

KCB Maxi Mineral Scale and Rust Remover

Hazard Alert Code: HIGH

Chemwatch Material Safety Data Sheet

Issue Date: 25-Jul-2013

A317LP

CHEMWATCH 23-0389

Version No:3.1.1.1

Page 1 of 20

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

KCB Maxi Mineral Scale and Rust Remover

SYNONYMS

MSR

PROPER SHIPPING NAME

CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.(contains sulfamic acid)

PRODUCT USE

Used according to manufacturer's directions.

WARNING: To avoid violent reaction, ALWAYS add material to water and NEVER water to material.

For removal of calcium, lime deposits and rust stains off a variety of surfaces.

SUPPLIER

Company: KCB Sales

Address:

84 Camp Road

Broadmeadows

VIC, 3047

Australia

Telephone: +61 3 9457 1125

Emergency Tel: +61 3 9457 1125 (9am- 5pm)

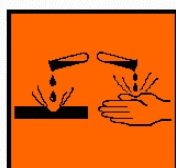
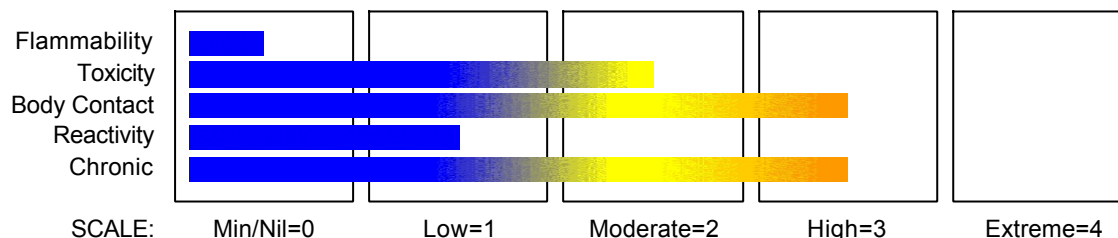
Fax: +61 3 9459 7978

Section 2 - HAZARDS IDENTIFICATION

STATEMENT OF HAZARDOUS NATURE

HAZARDOUS SUBSTANCE. DANGEROUS GOODS. According to the Criteria of NOHSC, and the ADG Code.

CHEMWATCH HAZARD RATINGS



continued...

KCB Maxi Mineral Scale and Rust Remover

Hazard Alert Code: HIGH

Chemwatch Material Safety Data Sheet
Issue Date: 25-Jul-2013
A317LP

CHEMWATCH 23-0389

Version No:3.1.1.1

Page 2 of 20

Section 2 - HAZARDS IDENTIFICATION

RISK	SAFETY
<ul style="list-style-type: none">■ Harmful by inhalation and if swallowed.■ Causes burns.■ Risk of serious damage to eyes.■ May impair fertility.■ May cause harm to the unborn child.■ Cumulative effects may result following exposure*. <p>* (limited evidence).</p>	<ul style="list-style-type: none">• Keep locked up.• Do not breathe gas/fumes/vapour/spray.• Avoid contact with skin.• Avoid contact with eyes.• Wear suitable protective clothing.• In case of insufficient ventilation, wear suitable respiratory equipment.• Wear suitable gloves.• Wear eye/face protection.• Use only in well ventilated areas.• Keep container in a well ventilated place.• Avoid exposure - obtain special instructions before use.• To clean the floor and all objects contaminated by this material, use water.• Keep container tightly closed.• This material and its container must be disposed of in a safe way.• Keep away from food, drink and animal feeding stuffs.• Take off immediately all contaminated clothing.• In case of contact with eyes, rinse with plenty of water and contact Doctor or Poisons Information Centre.• In case of accident or if you feel unwell IMMEDIATELY contact Doctor or Poisons Information Centre (show label if possible).• This material and its container must be disposed of as hazardous waste.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
glycolic acid	79-14-1	10-30
sulfamic acid	5329-14-6	<10
citric acid, monohydrate	5949-29-1	<10
surfactants		<10
water	7732-18-5	>60

Section 4 - FIRST AID MEASURES

SWALLOWED

- For advice, contact a Poisons Information Centre or a doctor at once.
- Urgent hospital treatment is likely to be needed.
- If swallowed do NOT induce vomiting.
- If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.
- Observe the patient carefully.
- Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming

continued...

KCB Maxi Mineral Scale and Rust Remover

Hazard Alert Code: HIGH

Chemwatch Material Safety Data Sheet

Issue Date: 25-Jul-2013

A317LP

CHEMWATCH 23-0389

Version No:3.1.1.1

Page 3 of 20

Section 4 - FIRST AID MEASURES

unconscious.

- Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.
- Transport to hospital or doctor without delay.

EYE

- If this product comes in contact with the eyes:
 - Immediately hold eyelids apart and flush the eye continuously with running water.
 - 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.
 - Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.
 - Transport to hospital or doctor without delay.
 - Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

SKIN

- If skin or hair contact occurs:
 - Immediately flush body and clothes with large amounts of water, using safety shower if available.
 - Quickly remove all contaminated clothing, including footwear.
 - Wash skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre.
 - Transport to hospital, or doctor.

INHALED

- If fumes or combustion products are inhaled remove from contaminated area.
 - Lay patient down. Keep warm and rested.
 - Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
 - 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.
 - Transport to hospital, or doctor, without delay.
 - Inhalation of vapours or aerosols (mists, fumes) may cause lung oedema.
 - Corrosive substances may cause lung damage (e.g. lung oedema, fluid in the lungs).
 - 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.
 - Before any such manifestation, the administration of a spray containing a dexamethasone derivative or beclomethasone derivative may be considered.
- This must definitely be left to a doctor or person authorised by him/her.
(ICSC13719).

NOTES TO PHYSICIAN

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 dessicating action of the acid on proteins in specific tissues.

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

continued...

KCB Maxi Mineral Scale and Rust Remover

Hazard Alert Code: HIGH

Chemwatch Material Safety Data Sheet

Issue Date: 25-Jul-2013

A317LP

CHEMWATCH 23-0389

Version No:3.1.1.1

Page 4 of 20

Section 4 - FIRST AID MEASURES

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 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

■ The product contains a substantial proportion of water, therefore there are no restrictions on the type of extinguishing media which may be used. Choice of extinguishing media should take into account surrounding areas.

Though the material is non-combustible, evaporation of water from the mixture, caused by the heat of nearby fire, may produce floating layers of combustible substances.

In such an event consider:

- foam.
- dry chemical powder.
- carbon dioxide.

FIRE FIGHTING

- Alert Fire Brigade and tell them location and nature of hazard.
- Wear full body protective clothing with breathing apparatus.
- Prevent, by any means available, spillage from entering drains or water course.
- Use fire fighting procedures suitable for surrounding area.
- Do not approach containers suspected to be hot.
- Cool fire exposed containers with water spray from a protected location.
- If safe to do so, remove containers from path of fire.
- Equipment should be thoroughly decontaminated after use.

When any large container (including road and rail tankers) is involved in a fire, consider evacuation by 800 metres in all directions.

FIRE/EXPLOSION HAZARD

- Non combustible.
- Not considered to be a significant fire risk.
- Acids may react with metals to produce hydrogen, a highly flammable and explosive gas.
- Heating may cause expansion or decomposition leading to violent rupture of containers.
- May emit corrosive, poisonous fumes. May emit acrid smoke.
- Non combustible.
- Not considered to be a significant fire risk.
- Acids may react with metals to produce hydrogen, a highly flammable and explosive gas.
- Heating may cause expansion or decomposition leading to violent rupture of containers.
- Decomposes on heating and may produce toxic fumes of carbon monoxide (CO).

continued...

KCB Maxi Mineral Scale and Rust Remover

Hazard Alert Code: HIGH

Chemwatch Material Safety Data Sheet
Issue Date: 25-Jul-2013
A317LP

CHEMWATCH 23-0389

Version No:3.1.1.1

Page 5 of 20

Section 5 - FIRE FIGHTING MEASURES

• May emit acrid smoke. May emit corrosive fumes.

Decomposition may produce toxic fumes of: carbon dioxide (CO₂), sulfur oxides (SO_x), other pyrolysis products typical of burning organic material.

FIRE INCOMPATIBILITY

■ None known.

HAZCHEM

2X

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS

- Drains for storage or use areas should have retention basins for pH adjustments and dilution of spills before discharge or disposal of material.
- Check regularly for spills and leaks.
- Clean up all spills immediately.
- Avoid breathing vapours and contact with skin and eyes.
- Control personal contact with the substance, by using protective equipment.
- Contain and absorb spill with sand, earth, inert material or vermiculite.
- Wipe up.
- Place in a suitable, labelled container for waste disposal.

MAJOR SPILLS

Chemical Class:acidic compounds, organic

For release onto land: recommended sorbents listed in order of priority.

SORBENT TYPE	RANK	APPLICATION	COLLECTION	LIMITATIONS
LAND SPILL - SMALL				
wood fiber - pillow	1	throw	pitchfork	R, P, DGC, RT
cross- linked polymer - particulate	1	shovel	shovel	R, W, SS
cross- linked polymer - pillow	1	throw	pitchfork	R, DGC, RT
sorbent clay - particulate	2	shovel	shovel	R, I, P
foamed glass - pillow	2	throw	pitchfork	R, P, DGC, RT
wood fiber - particulate	3	shovel	shovel	R, W, P, DGC

LAND SPILL - MEDIUM

continued...

KCB Maxi Mineral Scale and Rust Remover

Hazard Alert Code: HIGH

Chemwatch Material Safety Data Sheet
 Issue Date: 25-Jul-2013
 A317LP

CHEMWATCH 23-0389
 Version No:3.1.1.1
 Page 6 of 20

Section 6 - ACCIDENTAL RELEASE MEASURES

cross- linked polymer - particulate	1	blower	skiploader	R, W, SS
polypropylene - particulate	2	blower	skiploader	W, SS, DGC
sorbent clay - particulate	2	blower	skiploader	R, I, P
cross- linked polymer - pillow	3	throw	skiploader	R, DGC, RT
polypropylene - mat	3	throw	skiploader	W, SS, DGC
expanded mineral - particulate	3	blower	skiploader	R, I, W, P, DGC

Legend

DGC: Not effective where ground cover is dense

R: Not reusable

I: Not incinerable

P: Effectiveness reduced when rainy

RT: Not effective where terrain is rugged

SS: Not for use within environmentally sensitive sites

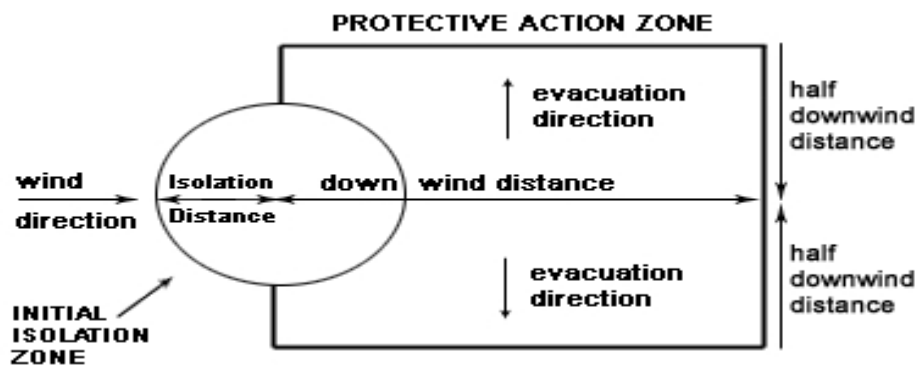
W: Effectiveness reduced when windy

Reference: Sorbents for Liquid Hazardous Substance Cleanup and Control;

R.W Melvold et al: Pollution Technology Review No. 150: Noyes Data Corporation 1988.

- Clear area of personnel and move upwind.
- Alert Fire Brigade and tell them location and nature of hazard.
- Wear full body protective clothing with breathing apparatus.
- Prevent, by any means available, spillage from entering drains or water course.
- Consider evacuation (or protect in place).
- Stop leak if safe to do so.
- Contain spill with sand, earth or vermiculite.
- Collect recoverable product into labelled containers for recycling.
- Neutralise/decontaminate residue (see Section 13 for specific agent).
- Collect solid residues and seal in labelled drums for disposal.
- Wash area and prevent runoff into drains.
- After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using.
- If contamination of drains or waterways occurs, advise emergency services.

PROTECTIVE ACTIONS FOR SPILL



continued...

KCB Maxi Mineral Scale and Rust Remover

Hazard Alert Code: HIGH

Chemwatch Material Safety Data Sheet

Issue Date: 25-Jul-2013

A317LP

CHEMWATCH 23-0389

Version No:3.1.1.1

Page 7 of 20

Section 6 - ACCIDENTAL RELEASE MEASURES

From IERG (Canada/Australia)

Isolation Distance	25 metres
Downwind Protection Distance	250 metres
IERG Number	36

FOOTNOTES

1 PROTECTIVE ACTION ZONE is defined as the area in which people are at risk of harmful exposure. This zone assumes that random changes in wind direction confines the vapour plume to an area within 30 degrees on either side of the predominant wind direction, resulting in a crosswind protective action distance equal to the downwind protective action distance.

2 PROTECTIVE ACTIONS should be initiated to the extent possible, beginning with those closest to the spill and working away from the site in the downwind direction. Within the protective action zone a level of vapour concentration may exist resulting in nearly all unprotected persons becoming incapacitated and unable to take protective action and/or incurring serious or irreversible health effects.

3 INITIAL ISOLATION ZONE is determined as an area, including upwind of the incident, within which a high probability of localised wind reversal may expose nearly all persons without appropriate protection to life-threatening concentrations of the material.

4 SMALL SPILLS involve a leaking package of 200 litres (55 US gallons) or less, such as a drum (jerrican or box with inner containers). Larger packages leaking less than 200 litres and compressed gas leaking from a small cylinder are also considered "small spills".

LARGE SPILLS involve many small leaking packages or a leaking package of greater than 200 litres, such as a cargo tank, portable tank or a "one-tonne" compressed gas cylinder.

5 Guide 153 is taken from the US DOT emergency response guide book.

6 IERG information is derived from CANUTEC - Transport Canada.

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

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

- DO NOT allow clothing wet with material to stay in contact with skin.
- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- WARNING: To avoid violent reaction, ALWAYS add material to water and NEVER water to material.
- Avoid smoking, naked lights or ignition sources.
- Avoid contact with incompatible materials.
- When handling, DO NOT eat, drink or smoke.
- Keep containers securely sealed when not in use.
- Avoid physical damage to containers.
- Always wash hands with soap and water after handling.
- Work clothes should be laundered separately. Launder contaminated clothing before re-use.
- Use good occupational work practice.
- Observe manufacturer's storage and handling recommendations contained within this MSDS.
- Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.

SUITABLE CONTAINER

- DO NOT use aluminium or galvanised containers.
- Check regularly for spills and leaks.
- Lined metal can, lined metal pail/ can.

continued...

KCB Maxi Mineral Scale and Rust Remover

Hazard Alert Code: HIGH

Chemwatch Material Safety Data Sheet

Issue Date: 25-Jul-2013

A317LP

CHEMWATCH 23-0389

Version No:3.1.1.1

Page 8 of 20

Section 7 - HANDLING AND STORAGE

- Plastic pail.
- Polyliner drum.
- Packing as recommended by manufacturer.
- Check all containers are clearly labelled and free from leaks.

For low viscosity materials

- Drums and jerricans must be of the non-removable head type.
- Where a can is to be used as an inner package, the can must have a screwed enclosure.

For materials with a viscosity of at least 2680 cSt. (23 deg. C) and solids (between 15 C deg. and 40 deg C.):

- Removable head packaging;
 - Cans with friction closures and
 - low pressure tubes and cartridges
- may be used.

Where combination packages are used, and the inner packages are of glass, porcelain or stoneware, there must be sufficient inert cushioning material in contact with inner and outer packages unless the outer packaging is a close fitting moulded plastic box and the substances are not incompatible with the plastic.

STORAGE INCOMPATIBILITY

Sulfamic acid:

- reacts violently with chlorine, nitric acid, fuming nitric acid, strong bases, chlorine, hypochlorous acid, strong oxidising agents, sulfides, cyanides or when heated with nitrates, nitrites
- is strongly acidic in aqueous solution
- hydrolyses to ammonium bisulfate at elevated temperatures
- is incompatible with alkylene oxides, aliphatic amines, alkanolamines, amides, ammonia, epichlorohydrin, organic anhydrides, isocyanates, metal nitrates/ nitrites, oxidisers, vinyl acetate, common metals and their alloys, water

Contact with metals may result in the evolution of hydrogen (H₂) which can form explosive mixtures in air.

- Reacts with mild steel, galvanised steel / zinc producing hydrogen gas which may form an explosive mixture with air.
- Segregate from alkalies, oxidising agents and chemicals readily decomposed by acids, i.e. cyanides, sulfides, carbonates.
- Avoid strong acids, bases.

STORAGE REQUIREMENTS

- Store in original containers.
- Keep containers securely sealed.
- Store in a cool, dry, well-ventilated area.
- Store away from incompatible materials and foodstuff containers.
- Protect containers against physical damage and check regularly for leaks.
- Observe manufacturer's storage and handling recommendations contained within this MSDS.

SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS



X



X



+



X



X



+

+: *May be stored together*

O: *May be stored together with specific preventions*

X: *Must not be stored together*

continued...

KCB Maxi Mineral Scale and Rust Remover

Hazard Alert Code: HIGH

Chemwatch Material Safety Data Sheet
Issue Date: 25-Jul-2013
A317LP

CHEMWATCH 23-0389
Version No:3.1.1.1
Page 9 of 20

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

The following materials had no OELs on our records

• glycolic acid:	CAS:79- 14- 1
• sulfamic acid:	CAS:5329- 14- 6
• citric acid, monohydrate:	CAS:5949- 29- 1
• water:	CAS:7732- 18- 5

MATERIAL DATA

CITRIC ACID, MONOHYDRATE:

GLYCOLIC ACID:

KCB MAXI MINERAL SCALE AND RUST REMOVER:

SULFAMIC ACID:

Sensory irritants are chemicals that produce temporary and undesirable side-effects on the eyes, nose or throat. Historically occupational exposure standards for these irritants have been based on observation of workers' responses to various airborne concentrations. Present day expectations require that nearly every individual should be protected against even minor sensory irritation and exposure standards are established using uncertainty factors or safety factors of 5 to 10 or more. On occasion animal no-observable-effect-levels (NOEL) are used to determine these limits where human results are unavailable. An additional approach, typically used by the TLV committee (USA) in determining respiratory standards for this group of chemicals, has been to assign ceiling values (TLV C) to rapidly acting irritants and to assign short-term exposure limits (TLV STELs) when the weight of evidence from irritation, bioaccumulation and other endpoints combine to warrant such a limit. In contrast the MAK Commission (Germany) uses a five-category system based on intensive odour, local irritation, and elimination half-life. However this system is being replaced to be consistent with the European Union (EU) Scientific Committee for Occupational Exposure Limits (SCOEL); this is more closely allied to that of the USA.

OSHA (USA) concluded that exposure to sensory irritants can:

- cause inflammation
- cause increased susceptibility to other irritants and infectious agents
- lead to permanent injury or dysfunction
- permit greater absorption of hazardous substances and
- acclimate the worker to the irritant warning properties of these substances thus increasing the risk of overexposure.

CITRIC ACID, MONOHYDRATE:

GLYCOLIC ACID:

SULFAMIC ACID:

It is the goal of the ACGIH (and other Agencies) to recommend TLVs (or their equivalent) for all substances for which there is evidence of health effects at airborne concentrations encountered in the workplace.

At this time no TLV has been established, even though this material may produce adverse health effects (as evidenced in animal experiments or clinical experience). Airborne concentrations must be maintained as low as is practically possible and occupational exposure must be kept to a minimum.

NOTE: The ACGIH occupational exposure standard for Particles Not Otherwise Specified (P.N.O.S) does NOT apply.

GLYCOLIC ACID:

CEL TWA: 10 mg/m³

WATER:

continued...

KCB Maxi Mineral Scale and Rust Remover

Hazard Alert Code: HIGH

Chemwatch Material Safety Data Sheet
Issue Date: 25-Jul-2013
A317LP

CHEMWATCH 23-0389
Version No:3.1.1.1
Page 10 of 20

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

No exposure limits set by NOHSC or ACGIH.

PERSONAL PROTECTION



EYE

- Chemical goggles.
- Full face shield may be required for supplementary but never for primary protection of eyes
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59], [AS/NZS 1336 or national equivalent].

HANDS/FEET

- Wear chemical protective gloves, e.g. PVC.
 - Wear safety footwear or safety gumboots, e.g. Rubber.
 - When handling corrosive liquids, wear trousers or overalls outside of boots, to avoid spills entering boots.
- The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and

has to be observed when making a final choice.

Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include:

- frequency and duration of contact,
- chemical resistance of glove material,
- glove thickness and
- dexterity

Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent).

- When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.
- When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.
- Contaminated gloves should be replaced.

Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.

continued...

KCB Maxi Mineral Scale and Rust Remover

Hazard Alert Code: HIGH

Chemwatch Material Safety Data Sheet
Issue Date: 25-Jul-2013
A317LP

CHEMWATCH 23-0389
Version No:3.1.1.1
Page 11 of 20

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

OTHER

- Overalls.
- PVC Apron.
- PVC protective suit may be required if exposure severe.
- Eyewash unit.
- Ensure there is ready access to a safety shower.

RESPIRATOR

- Type B-P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)
 - Cartridge respirators should never be used for emergency ingress or in areas of unknown vapour concentrations or oxygen content. The wearer must be warned to leave the contaminated area immediately on detecting any odours through the respirator. The odour may indicate that the mask is not functioning properly, that the vapour concentration is too high, or that the mask is not properly fitted. Because of these limitations, only restricted use of cartridge respirators is considered appropriate.

The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required. For further information consult site specific CHEMWATCH data (if available), or your Occupational Health and Safety Advisor.

ENGINEERING CONTROLS

- 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.

The basic types of engineering controls are:

- Process controls which involve changing the way a job activity or process is done to reduce the risk.
- 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. The design of a ventilation system must match the particular process and chemical or contaminant in use.
- Employers may need to use multiple types of controls to prevent employee overexposure.

Local exhaust ventilation usually required. If risk of overexposure exists, wear approved respirator. Correct fit is essential to obtain adequate protection. Supplied-air type respirator may be required in special circumstances. Correct fit is essential to ensure adequate protection.

An approved self contained breathing apparatus (SCBA) may be required in some situations.

Provide adequate ventilation in warehouse or closed storage area.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

Clear acidic liquid; miscible with water.

PHYSICAL PROPERTIES

Mixes with water.

Corrosive.

Acid.

State	LIQUID	Molecular Weight	Not Applicable
Melting Range (°C)	Not Available	Viscosity	Not Available
Boiling Range (°C)	Not Available	Solubility in water (g/L)	Miscible

continued...

KCB Maxi Mineral Scale and Rust Remover

Hazard Alert Code: HIGH

Chemwatch Material Safety Data Sheet

Issue Date: 25-Jul-2013

A317LP

CHEMWATCH 23-0389

Version No:3.1.1.1

Page 12 of 20

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

Flash Point (°C)	Not Available	pH (1% solution)	Not Available
Decomposition Temp (°C)	Not Available	pH (as supplied)	0.5
Autoignition Temp (°C)	Not Available	Vapour Pressure (kPa)	Not Available
Upper Explosive Limit (%)	Not Available	Specific Gravity (water=1)	1.0
Lower Explosive Limit (%)	Not Available	Relative Vapour Density (air=1)	1
Volatile Component (%vol)	>85	Evaporation Rate	Not Available

Section 10 - STABILITY AND REACTIVITY

CONDITIONS CONTRIBUTING TO INSTABILITY

- Contact with alkaline material liberates heat.
- Presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerisation will not occur.

For incompatible materials - refer to Section 7 - Handling and Storage.

Section 11 - TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

■ Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual.

The material can produce chemical burns within the oral cavity and gastrointestinal tract following ingestion. Ingestion of sulfamic acid precipitates vomiting, diarrhoea, reduced blood pressure and breathing difficulty from swelling of the voice box. It may cause lesion of the stomach at a concentration of more than 10%. Fever following initial recovery may indicate inflammation of the chest and abdominal cavities usually from perforation of gullet and stomach.

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. Swelling of the epiglottis may make it difficult to breathe which may result in suffocation. More severe exposure may result in vomiting blood and thick mucus, shock, abnormally low blood pressure, fluctuating pulse, shallow respiration and clammy skin, inflammation of stomach wall, and rupture of oesophageal tissue. Untreated shock may eventually result in kidney failure. Severe cases may result in perforation of the stomach and abdominal cavity with consequent infection, rigidity and fever. There may be severe narrowing of the oesophageal or pyloric sphincters; this may occur immediately or after a delay of weeks to years. There may be coma and convulsions, followed by death due to infection of the abdominal cavity, kidneys or lungs.

Ingestion of low-molecular organic acid solutions may produce spontaneous haemorrhaging, production of blood clots, gastrointestinal damage and narrowing of the oesophagus and stomach entry.

EYE

■ The material can produce chemical burns to the eye following direct contact. Vapours or mists may be extremely irritating.

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. Severe burns produce long-lasting and possibly irreversible damage. The appearance of the burn may not be apparent for several weeks after the initial

continued...

KCB Maxi Mineral Scale and Rust Remover

Hazard Alert Code: HIGH

Chemwatch Material Safety Data Sheet
Issue Date: 25-Jul-2013
A317LP

CHEMWATCH 23-0389

Version No:3.1.1.1

Page 13 of 20

Section 11 - TOXICOLOGICAL INFORMATION

contact. The cornea may ultimately become deeply opaque resulting in blindness. Solutions of low-molecular weight organic acids cause pain and injury to the eyes.

SKIN

■ The material can produce chemical burns following direct contact with the skin. Exposure to sulfamic acid can cause dose and duration dependent injury to the skin including burns. 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. Open cuts, abraded or irritated skin should not be exposed to this material.

INHALED

■ Inhalation of vapours or aerosols (mists, fumes), generated by the material during the course of normal handling, may be harmful. The material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage. Inhalation of sulfamic acid may cause bloody sputum, difficulty in breathing, low blood pressure, headache, dizziness, bluish skin colouration and lung congestion. Corrosive acids can cause irritation of the respiratory tract, with coughing, choking and mucous membrane damage. There may be dizziness, headache, nausea and weakness. Swelling of the lungs can occur, either immediately or after a delay; symptoms of this include chest tightness, shortness of breath, frothy phlegm and cyanosis. Lack of oxygen can cause death hours after onset.

CHRONIC HEALTH EFFECTS

■ Long-term exposure to respiratory irritants may result in disease of the airways involving difficult breathing and related systemic problems. Ample evidence exists from experimentation that reduced human fertility is directly caused by exposure to the material. Ample evidence exists, from results in experimentation, that developmental disorders are directly caused by human exposure to the material. Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure. 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. Chronic exposure may inflame the skin or conjunctiva.

TOXICITY AND IRRITATION

■ unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

WATER:

GLYCOLIC ACID:

■ No significant acute toxicological data identified in literature search.

■ 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. Industrial bronchitis, on the other hand, is a disorder that occurs as result of exposure due to high concentrations of irritating substance (often particulate in nature) and is completely

continued...

KCB Maxi Mineral Scale and Rust Remover

Hazard Alert Code: HIGH

Chemwatch Material Safety Data Sheet

Issue Date: 25-Jul-2013

A317LP

CHEMWATCH 23-0389

Version No:3.1.1.1

Page 14 of 20

Section 11 - TOXICOLOGICAL INFORMATION

reversible after exposure ceases. The disorder is characterised by dyspnea, cough and mucus production.

SULFAMIC ACID:

GLYCOLIC ACID:

■ 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. Furthermore, exposures to low pH in vivo differ from exposures in vitro in that, in vivo, only a portion of the cell surface is subjected to the adverse conditions, so that perturbation of intracellular homeostasis may be maintained more readily than in vitro.

GLYCOLIC ACID:

SULFAMIC ACID:

KCB MAXI MINERAL SCALE AND RUST REMOVER:

■ The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

GLYCOLIC ACID:

KCB MAXI MINERAL SCALE AND RUST REMOVER:

■ For glycolic acid:

Acute toxicity: Glycolic acid (70% solution) is slightly toxic via the oral route, having an LD50 in rats of 1938 mg/kg. It is moderately toxic via the inhalation route in male rats with a 4-hour LC50 of 3.6 mg/L.

Glycolic acid is a skin and eye corrosive, but it is not a skin sensitiser in animals.

However, numerous studies in humans with cosmetic products containing lower percentages of glycolic acid have shown some skin irritation potential, but no corrosivity.

Repeat dose toxicity: Repeated exposures to glycolic acid via inhalation produced liver, spleen, thymus changes, and gastrointestinal tract alterations. Repeated administration of glycolic acid to rats by oral intubation caused decreases in body weight, body weight gain, food consumption, and food efficiency. In addition, toxicologically significant changes in haematologic measurements, clinical chemistry, and urinalysis parameters, as well as kidney lesions were observed. Developmental and reproductive toxicity: Maternal and developmental toxicity of crystalline, 99.6% pure, glycolic acid in the rat was seen at 300 and 600 mg/kg/day. The maternal and developmental NOEL was 150 mg/kg/day, thus glycolic acid is not considered a unique developmental hazard to the conceptus.

Glycolic acid did not affect reproductive performance in rats during a one-generation reproduction study following a 90-day feeding study.

Genotoxicity: The compound was negative in the in vitro bacterial reverse mutation assay (Salmonella and E. coli). Glycolic acid produced a positive response in the in vitro mouse lymphoma assay only at excessively high concentrations under activated conditions, but was negative in the in vivo mouse micronucleus assay.

GLYCOLIC ACID:

■ The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.

for simple alpha-hydroxy carboxylic acids and their salts:

The toxicology of simple alpha hydroxy carboxylic acids cluster is characterised by five compounds sharing the functional group defining the cluster name

Experimental data available for members of the simple alpha-hydroxy carboxylic acids indicate a low acute,

continued...

KCB Maxi Mineral Scale and Rust Remover

Hazard Alert Code: HIGH

Chemwatch Material Safety Data Sheet

Issue Date: 25-Jul-2013

A317LP

CHEMWATCH 23-0389

Version No:3.1.1.1

Page 15 of 20

Section 11 - TOXICOLOGICAL INFORMATION

repeated-dose, reproductive and developmental toxicity.

The simple alpha hydroxy carboxylic acids are eye and skin irritants but are not expected to be skin sensitizers.

Genotoxicity test data for two cluster members and a cancer bioassay for the calcium salt of propanoic acid, 2-hydroxy- yielded negative results and all other cluster members are considered to have little or no mutagenic or carcinogenic potential.

Acute oral toxicity of propanoic acid, 2-hydroxy- (2S)- (79-33-4) and propanoic acid, 2-hydroxy- (50-21-5) are low. The repeated-dose and developmental toxicity of the three tested simple alpha -hydroxy carboxylic acids is low. In EPA's High Production Volume Program, reproductive toxicity testing for propanoic acid, 2-hydroxy- (50-21-5) was deemed unnecessary because it is a normal component of human intermediary metabolism. Reproductive toxicity of acetic acid, 2-hydroxy- (79-14-1) has been tested and was found to be low. Low reproductive toxicity of the associated potassium salts is also expected to be low. Alpha-hydroxy carboxylic acids are severe eye irritants. Acetic acid, 2-hydroxy- (79-14-1), propanoic acid, 2-hydroxy- (2S)- (79-33-4) and propanoic acid, 2-hydroxy- (50-21-5) all produced positive skin irritation in rabbits. The members of this cluster are not expected to be skin sensitizers based on negative results in guinea pigs for both acetic acid, 2-hydroxy- (79-14-1) and propanoic acid, 2-hydroxy- (2S)- (79-33-4). Genotoxicity data for acetic acid, 2-hydroxy-(79-14-1) and propanoic acid, 2-hydroxy- (50-21-5) are negative, indicating that none of the cluster members are expected to be genotoxic. A 2-year drinking water study of the calcium salt of propanoic acid, 2-hydroxy- (50-21-5) in rats showed no evidence of carcinogenicity. An expert judgment based on mechanism-based structure-activity relationship considerations indicate little or no carcinogenic potential for any of the cluster members due to expected rapid metabolism/excretion and lack of genotoxic structural alert. This judgment is supported by the negative cancer and mutagenicity data for propanoic acid, 2-hydroxy- (50-21-5), which is considered a reasonable analogue to the rest of the cluster.

SULFAMIC ACID:

TOXICITY

Oral (rat) LD50:3160 mg/kg

IRRITATION

Skin (human):4 %/5 days (I)- Mild

Skin (rabbit):500 mg/24 h- SEVERE

Eye (rabbit):250 ug/24 h - SEVERE

Eye (rabbit):20 mg - Moderate

■ The material may cause severe skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin. Repeated exposures may produce severe ulceration.

CITRIC ACID, MONOHYDRATE:

TOXICITY

IRRITATION

Eye (rabbit):5 mg/30s Mild

■ The material may be irritating to the eye, with prolonged contact causing inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

SKIN

glycolic acid	GESAMP/EHS Composite List - GESAMP Hazard Profiles	D1: skin irritation/corrosion	3C
citric acid, monohydrate	GESAMP/EHS Composite List - GESAMP Hazard Profiles	D1: skin irritation/corrosion	1

continued...

KCB Maxi Mineral Scale and Rust Remover

Hazard Alert Code: HIGH

Chemwatch Material Safety Data Sheet

Issue Date: 25-Jul-2013

A317LP

CHEMWATCH 23-0389

Version No:3.1.1.1

Page 16 of 20

Section 12 - ECOLOGICAL INFORMATION

SULFAMIC ACID:

CITRIC ACID, MONOHYDRATE:

GLYCOLIC ACID:

DO NOT discharge into sewer or waterways.

SULFAMIC ACID:

GLYCOLIC ACID:

Prevent, by any means available, spillage from entering drains or water courses.

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.

GLYCOLIC ACID:

log Pow (Verschuereen 1983):

- 1.11

for simple alpha-hydroxy carboxylic acids and their salts:

Available experimental and estimated data for simple alpha-hydroxy carboxylic acids indicate that the members of this cluster have a low acute and chronic aquatic toxicity.

For glycolic acid:

Readily biodegradable.

After 7 days 89.65 is biodegraded (closed bottle test).

log Kow : -1.11

BOD 5: 0.175

Environmental Fate: Glycolic acid is a colourless, odourless, crystalline solid, but is usually supplied as a 70% solution. In this form it is a clear, colourless liquid with a mild odour that has a saturation point of 10 C, boiling point of 112 C, and is non-flammable.

Glycolic acid will not volatilise rapidly from water surfaces. The estimated half-life from a river is 373.8 days and 2721 days from a model lake based on volatilisation alone, not taking biodegradation into account.

If discharged into water, it is estimated that glycolic acid will partition predominately in the water compartment. Glycolic acid biodegrades quickly, and is not expected to persist or bioaccumulate in the environment.

Ecotoxicity:

Aquatic toxicity: Slight

Fish LC50 (96 h): fathead minnow 164 mg/l; bluegill sunfish 93 mg/l

Daphnia EC50 (48 h): 141 mg/l

Glycolic acid exhibits low toxicity to aquatic organisms. Glycolic acid caused stimulation of algal growth at pH 7.5 under illumination, but when used as a carbon source, did not support heterotrophic growth in the dark.

SULFAMIC ACID:

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Do NOT allow product to come in contact with surface waters or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash-waters.

Wastes resulting from use of the product must be disposed of on site or at approved waste sites.

Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
glycolic acid	LOW	No Data Available	LOW	HIGH
sulfamic acid	HIGH	No Data Available	LOW	HIGH

continued...

KCB Maxi Mineral Scale and Rust Remover

Hazard Alert Code: HIGH

Chemwatch Material Safety Data Sheet
Issue Date: 25-Jul-2013
A317LP

CHEMWATCH 23-0389
Version No:3.1.1.1
Page 17 of 20

Section 12 - ECOLOGICAL INFORMATION

citric acid, monohydrate	LOW	No Data Available	LOW	HIGH
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Section 13 - DISPOSAL CONSIDERATIONS

- Containers may still present a chemical hazard/ danger when empty.
- Return to supplier for reuse/ recycling if possible.

Otherwise:

- If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill.

- Where possible retain label warnings and MSDS and observe all notices pertaining to the product.

Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.

A Hierarchy of Controls seems to be common - the user should investigate:

- Reduction
- Reuse
- Recycling
- Disposal (if all else fails)

This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. If it has been contaminated, it may be possible to reclaim the product by filtration, distillation or some other means. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.

- DO NOT allow wash water from cleaning or process equipment to enter drains.
- It may be necessary to collect all wash water for treatment before disposal.
- In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.
- Where in doubt contact the responsible authority.
- Recycle wherever possible.
- Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified.
- Treat and neutralise at an approved treatment plant. Treatment should involve: Neutralisation with soda-ash or soda-lime followed by: burial in a land-fill specifically licenced to accept chemical and / or pharmaceutical wastes or Incineration in a licenced apparatus (after admixture with suitable combustible material).
- Decontaminate empty containers with 5% aqueous sodium hydroxide or soda ash, followed by water. Observe all label safeguards until containers are cleaned and destroyed.

Section 14 - TRANSPORTATION INFORMATION



Labels Required: CORROSIVE

continued...

KCB Maxi Mineral Scale and Rust Remover

Hazard Alert Code: HIGH

Chemwatch Material Safety Data Sheet
Issue Date: 25-Jul-2013
A317LP

CHEMWATCH 23-0389

Version No:3.1.1.1

Page 18 of 20

Section 14 - TRANSPORTATION INFORMATION

HAZCHEM:

2X (ADG7)

ADG7:

Class or Division:	8	Subsidiary Risk1:	None
UN No.:	3265	Packing Group:	II
Special Provision:	274	Limited Quantity:	1 L
Portable Tanks & Bulk Containers - Instruction:	T11	Portable Tanks & Bulk Containers - Special Provision:	TP2 TP27
Packagings & IBCs - Packing Instruction:	P001 IBC02	Packagings & IBCs - Special Packing Provision:	None

Name and Description: CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.
(contains sulfamic acid)

Air Transport IATA:

ICAO/IATA Class:	8	ICAO/IATA Subrisk:	None
UN/ID Number:	3265	Packing Group:	II
Special provisions:	A3A803		
Cargo Only			
Packing Instructions:	855	Maximum Qty/Pack:	30 L
Passenger and Cargo		Passenger and Cargo	
Packing Instructions:	851	Maximum Qty/Pack:	1 L
Passenger and Cargo Limited Quantity		Passenger and Cargo Limited Quantity	
Packing Instructions:	Y840	Maximum Qty/Pack:	0.5 L

Shipping name:CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.(contains sulfamic acid)

Maritime Transport IMDG:

IMDG Class:	8	IMDG Subrisk:	None
UN Number:	3265	Packing Group:	II
EMS Number:	F-A,S-B	Special provisions:	274
Limited Quantities:	1 L		

Shipping name:CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.(contains sulfamic acid)

Section 15 - REGULATORY INFORMATION

Indications of Danger:

C Corrosive
T Toxic

POISONS SCHEDULE

S5

REGULATIONS

Regulations for ingredients

glycolic acid (CAS: 79-14-1) is found on the following regulatory lists;

"Australia FAISD Handbook - First Aid Instructions, Warning Statements, and General Safety Precautions",

continued...

KCB Maxi Mineral Scale and Rust Remover

Hazard Alert Code: HIGH

Chemwatch Material Safety Data Sheet

Issue Date: 25-Jul-2013

A317LP

CHEMWATCH 23-0389

Version No:3.1.1.1

Page 19 of 20

Section 15 - REGULATORY INFORMATION

"Australia Hazardous Substances Information System - Consolidated Lists", "Australia Inventory of Chemical Substances (AICS)", "Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix E (Part 2)", "Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix F (Part 3)", "Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 6", "FisherTransport Information", "GESAMP/EHS Composite List - GESAMP Hazard Profiles", "IMO IBC Code Chapter 17: Summary of minimum requirements", "International Council of Chemical Associations (ICCA) - High Production Volume List", "OECD List of High Production Volume (HPV) Chemicals", "Sigma-AldrichTransport Information"

sulfamic acid (CAS: 5329-14-6) is found on the following regulatory lists;

"Australia FAISD Handbook - First Aid Instructions, Warning Statements, and General Safety Precautions", "Australia Hazardous Substances Information System - Consolidated Lists", "Australia Inventory of Chemical Substances (AICS)", "Australia National Pollutant Inventory", "Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix E (Part 2)", "Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix F (Part 3)", "Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 5", "Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 6", "FisherTransport Information", "International Council of Chemical Associations (ICCA) - High Production Volume List", "OECD List of High Production Volume (HPV) Chemicals", "Sigma-AldrichTransport Information"

citric acid, monohydrate (CAS: 5949-29-1) is found on the following regulatory lists;

"Acros Transport Information", "Australia High Volume Industrial Chemical List (HVICL)", "Australia Inventory of Chemical Substances (AICS)", "Australia Therapeutic Goods Administration (TGA) Substances that may be used as active ingredients in Listed medicines", "CODEX General Standard for Food Additives (GSFA) - Additives Permitted for Use in Food in General, Unless Otherwise Specified, in Accordance with GMP", "GESAMP/EHS Composite List - GESAMP Hazard Profiles", "IMO IBC Code Chapter 17: Summary of minimum requirements", "IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk", "International Council of Chemical Associations (ICCA) - High Production Volume List", "International Fragrance Association (IFRA) Survey: Transparency List", "International Numbering System for Food Additives", "IOFI Global Reference List of Chemically Defined Substances", "OECD List of High Production Volume (HPV) Chemicals", "OSPAR National List of Candidates for Substitution – Norway", "Sigma-AldrichTransport Information"

water (CAS: 7732-18-5) is found on the following regulatory lists;

"Australia High Volume Industrial Chemical List (HVICL)", "Australia Inventory of Chemical Substances (AICS)", "IMO IBC Code Chapter 18: List of products to which the Code does not apply", "International Fragrance Association (IFRA) Survey: Transparency List", "OECD List of High Production Volume (HPV) Chemicals", "OSPAR National List of Candidates for Substitution – Norway", "Sigma-AldrichTransport Information"

No data for KCB Maxi Mineral Scale and Rust Remover (CW: 23-0389)

Section 16 - OTHER INFORMATION

Denmark Advisory list for selfclassification of dangerous substances

Substance	CAS	Suggested codes
glycolic acid	79- 14- 1	Xn; R22

■ 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.

continued...

KCB Maxi Mineral Scale and Rust Remover

Hazard Alert Code: HIGH

Chemwatch Material Safety Data Sheet
Issue Date: 25-Jul-2013
A317LP

CHEMWATCH 23-0389
Version No:3.1.1.1
Page 20 of 20

Section 16 - OTHER INFORMATION

■ 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.

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This is the end of the MSDS.