



Simplicity in Water Analysis

## Cover Page for Safety Data Sheet

Thank you for choosing CHEMetrics, Inc. We appreciate your business. In order to best serve your needs for accurate and complete Safety Data, we offer the following information as supplemental to the attached SDS.

**SDS No.:** S2800

**Version No.:** 2.2

**Product Name:** Acidifier Solution for Chromate Vacu-vials®, CHEMets®, & VACUettes® Kits

**Part Nos.:** A-2800

### Product Descriptions:

*Acidifier Solution:* Plastic bottle, contains approximately 9 mL of liquid reagent. Test kits contain one (1) bottle of solution. Acidifier Solution packs contain six (6) bottles of solution.

### Addendum to Section 14 Transport Information:

Shipping container markings and labels for this product, as received, may vary from the contents of section 14 of the SDS for one or both of the following reasons:

- CHEMetrics has packaged this product as Dangerous Goods in Excepted Quantities according to IATA, US DOT, and IMDG regulations.
- CHEMetrics has packaged this product as part of a test kit or reagent set composed of various chemical reagents and elected to ship as UN 3316 Chemical Kit, Hazard Class 9, Packing Group II or III.

In case of reshipment, it is the responsibility of the shipper to determine appropriate labels and markings in accordance with applicable transportation regulations.

### Additional Information:

- "Print Date" = Revision Date (expressed as DD/MM/YYYY)
- Test kits and reagents sets may contain additional chemical reagents. See separate SDS(s).

*CHEMets®, VACUettes®, Vacu-vials®, and Titrets® are registered trademarks of CHEMetrics Inc.*



## Acidifier Solution for Chromate Vacu-vials, CHEMets, & VACUettes Kits

CHEMetrics, Inc.

Chemwatch Hazard Alert Code: 4

Chemwatch: 9-90598

SDS No: S2800

Version No: 2.2

Safety Data Sheet according to OSHA HazCom Standard (2012) requirements

Issue Date: 11/09/2014

Print Date: 12/03/2015

Initial Date: 13/09/2014

S.GHS.U.S.A.EN

### SECTION 1 IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

#### Product Identifier

Product name	Acidifier Solution for Chromate Vacu-vials, CHEMets, & VACUettes Kits
Synonyms	Part No.: A-2800
Proper shipping name	Corrosive liquids, n.o.s. (contains sulfuric acid)
Chemical formula	Not Applicable
Other means of identification	Not Available
CAS number	Not Applicable

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

Relevant identified uses	Component of water analysis test kits K-2803, K-2810, K-2810A, K-2810B, K-2810C, K-2810D
--------------------------	--

#### Details of the manufacturer/importer

Registered company name	CHEMetrics, Inc.
Address	4295 Catlett Road, Midland, VA. 22728 United States
Telephone	1-540-788-9026
Fax	1-540-788-4856
Website	www.chemetrics.com
Email	technical@chemetrics.com

#### Emergency telephone number

Association / Organisation	ChemTel Inc.
Emergency telephone numbers	1-800-255-3924
Other emergency telephone numbers	+01-813-248-0585

### SECTION 2 HAZARDS IDENTIFICATION

#### Classification of the substance or mixture

GHS Classification	Metal Corrosion Category 1, Skin Corrosion/Irritation Category 1A, Serious Eye Damage Category 1
--------------------	--

#### Label elements

GHS label elements	
--------------------	--

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

#### Precautionary statement(s) Prevention

P101	If medical advice is needed, have product container or label at hand.
------	---

Continued...

## Acidifier Solution for Chromate Vacu-vials, CHEMets, & VACUettes Kits

P102	Keep out of reach of children.
P103	Read label before use.
P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P234	Keep only in original container.

### Precautionary statement(s) Response

P301+P330+P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353	IF ON SKIN (or hair): 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.
P310	Immediately call a POISON CENTER/doctor/physician/first aider
P363	Wash contaminated clothing before reuse.

### Precautionary statement(s) Storage

P405	Store locked up.
------	------------------

### Precautionary statement(s) Disposal

P501	Dispose of contents/container to authorised chemical landfill or if organic to high temperature incineration
------	--

## SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

### Substances

See section below for composition of Mixtures

### Mixtures

CAS No	%[weight]	Name
7732-18-5	61	<a href="#">water</a>
7664-93-9	39	<a href="#">sulfuric acid</a>

## SECTION 4 FIRST AID MEASURES

### Description of first aid measures

<b>Eye Contact</b>	<p>If this product comes in contact with the eyes:</p> <ul style="list-style-type: none"> <li>▶ Immediately hold eyelids apart and flush the eye continuously with running water.</li> <li>▶ Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.</li> <li>▶ Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.</li> <li>▶ Transport to hospital or doctor without delay.</li> <li>▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.</li> </ul>
<b>Skin Contact</b>	<p>If skin or hair contact occurs:</p> <ul style="list-style-type: none"> <li>▶ Immediately flush body and clothes with large amounts of water, using safety shower if available.</li> <li>▶ Quickly remove all contaminated clothing, including footwear.</li> <li>▶ Wash skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre.</li> <li>▶ Transport to hospital, or doctor.</li> </ul>
<b>Inhalation</b>	<ul style="list-style-type: none"> <li>▶ If fumes or combustion products are inhaled remove from contaminated area.</li> <li>▶ Lay patient down. Keep warm and rested.</li> <li>▶ Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.</li> <li>▶ Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.</li> <li>▶ Transport to hospital, or doctor.</li> <li>▶ Inhalation of vapours or aerosols (mists, fumes) may cause lung oedema.</li> <li>▶ Corrosive substances may cause lung damage (e.g. lung oedema, fluid in the lungs).</li> <li>▶ As this reaction may be delayed up to 24 hours after exposure, affected individuals need complete rest (preferably in semi-recumbent posture) and must be kept under medical observation even if no symptoms are (yet) manifested.</li> <li>▶ Before any such manifestation, the administration of a spray containing a dexamethasone derivative or beclomethasone derivative may be considered.</li> </ul> <p><b>This must definitely be left to a doctor or person authorised by him/her.</b> (ICSC13719)</p>
<b>Ingestion</b>	<ul style="list-style-type: none"> <li>▶ For advice, contact a Poisons Information Centre or a doctor at once.</li> <li>▶ Urgent hospital treatment is likely to be needed.</li> <li>▶ <b>If swallowed do NOT induce vomiting.</b></li> <li>▶ If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.</li> <li>▶ Observe the patient carefully.</li> <li>▶ Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.</li> <li>▶ Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.</li> <li>▶ Transport to hospital or doctor without delay.</li> </ul>

### Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

For acute or short term repeated exposures to strong acids:

- ▶ Airway problems may arise from laryngeal edema and inhalation exposure. Treat with 100% oxygen initially.
- ▶ Respiratory distress may require cricothyroidotomy if endotracheal intubation is contraindicated by excessive swelling
- ▶ Intravenous lines should be established immediately in all cases where there is evidence of circulatory compromise.
- ▶ Strong acids produce a coagulation necrosis characterised by formation of a coagulum (eschar) as a result of the desiccating action of the acid on proteins in specific tissues.

## Acidifier Solution for Chromate Vacu-vials, CHEMets, & VACUettes Kits

### INGESTION:

- ▶ Immediate dilution (milk or water) within 30 minutes post ingestion is recommended.
- ▶ **DO NOT attempt to neutralise the acid since exothermic reaction may extend the corrosive injury.**
- ▶ Be careful to avoid further vomit since re-exposure of the mucosa to the acid is harmful. Limit fluids to one or two glasses in an adult.
- ▶ Charcoal has no place in acid management.
- ▶ Some authors suggest the use of lavage within 1 hour of ingestion.

### SKIN:

- ▶ Skin lesions require copious saline irrigation. Treat chemical burns as thermal burns with non-adherent gauze and wrapping.
- ▶ Deep second-degree burns may benefit from topical silver sulfadiazine.

### EYE:

- ▶ Eye injuries require retraction of the eyelids to ensure thorough irrigation of the conjunctival cul-de-sacs. Irrigation should last at least 20-30 minutes. **DO NOT use neutralising agents or any other additives.** Several litres of saline are required.
- ▶ Cycloplegic drops, (1% cyclopentolate for short-term use or 5% homatropine for longer term use) antibiotic drops, vasoconstrictive agents or artificial tears may be indicated dependent on the severity of the injury.
- ▶ Steroid eye drops should only be administered with the approval of a consulting ophthalmologist).

[Ellenhorn and Barceloux: Medical Toxicology]

## SECTION 5 FIREFIGHTING MEASURES

### Extinguishing media

- ▶ Water spray or fog.
- ▶ Foam.
- ▶ Dry chemical powder.
- ▶ BCF (where regulations permit).
- ▶ Carbon dioxide.

### Special hazards arising from the substrate or mixture

<b>Fire Incompatibility</b>	None known.
-----------------------------	-------------

### Advice for firefighters

<b>Fire Fighting</b>	<ul style="list-style-type: none"> <li>▶ Alert Fire Brigade and tell them location and nature of hazard.</li> <li>▶ Wear full body protective clothing with breathing apparatus.</li> <li>▶ Prevent, by any means available, spillage from entering drains or water course.</li> <li>▶ Use fire fighting procedures suitable for surrounding area.</li> <li>▶ <b>Do not approach containers suspected to be hot.</b></li> </ul>
----------------------	---



<b>Fire/Explosion Hazard</b>	<ul style="list-style-type: none"> <li>▶ Non combustible.</li> <li>▶ Not considered to be a significant fire risk.</li> <li>▶ Acids may react with metals to produce hydrogen, a highly flammable and explosive gas.</li> <li>▶ Heating may cause expansion or decomposition leading to violent rupture of containers.</li> <li>▶ May emit corrosive, poisonous fumes.</li> </ul>
------------------------------	---



## SECTION 6 ACCIDENTAL RELEASE MEASURES

### Personal precautions, protective equipment and emergency procedures

<b>Minor Spills</b>	<ul style="list-style-type: none"> <li>▶ Drains for storage or use areas should have retention basins for pH adjustments and dilution of spills before discharge or disposal of material.</li> <li>▶ Check regularly for spills and leaks.</li> <li>▶ Clean up all spills immediately.</li> <li>▶ Avoid breathing vapours and contact with skin and eyes.</li> <li>▶ Control personal contact with the substance, by using protective equipment.</li> </ul>
---------------------	---



<b>Major Spills</b>	<ul style="list-style-type: none"> <li>▶ Clear area of personnel and move upwind.</li> <li>▶ Alert Fire Brigade and tell them location and nature of hazard.</li> <li>▶ Wear full body protective clothing with breathing apparatus.</li> <li>▶ Prevent, by any means available, spillage from entering drains or water course.</li> <li>▶ Consider evacuation (or protect in place).</li> </ul>
---------------------	--



Personal Protective Equipment advice is contained in Section 8 of the MSDS.

## SECTION 7 HANDLING AND STORAGE

### Precautions for safe handling

<b>Safe handling</b>	<ul style="list-style-type: none"> <li>▶ <b>DO NOT allow clothing wet with material to stay in contact with skin</b></li> <li>▶ Avoid all personal contact, including inhalation.</li> <li>▶ Wear protective clothing when risk of exposure occurs.</li> <li>▶ Use in a well-ventilated area.</li> <li>▶ <b>WARNING: To avoid violent reaction, ALWAYS add material to water and NEVER water to material.</b></li> <li>▶ Avoid smoking, naked lights or ignition sources.</li> </ul> <p><b>Wear impact- and splash-resistant eyewear.</b></p>
----------------------	---



<b>Other information</b>	<ul style="list-style-type: none"> <li>▶ Store in original containers.</li> <li>▶ Keep containers securely sealed.</li> <li>▶ Store in a cool, dry, well-ventilated area.</li> <li>▶ Store away from incompatible materials and foodstuff containers.</li> <li>▶ Protect containers against physical damage and check regularly for leaks.</li> </ul> <p><b>For optimum analytical performance, store in the dark and at room temperature.</b></p>
--------------------------	--



### Conditions for safe storage, including any incompatibilities

<b>Suitable container</b>	<ul style="list-style-type: none"> <li>▶ <b>DO NOT use aluminium or galvanised containers</b></li> </ul>
---------------------------	--



Continued...

## Acidifier Solution for Chromate Vacu-vials, CHEMets, &amp; VACUettes Kits

	<ul style="list-style-type: none"> <li>▶ Check regularly for spills and leaks</li> <li>▶ Lined metal can, lined metal pail/ can.</li> <li>▶ Plastic pail.</li> <li>▶ Polyliner drum.</li> <li>▶ Packing as recommended by manufacturer.</li> <li>▶ Check all containers are clearly labelled and free from leaks.</li> </ul>
<b>Storage incompatibility</b>	<ul style="list-style-type: none"> <li>▶ Inorganic acids are generally soluble in water with the release of hydrogen ions. The resulting solutions have pH's of less than 7.0.</li> <li>▶ Inorganic acids neutralise chemical bases (for example: amines and inorganic hydroxides) to form salts - neutralisation can generate dangerously large amounts of heat in small spaces.</li> <li>▶ The dissolution of inorganic acids in water or the dilution of their concentrated solutions with additional water may generate significant heat.</li> <li>▶ The addition of water to inorganic acids often generates sufficient heat in the small region of mixing to cause some of the water to boil explosively.</li> </ul>

**PACKAGE MATERIAL INCOMPATIBILITIES**

Not Available

**SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION****Control parameters****OCCUPATIONAL EXPOSURE LIMITS (OEL)****INGREDIENT DATA**


Source	Ingredient	Material name	TWA	STEL	Peak	Notes
US OSHA Permissible Exposure Levels (PELs) - Table Z1	sulfuric acid	Sulfuric acid	1 mg/m <sup>3</sup>	Not Available	Not Available	Not Available
US ACGIH Threshold Limit Values (TLV)	sulfuric acid	Sulfuric acid	0.2 mg/m <sup>3</sup>	Not Available	Not Available	TLV® Basis: Pulm func
US NIOSH Recommended Exposure Limits (RELs)	sulfuric acid	Battery acid, Hydrogen sulfate, Oil of vitriol, Sulfuric acid (aqueous)	1 mg/m <sup>3</sup>	Not Available	Not Available	Not Available

**EMERGENCY LIMITS**

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
sulfuric acid	Sulfuric acid	Not Available	Not Available	Not Available

Ingredient	Original IDLH	Revised IDLH
water	Not Available	Not Available
sulfuric acid	80 mg/m <sup>3</sup>	15 mg/m <sup>3</sup>

**Exposure controls**

<b>Appropriate engineering controls</b>	<p>Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.</p> <p>The basic types of engineering controls are:</p> <p>Process controls which involve changing the way a job activity or process is done to reduce the risk.</p> <p>Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. Ventilation can remove or dilute an air contaminant if designed properly.</p>
<b>Personal protection</b>	
<b>Eye and face protection</b>	<ul style="list-style-type: none"> <li>▶ Safety glasses with unperforated side shields may be used where continuous eye protection is desirable, as in laboratories; spectacles are not sufficient where complete eye protection is needed such as when handling bulk-quantities, where there is a danger of splashing, or if the material may be under pressure.</li> <li>▶ Chemical goggles whenever there is a danger of the material coming in contact with the eyes; goggles must be properly fitted.</li> <li>▶ Full face shield (20 cm, 8 in minimum) may be required for supplementary but never for primary protection of eyes; these afford face protection.</li> <li>▶ Alternatively a gas mask may replace splash goggles and face shields.</li> <li>▶ Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants.</li> </ul>
<b>Skin protection</b>	See Hand protection below
<b>Hands/feet protection</b>	<ul style="list-style-type: none"> <li>▶ Elbow length PVC gloves</li> <li>▶ When handling corrosive liquids, wear trousers or overalls outside of boots, to avoid spills entering boots.</li> </ul>
<b>Body protection</b>	See Other protection below
<b>Other protection</b>	<ul style="list-style-type: none"> <li>▶ Overalls.</li> <li>▶ PVC Apron.</li> <li>▶ PVC protective suit may be required if exposure severe.</li> <li>▶ Eyewash unit.</li> <li>▶ Ensure there is ready access to a safety shower.</li> </ul>
<b>Thermal hazards</b>	Not Available

**Recommended material(s)****GLOVE SELECTION INDEX**

Glove selection is based on a modified presentation of the:

**"Forsberg Clothing Performance Index"**.The effect(s) of the following substance(s) are taken into account in the **computer-****Respiratory protection**

Type E-P Filter of sufficient capacity (AS/NZS 1716 &amp; 1715, EN 143:2000 &amp; 149:2001, ANSI Z88 or national equivalent)

Where the concentration of gas/particulates in the breathing zone, approaches or exceeds the "Exposure Standard" (or ES), respiratory protection is required.

Continued...

## Acidifier Solution for Chromate Vacu-vials, CHEMets, & VACUettes Kits

### generated selection:

Acidifier Solution for Chromate Vacu-vials, CHEMets, & VACUettes Kits

Material	CPI
NEOPRENE	A
BUTYL	C
NATURAL RUBBER	C
NATURAL+NEOPRENE	C
NEOPRENE/NATURAL	C
NITRILE	C
PE	C
PVA	C
PVC	C
SARANEX-23	C
VITON	C

\* CPI - Chemwatch Performance Index

A: Best Selection

B: Satisfactory; may degrade after 4 hours continuous immersion

C: Poor to Dangerous Choice for other than short term immersion

**NOTE:** As a series of factors will influence the actual performance of the glove, a final selection must be based on detailed observation. -

\* Where the glove is to be used on a short term, casual or infrequent basis, factors such as "feel" or convenience (e.g. disposability), may dictate a choice of gloves which might otherwise be unsuitable following long-term or frequent use. A qualified practitioner should be consulted.

Degree of protection varies with both face-piece and Class of filter; the nature of protection varies with Type of filter.

Required Minimum Protection Factor	Half-Face Respirator	Full-Face Respirator	Powered Air Respirator
up to 10 x ES	E-AUS P2	-	E-PAPR-AUS / Class 1 P2
up to 50 x ES	-	E-AUS / Class 1 P2	-
up to 100 x ES	-	E-2 P2	E-PAPR-2 P2 ^

^ - Full-face

A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO<sub>2</sub>), G = Agricultural chemicals, K = Ammonia(NH<sub>3</sub>), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

## SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

### Information on basic physical and chemical properties

<b>Appearance</b>	Colorless		
<b>Physical state</b>	Liquid	<b>Relative density (Water = 1)</b>	1.2
<b>Odour</b>	Odourless	<b>Partition coefficient n-octanol / water</b>	Not Available
<b>Odour threshold</b>	Not Available	<b>Auto-ignition temperature (°C)</b>	Not Available
<b>pH (as supplied)</b>	<1	<b>Decomposition temperature</b>	Not Available
<b>Melting point / freezing point (°C)</b>	1	<b>Viscosity (cSt)</b>	Not Available
<b>Initial boiling point and boiling range (°C)</b>	140	<b>Molecular weight (g/mol)</b>	Not Available
<b>Flash point (°C)</b>	Not Applicable	<b>Taste</b>	Not Available
<b>Evaporation rate</b>	Not Available	<b>Explosive properties</b>	Not Available
<b>Flammability</b>	Not Applicable	<b>Oxidising properties</b>	Not Available
<b>Upper Explosive Limit (%)</b>	Not Available	<b>Surface Tension (dyn/cm or mN/m)</b>	Not Available
<b>Lower Explosive Limit (%)</b>	Not Available	<b>Volatile Component (%vol)</b>	Not Available
<b>Vapour pressure (kPa)</b>	Not Available	<b>Gas group</b>	Not Available
<b>Solubility in water (g/L)</b>	Miscible	<b>pH as a solution</b>	Not Available
<b>Vapour density (Air = 1)</b>	Not Available	<b>VOC g/L</b>	Not Available

## SECTION 10 STABILITY AND REACTIVITY

<b>Reactivity</b>	See section 7
<b>Chemical stability</b>	<ul style="list-style-type: none"> <li>▶ Contact with alkaline material liberates heat</li> <li>▶ Unstable in the presence of incompatible materials.</li> <li>▶ Product is considered stable.</li> <li>▶ Hazardous polymerisation will not occur.</li> </ul>
<b>Possibility of hazardous reactions</b>	See section 7
<b>Conditions to avoid</b>	See section 7
<b>Incompatible materials</b>	See section 7
<b>Hazardous decomposition products</b>	See section 5

## SECTION 11 TOXICOLOGICAL INFORMATION

## Acidifier Solution for Chromate Vacu-vials, CHEMets, & VACUettes Kits

### Information on toxicological effects

<b>Inhaled</b>	Corrosive acids can cause irritation of the respiratory tract, with coughing, choking and mucous membrane damage. There may be dizziness, headache, nausea and weakness. Not normally a hazard due to non-volatile nature of product The material may produce respiratory tract irritation, and result in damage to the lung including reduced lung function. The material has <b>NOT</b> been classified by EC Directives or other classification systems as "harmful by inhalation". This is because of the lack of corroborating animal or human evidence.
<b>Ingestion</b>	Ingestion of acidic corrosives may produce burns around and in the mouth, the throat and oesophagus. Immediate pain and difficulties in swallowing and speaking may also be evident. The material has <b>NOT</b> been classified by EC Directives or other classification systems as "harmful by ingestion". This is because of the lack of corroborating animal or human evidence.
<b>Skin Contact</b>	Skin contact with acidic corrosives may result in pain and burns; these may be deep with distinct edges and may heal slowly with the formation of scar tissue. Skin contact is not thought to have harmful health effects (as classified under EC Directives); the material may still produce health damage following entry through wounds, lesions or abrasions. Open cuts, abraded or irritated skin should not be exposed to this material Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.
<b>Eye</b>	If applied to the eyes, this material causes severe eye damage. Direct eye contact with acid corrosives may produce pain, tears, sensitivity to light and burns. Mild burns of the epithelia generally recover rapidly and completely.
<b>Chronic</b>	Repeated or prolonged exposure to acids may result in the erosion of teeth, swelling and/or ulceration of mouth lining. Irritation of airways to lung, with cough, and inflammation of lung tissue often occurs.

<b>Acidifier Solution for Chromate Vacu-vials, CHEMets, &amp; VACUettes Kits</b>	TOXICITY	IRRITATION
<b>Acidifier Solution for Chromate Vacu-vials, CHEMets, &amp; VACUettes Kits</b>	TOXICITY	IRRITATION

<b>Acidifier Solution for Chromate Vacu-vials, CHEMets, &amp; VACUettes Kits</b>	No significant acute toxicological data identified in literature search. for acid mists, aerosols, vapours Data from assays for genotoxic activity in vitro suggest that eukaryotic cells are susceptible to genetic damage when the pH falls to about 6.5. Cells from the respiratory tract have not been examined in this respect. Mucous secretion may protect the cells of the airways from direct exposure to inhaled acidic mists, just as mucous plays an important role in protecting the gastric epithelium from its auto-secreted hydrochloric acid. In considering whether pH itself induces genotoxic events in vivo in the respiratory system, comparison should be made with the human stomach, in which gastric juice may be at pH 1-2 under fasting or nocturnal conditions, and with the human urinary bladder, in which the pH of urine can range from <5 to > 7 and normally averages 6.2.
<b>WATER</b>	No significant acute toxicological data identified in literature search.
<b>SULFURIC ACID</b>	Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. Occupational exposures to strong inorganic acid mists of sulfuric acid:

<b>Acute Toxicity</b>	☐	<b>Carcinogenicity</b>	☐
<b>Skin Irritation/Corrosion</b>	✔	<b>Reproductivity</b>	☐
<b>Serious Eye Damage/Irritation</b>	✔	<b>STOT - Single Exposure</b>	☐
<b>Respiratory or Skin sensitisation</b>	☐	<b>STOT - Repeated Exposure</b>	☐
<b>Mutagenicity</b>	☐	<b>Aspiration Hazard</b>	☐

**Legend:**    ✔ – Data required to make classification available  
                   ✘ – Data available but does not fill the criteria for classification  
                   ☐ – Data Not Available to make classification

### CMR STATUS

<b>CARCINOGEN</b>	sulfuric acid	US Environmental Defense Scorecard Recognized Carcinogens	P65
<b>RESPIRATORY</b>	sulfuric acid	US - California OEHHA/ARB - Acute Reference Exposure Levels and Target Organs (RELs) - Respiratory US - California OEHHA/ARB - Chronic Reference Exposure Levels and Target Organs (CRELs) - Respiratory	X

## SECTION 12 ECOLOGICAL INFORMATION

### Toxicity

Continued...

## Acidifier Solution for Chromate Vacu-vials, CHEMets, & VACUettes Kits

**Ecotoxicity:**

The tolerance of water organisms towards pH margin and variation is diverse. Recommended pH values for test species listed in OECD guidelines are between 6.0 and almost 9. Acute testing with fish showed 96h-LC50 at about pH 3.5

For Sulfuric Acid:

Environmental Fate: Large discharges of sulfuric acid may contribute to the acidification of water and be fatal to aquatic life and soil micro-organisms, and may contribute to the acidification of effluent treatment systems and injure sewage treatment organisms. The substance will react violently with a variety of other chemicals, as well as water.

Atmospheric Fate: Sulfuric acid is removed from the air by dry/wet deposition.

**Persistence and degradability**

Ingredient	Persistence: Water/Soil	Persistence: Air
water	LOW	LOW

**Bioaccumulative potential**

Ingredient	Bioaccumulation
water	LOW (LogKOW = -1.38)


**Mobility in soil**

Ingredient	Mobility
water	LOW (KOC = 14.3)

**SECTION 13 DISPOSAL CONSIDERATIONS****Waste treatment methods**

Product / Packaging disposal	Dispose of according to federal, state, and local regulations.

**SECTION 14 TRANSPORT INFORMATION****Labels Required**

	
Marine Pollutant	NO

**Land transport (DOT)**

UN number	1760
Packing group	II
UN proper shipping name	Corrosive liquids, n.o.s. (contains sulfuric acid)
Environmental hazard	No relevant data
Transport hazard class(es)	Class : 8
Special precautions for user	Special provisions : B2, IB2, T11, TP2, TP27

**Air transport (ICAO-IATA / DGR)**

UN number	1760
Packing group	II
UN proper shipping name	Corrosive liquid, n.o.s. * (contains sulfuric acid)
Environmental hazard	No relevant data
Transport hazard class(es)	ICAO/IATA Class : 8
	ICAO / IATA Subrisk : Not Applicable
	ERG Code : 8L
Special precautions for user	Special provisions : A3A803
	Cargo Only Packing Instructions : 855
	Cargo Only Maximum Qty / Pack : 30 L
	Passenger and Cargo Packing Instructions : 851
	Passenger and Cargo Maximum Qty / Pack : 1 L
	Passenger and Cargo Limited Quantity Packing Instructions : Y840
	Passenger and Cargo Limited Maximum Qty / Pack : 0.5 L

**Sea transport (IMDG-Code / GGVSee)**

UN number	1760
-----------	------



## Acidifier Solution for Chromate Vacu-vials, CHEMets, & VACUettes Kits

<b>Packing group</b>	II	
<b>UN proper shipping name</b>	CORROSIVE LIQUID, N.O.S. (contains sulfuric acid)	
<b>Environmental hazard</b>	Not Applicable	
<b>Transport hazard class(es)</b>	IMDG Class	8
	IMDG Subrisk	Not Applicable
<b>Special precautions for user</b>	EMS Number	F-A , S-B
	Special provisions	274
	Limited Quantities	1 L

### Transport in bulk according to Annex II of MARPOL 73 / 78 and the IBC code

Source	Ingredient	Pollution Category
IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk	sulfuric acid	Y

## SECTION 15 REGULATORY INFORMATION

### Safety, health and environmental regulations / legislation specific for the substance or mixture

<b>water(7732-18-5) is found on the following regulatory lists</b>	"US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory"
<b>sulfuric acid(7664-93-9) is found on the following regulatory lists</b>	"US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants", "US - Idaho - Limits for Air Contaminants", "US - Hawaii Air Contaminant Limits", "US - California Permissible Exposure Limits for Chemical Contaminants", "US ACGIH Threshold Limit Values (TLV) - Carcinogens", "US National Toxicology Program (NTP) 13th Report Part A Known to be Human Carcinogens", "US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants", "US - Oregon Permissible Exposure Limits (Z-1)", "US - Michigan Exposure Limits for Air Contaminants", "International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs", "US - Washington Toxic air pollutants and their ASIL, SQER and de minimis emission values", "US - California OEHHA/ARB - Acute Reference Exposure Levels and Target Organs (RELs)", "US NIOSH Recommended Exposure Limits (RELs)", "International Air Transport Association (IATA) Dangerous Goods Regulations - Prohibited List Passenger and Cargo Aircraft", "US - Alaska Limits for Air Contaminants", "US - Washington Permissible exposure limits of air contaminants", "US - Minnesota Permissible Exposure Limits (PELs)", "US - California OEHHA/ARB - Chronic Reference Exposure Levels and Target Organs (CRELs)", "US ACGIH Threshold Limit Values (TLV)", "US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants", "US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory", "US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants", "US - New Jersey Right to Know - Special Health Hazard Substance List (SHHSL): Carcinogens", "US OSHA Permissible Exposure Levels (PELs) - Table Z1"

## SECTION 16 OTHER INFORMATION

### Other information

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

A list of reference resources used to assist the committee may be found at:

[www.chemwatch.net/references](http://www.chemwatch.net/references)

The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

This document is copyright. Apart from any fair dealing for the purposes of private study, research, review or criticism, as permitted under the Copyright Act, no part may be reproduced by any process without written permission from CHEMWATCH. TEL (+61 3) 9572 4700.