION - Category 1
 H318 SERIOUS EYE DAMAGE/EYE IRRITATION - Category 1

<p> Holmium Oxide in 10% Perchloric Acid Solution</p> <p> Holmium Oxide in 10% Perchloric Acid Solution</p>	<p>Percentage of the mixture consisting of ingredient(s) of unknown dermal toxicity: 1 - 10%</p> <p>Percentage of the mixture consisting of ingredient(s) of unknown inhalation toxicity: 1 - 10%</p> <p>Percentage of the mixture consisting of ingredient(s) of unknown oral toxicity: 1 - 10%</p> <p>Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 3.6%</p>
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GHS label elements

Section 2. Hazard(s) identification

Hazard pictograms	: Holmium Oxide in 10% Perchloric Acid Solution	
	Perchloric Acid Solution (10% v/v)	
Signal word	: Holmium Oxide in 10% Perchloric Acid Solution Perchloric Acid Solution (10% v/v)	DANGER DANGER
Hazard statements	: Holmium Oxide in 10% Perchloric Acid Solution Perchloric Acid Solution (10% v/v)	H272 - May intensify fire; oxidiser. H314 - Causes severe skin burns and eye damage. H272 - May intensify fire; oxidiser. H314 - Causes severe skin burns and eye damage.
<u>Precautionary statements</u>		
Prevention	: Holmium Oxide in 10% Perchloric Acid Solution Perchloric Acid Solution (10% v/v)	P280 - Wear protective gloves. Wear eye or face protection. Wear protective clothing. P210 - Keep away from heat. - No smoking. P220 - Keep away from clothing, incompatible materials and combustible materials. P221 - Take any precaution to avoid mixing with combustibles and other incompatible materials. P264 - Wash hands thoroughly after handling. P280 - Wear protective gloves. Wear eye or face protection. Wear protective clothing. P210 - Keep away from heat. - No smoking. P220 - Keep away from clothing, incompatible materials and combustible materials. P221 - Take any precaution to avoid mixing with combustibles and other incompatible materials. P264 - Wash hands thoroughly after handling.
Response	: Holmium Oxide in 10% Perchloric Acid Solution Perchloric Acid Solution (10% v/v)	P304 + P340 + P310 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or physician. P301 + P310 + P330 + P331 - IF SWALLOWED: Immediately call a POISON CENTER or physician. Rinse mouth. Do NOT induce vomiting. P303 + P361 + P353 + P363 + P310 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. Wash contaminated clothing before reuse. Immediately call a POISON CENTER or physician. P305 + P351 + P338 + P310 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or physician. P304 + P340 + P310 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or physician. P301 + P310 + P330 + P331 - IF SWALLOWED: Immediately call a POISON CENTER or physician. Rinse mouth. Do NOT induce vomiting. P303 + P361 + P353 + P363 + P310 - IF ON SKIN

Section 2. Hazard(s) identification

		(or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. Wash contaminated clothing before reuse. Immediately call a POISON CENTER or physician. P305 + P351 + P338 + P310 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or physician.
Storage	: Holmium Oxide in 10% Perchloric Acid Solution Perchloric Acid Solution (10% v/v)	P405 - Store locked up. P405 - Store locked up.
Disposal	: Holmium Oxide in 10% Perchloric Acid Solution Perchloric Acid Solution (10% v/v)	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations. P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
Supplemental label elements		
Additional warning phrases	: Holmium Oxide in 10% Perchloric Acid Solution Perchloric Acid Solution (10% v/v)	Not applicable. Not applicable.
Other hazards which do not result in classification	: Holmium Oxide in 10% Perchloric Acid Solution Perchloric Acid Solution (10% v/v)	Causes digestive tract burns. Causes digestive tract burns.

Section 3. Composition and ingredient information

Substance/mixture	: Holmium Oxide in 10% Perchloric Acid Solution Perchloric Acid Solution (10% v/v)	Mixture Mixture
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CAS number/other identifiers

Ingredient name	% (w/w)	CAS number
Holmium Oxide in 10% Perchloric Acid Solution Perchloric acid	≥10 - ≤30	7601-90-3
Perchloric Acid Solution (10% v/v) Perchloric acid	≥10 - ≤30	7601-90-3

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

Section 4. First aid measures

Eye contact	: Holmium Oxide in 10% Perchloric Acid Solution	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.
	Perchloric Acid Solution (10% v/v)	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	: Holmium Oxide in 10% Perchloric Acid Solution	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.
	Perchloric Acid Solution (10% v/v)	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	: Holmium Oxide in 10% Perchloric Acid Solution	Get medical attention immediately. Call a poison center or physician. Rinse immediately contaminated clothing and skin with plenty of water. Wash contaminated skin with soap and 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.
	Perchloric Acid Solution (10% v/v)	Get medical attention immediately. Call a poison center or physician. Rinse immediately contaminated clothing and skin with plenty of water. Wash contaminated skin with soap and 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.

Section 4. First aid measures

Ingestion	: Holmium Oxide in 10% Perchloric Acid Solution	Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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.
	Perchloric Acid Solution (10% v/v)	Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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	: Holmium Oxide in 10% Perchloric Acid Solution Perchloric Acid Solution (10% v/v)	Causes serious eye damage. Causes serious eye damage.
Inhalation	: Holmium Oxide in 10% Perchloric Acid Solution Perchloric Acid Solution (10% v/v)	No known significant effects or critical hazards. No known significant effects or critical hazards.
Skin contact	: Holmium Oxide in 10% Perchloric Acid Solution Perchloric Acid Solution (10% v/v)	Causes severe burns. Causes severe burns.
Ingestion	: Holmium Oxide in 10% Perchloric Acid Solution Perchloric Acid Solution (10% v/v)	Corrosive to the digestive tract. Causes burns. Corrosive to the digestive tract. Causes burns.

Over-exposure signs/symptoms

Section 4. First aid measures

Eye contact	: Holmium Oxide in 10% Perchloric Acid Solution	Adverse symptoms may include the following: pain watering redness
	Perchloric Acid Solution (10% v/v)	Adverse symptoms may include the following: pain watering redness
Inhalation	: Holmium Oxide in 10% Perchloric Acid Solution	No specific data.
	Perchloric Acid Solution (10% v/v)	No specific data.
Skin contact	: Holmium Oxide in 10% Perchloric Acid Solution	Adverse symptoms may include the following: pain or irritation redness blistering may occur
	Perchloric Acid Solution (10% v/v)	Adverse symptoms may include the following: pain or irritation redness blistering may occur
Ingestion	: Holmium Oxide in 10% Perchloric Acid Solution	Adverse symptoms may include the following: stomach pains
	Perchloric Acid Solution (10% v/v)	Adverse symptoms may include the following: stomach pains
<u>Indication of immediate medical attention and special treatment needed, if necessary</u>		
Notes to physician	: Holmium Oxide in 10% Perchloric Acid Solution	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	Perchloric Acid Solution (10% v/v)	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments	: Holmium Oxide in 10% Perchloric Acid Solution	No specific treatment.
	Perchloric Acid Solution (10% v/v)	No specific treatment.
Protection of first-aiders	: Holmium Oxide in 10% Perchloric Acid Solution	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.
	Perchloric Acid Solution (10% v/v)	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	: Holmium Oxide in 10% Perchloric Acid Solution Perchloric Acid Solution (10% v/v)	Use an extinguishing agent suitable for the surrounding fire. Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media	: Holmium Oxide in 10% Perchloric Acid Solution Perchloric Acid Solution (10% v/v)	None known. None known.
Specific hazards arising from the chemical	: Holmium Oxide in 10% Perchloric Acid Solution Perchloric Acid Solution (10% v/v)	Oxidising material. May intensify fire. In a fire or if heated, a pressure increase will occur and the container may burst. 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	: Holmium Oxide in 10% Perchloric Acid Solution Perchloric Acid Solution (10% v/v)	Decomposition products may include the following materials: halogenated compounds Decomposition products may include the following materials: halogenated compounds
Special protective actions for fire-fighters	: Holmium Oxide in 10% Perchloric Acid Solution Perchloric Acid Solution (10% v/v)	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. 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	: Holmium Oxide in 10% Perchloric Acid Solution Perchloric Acid Solution (10% v/v)	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. 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	: Holmium Oxide in 10% Perchloric Acid Solution Perchloric Acid Solution (10% v/v)	2P 2P

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	: Holmium Oxide in 10% Perchloric Acid Solution	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
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Section 6. Accidental release measures

	Perchloric Acid Solution (10% v/v)	equipment. 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.
For emergency responders	: Holmium Oxide in 10% Perchloric Acid Solution	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".
	Perchloric Acid Solution (10% v/v)	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	: Holmium Oxide in 10% Perchloric Acid Solution	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).
	Perchloric Acid Solution (10% v/v)	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).
<u>Methods and material for containment and cleaning up</u>		
Methods for cleaning up	: Holmium Oxide in 10% Perchloric Acid Solution	Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. The spilled material may be neutralized with sodium carbonate, sodium bicarbonate or sodium hydroxide. Do not absorb in sawdust or other combustible material. It may lead to a fire risk when it dries out. Dispose of via a licensed waste disposal contractor.
	Perchloric Acid Solution (10% v/v)	Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. The spilled material may be neutralized with sodium carbonate, sodium bicarbonate or sodium hydroxide. Do not absorb in sawdust or other combustible material. It may lead to a fire risk when it dries out. Dispose of via a licensed waste disposal contractor.

Section 7. Handling and storage

Precautions for safe handling

Protective measures	: Holmium Oxide in 10% Perchloric Acid Solution	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
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Section 7. Handling and storage

	Perchloric Acid Solution (10% v/v)	from alkalis. Keep away from heat. Empty containers retain product residue and can be hazardous. Do not reuse container. 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 alkalis. Keep away from heat. Empty containers retain product residue and can be hazardous. Do not reuse container.
<p>Advice on general occupational hygiene</p>	<p>: Holmium Oxide in 10% Perchloric Acid Solution</p> <p>Perchloric Acid Solution (10% v/v)</p>	<p>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.</p> <p>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.</p>
<p>Conditions for safe storage, including any incompatibilities</p>	<p>: Holmium Oxide in 10% Perchloric Acid Solution</p> <p>Perchloric Acid Solution (10% v/v)</p>	<p>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 alkalis. 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.</p> <p>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 alkalis. 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.</p>

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

- 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

Appearance

- Physical state** : Holmium Oxide in 10% Perchloric Acid Solution Liquid.
Perchloric Acid Solution (10% v/v) Liquid.
- Colour** : Holmium Oxide in 10% Perchloric Acid Solution Not available.
Perchloric Acid Solution (10% v/v) Colourless.

Section 9. Physical and chemical properties

Odour	: Holmium Oxide in 10% Perchloric Acid Solution	Not available.
	Perchloric Acid Solution (10% v/v)	Odourless.
Odour threshold	: Holmium Oxide in 10% Perchloric Acid Solution	Not available.
	Perchloric Acid Solution (10% v/v)	Not available.
pH	: Holmium Oxide in 10% Perchloric Acid Solution	<2
	Perchloric Acid Solution (10% v/v)	<2
Melting point	: Holmium Oxide in 10% Perchloric Acid Solution	Not available.
	Perchloric Acid Solution (10% v/v)	Not available.
Boiling point	: Holmium Oxide in 10% Perchloric Acid Solution	Not available.
	Perchloric Acid Solution (10% v/v)	Not available.
Flash point	: Holmium Oxide in 10% Perchloric Acid Solution	Not available.
	Perchloric Acid Solution (10% v/v)	Not available.
Evaporation rate	: Holmium Oxide in 10% Perchloric Acid Solution	Not available.
	Perchloric Acid Solution (10% v/v)	Not available.
Flammability (solid, gas)	: Holmium Oxide in 10% Perchloric Acid Solution	Not applicable.
	Perchloric Acid Solution (10% v/v)	Not applicable.
Lower and upper explosive (flammable) limits	: Holmium Oxide in 10% Perchloric Acid Solution	Not available.
	Perchloric Acid Solution (10% v/v)	Not available.
Vapour pressure	: Holmium Oxide in 10% Perchloric Acid Solution	Not available.
	Perchloric Acid Solution (10% v/v)	Not available.
Vapour density	: Holmium Oxide in 10% Perchloric Acid Solution	Not available.
	Perchloric Acid Solution (10% v/v)	Not available.
Relative density	: Holmium Oxide in 10% Perchloric Acid Solution	Not available.
	Perchloric Acid Solution (10% v/v)	Not available.
Solubility	: Holmium Oxide in 10% Perchloric Acid Solution	Easily soluble in the following materials: cold water and hot water.
	Perchloric Acid Solution (10% v/v)	Easily soluble in the following materials: cold water and hot water.
Partition coefficient: n-octanol/water	: Holmium Oxide in 10% Perchloric Acid Solution	Not available.
	Perchloric Acid Solution (10% v/v)	Not available.

Section 9. Physical and chemical properties

Auto-ignition temperature	: Holmium Oxide in 10% Perchloric Acid Solution Perchloric Acid Solution (10% v/v)	Not available. Not available.
Decomposition temperature	: Holmium Oxide in 10% Perchloric Acid Solution Perchloric Acid Solution (10% v/v)	Not available. Not available.
Viscosity	: Holmium Oxide in 10% Perchloric Acid Solution Perchloric Acid Solution (10% v/v)	Not available. Not available.

Section 10. Stability and reactivity

Reactivity	: Holmium Oxide in 10% Perchloric Acid Solution Perchloric Acid Solution (10% v/v)	No specific test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	: Holmium Oxide in 10% Perchloric Acid Solution Perchloric Acid Solution (10% v/v)	The product is stable. The product is stable.
Possibility of hazardous reactions	: Holmium Oxide in 10% Perchloric Acid Solution Perchloric Acid Solution (10% v/v)	Hazardous reactions or instability may occur under certain conditions of storage or use. Conditions may include the following: contact with combustible materials Reactions may include the following: risk of causing or intensifying fire Hazardous reactions or instability may occur under certain conditions of storage or use. Conditions may include the following: contact with combustible materials Reactions may include the following: risk of causing or intensifying fire
Conditions to avoid	: Holmium Oxide in 10% Perchloric Acid Solution Perchloric Acid Solution (10% v/v)	Drying on clothing or other combustible materials may cause fire. Drying on clothing or other combustible materials may cause fire.
Incompatible materials	: Holmium Oxide in 10% Perchloric Acid Solution Perchloric Acid Solution (10% v/v)	Attacks many metals producing extremely flammable hydrogen gas which can form explosive mixtures with air. Reactive or incompatible with the following materials: alkalis combustible materials reducing materials Attacks many metals producing extremely flammable hydrogen gas which can form explosive mixtures with air. Reactive or incompatible with the following materials: alkalis combustible materials reducing materials

Section 10. Stability and reactivity

Hazardous decomposition products	: Holmium Oxide in 10% Perchloric Acid Solution	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	Perchloric Acid Solution (10% v/v)	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Holmium Oxide in 10% Perchloric Acid Solution Perchloric acid	LD50 Oral	Rat	1100 mg/kg	-
Perchloric Acid Solution (10% v/v) Perchloric acid	LD50 Oral	Rat	1100 mg/kg	-

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.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on likely routes of exposure	: Holmium Oxide in 10% Perchloric Acid Solution	Routes of entry anticipated: Oral, Dermal, Inhalation.
	Perchloric Acid Solution (10% v/v)	Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential acute health effects

Eye contact	: Holmium Oxide in 10% Perchloric Acid Solution	Causes serious eye damage.
	Perchloric Acid Solution (10% v/v)	Causes serious eye damage.
Inhalation	: Holmium Oxide in 10% Perchloric Acid Solution	No known significant effects or critical hazards.
	Perchloric Acid Solution (10% v/v)	No known significant effects or critical hazards.

Section 11. Toxicological information

Skin contact	: Holmium Oxide in 10% Perchloric Acid Solution Perchloric Acid Solution (10% v/v)	Causes severe burns. Causes severe burns.
Ingestion	: Holmium Oxide in 10% Perchloric Acid Solution Perchloric Acid Solution (10% v/v)	Corrosive to the digestive tract. Causes burns. Corrosive to the digestive tract. Causes burns.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact	: Holmium Oxide in 10% Perchloric Acid Solution Perchloric Acid Solution (10% v/v)	Adverse symptoms may include the following: pain watering redness Adverse symptoms may include the following: pain watering redness
Inhalation	: Holmium Oxide in 10% Perchloric Acid Solution Perchloric Acid Solution (10% v/v)	No specific data. No specific data.
Skin contact	: Holmium Oxide in 10% Perchloric Acid Solution Perchloric Acid Solution (10% v/v)	Adverse symptoms may include the following: pain or irritation redness blistering may occur Adverse symptoms may include the following: pain or irritation redness blistering may occur
Ingestion	: Holmium Oxide in 10% Perchloric Acid Solution Perchloric Acid Solution (10% v/v)	Adverse symptoms may include the following: stomach pains Adverse symptoms may include the following: stomach pains

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

General : Holmium Oxide in 10% Perchloric Acid Solution
Perchloric Acid Solution (10% v/v)
No known significant effects or critical hazards.
No known significant effects or critical hazards.

Section 11. Toxicological information

Carcinogenicity	: Holmium Oxide in 10% Perchloric Acid Solution Perchloric Acid Solution (10% v/v)	No known significant effects or critical hazards. No known significant effects or critical hazards.
Mutagenicity	: Holmium Oxide in 10% Perchloric Acid Solution Perchloric Acid Solution (10% v/v)	No known significant effects or critical hazards. No known significant effects or critical hazards.
Teratogenicity	: Holmium Oxide in 10% Perchloric Acid Solution Perchloric Acid Solution (10% v/v)	No known significant effects or critical hazards. No known significant effects or critical hazards.
Developmental effects	: Holmium Oxide in 10% Perchloric Acid Solution Perchloric Acid Solution (10% v/v)	No known significant effects or critical hazards. No known significant effects or critical hazards.
Fertility effects	: Holmium Oxide in 10% Perchloric Acid Solution Perchloric Acid Solution (10% v/v)	No known significant effects or critical hazards. No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
Holmium Oxide in 10% Perchloric Acid Solution Perchloric acid	Acute EC50 >100 mg/l	Daphnia	48 hours
Perchloric Acid Solution (10% v/v) Perchloric acid	Acute EC50 >100 mg/l	Daphnia	48 hours

Persistence and degradability

Not available.

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Holmium Oxide in 10% Perchloric Acid Solution Perchloric acid	-	0.039	low
Perchloric Acid Solution (10% v/v) Perchloric acid	-	0.039	low

Mobility in soil

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







Section 12. Ecological information

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
UN number	UN1802	UN1802	UN1802
UN proper shipping name	PERCHLORIC ACID solution	PERCHLORIC ACID solution	Perchloric acid solution
Transport hazard class(es)	8 (5.1)  	8 (5.1)  	8 (5.1)  
Packing group	II	II	II
Environmental hazards	No.	No.	No.

Additional information

Remarks: Excepted Quantity

ADG : **Hazchem code** 2P

IMDG : **Emergency schedules** F-H, S-Q

IATA : **Quantity limitation** Passenger and Cargo Aircraft: Forbidden. Packaging instructions: Forbidden. Cargo Aircraft Only: 30 L. Packaging instructions: 855. Limited Quantities - Passenger Aircraft: Forbidden. Packaging instructions: Forbidden.
Special provisions A1

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.

Transport in bulk according to Annex II of Marpol and the IBC Code : Not available.

Section 15. Regulatory information

Standard Uniform Schedule of Medicine 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 (Annexes A, B, C, E)

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	: At least one component is not listed in DSL but all such components are listed in NDSL.
China	: All components are listed or exempted.
Europe	: All components are listed or exempted.
Japan	: Japan inventory (ENCS) : All components are listed or exempted. Japan inventory (ISHL) : All components are listed or exempted.
Malaysia	: Not determined.
New Zealand	: All components are listed or exempted.
Philippines	: Not determined.
Republic of Korea	: All components are listed or exempted.
Taiwan	: All components are listed or exempted.
Thailand	: Not determined.
Turkey	: Not determined.
United States	: All components are listed or exempted.
Viet Nam	: Not determined.

Section 16. Any other relevant information

History

Date of issue/Date of revision : 26/04/2018

Date of previous issue : 12/04/2016

Version : 6

Key to abbreviations

: ADG = Australian Dangerous Goods
 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
 IMDG = International Maritime Dangerous Goods
 LogPow = logarithm of the octanol/water partition coefficient
 MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)

Section 16. Any other relevant information

NOHSC = National Occupational Health and Safety Commission

SUSMP = Standard Uniform Schedule of Medicine and Poisons

UN = United Nations

Procedure used to derive the classification

Classification	Justification
Holmium Oxide in 10% Perchloric Acid Solution Ox. Liq. 2, H272 Skin Corr. 1, H314 Eye Dam. 1, H318	Expert judgment On basis of test data On basis of test data
Perchloric Acid Solution (10% v/v) Ox. Liq. 2, H272 Skin Corr. 1, H314 Eye Dam. 1, H318	Expert judgment On basis of test data On basis of test data

References : Not available.

✔ Indicates information that has changed from previously issued version.

Notice to reader

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