

Infosafe No™	3CHEQ	Issue Date : January 2016	RE-ISSUED by ACR
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Product Name : **BUFFER SOLUTION HARDNESS**

Classified as hazardous

## 1. Identification

<b>GHS Product Identifier</b>	BUFFER SOLUTION HARDNESS
<b>Product Code</b>	2340
<b>Company Name</b>	AUSTRALIAN CHEMICAL REAGENTS (ACR) (ABN 19 008 264 211)
<b>Address</b>	38 - 50 Bedford Street Gillman S.A. 5013 Australia
<b>Telephone/Fax Number</b>	Tel: (08) 8440 2000 Fax: (08) 8440 2001
<b>Recommended use of the chemical and restrictions on use</b>	Textiles, manufacture of rayon, rubber, fertilizers, refrigeration, photography, pharmaceuticals, ammonia soaps, lubricants, fireproofing wood, ink manufacture, explosives, ceramics, ammonium compounds, organic synthesis, detergents, food additives, household cleanser and laboratory reagent.
<b>Other Information</b>	EMERGENCY CONTACT NUMBER: +61 08 8440 2000 Business hours: 8:30am to 5:00pm, Monday to Friday.

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## 2. Hazard Identification

<b>GHS classification of the substance/mixture</b>	Hazardous to the Aquatic Environment - Acute Hazard: Category 1 Skin Corrosion/Irritation: Category 1C Specific target organ toxicity - Single Exposure Category 3 (Respiratory tract)
<b>Signal Word (s)</b>	DANGER
<b>Hazard Statement (s)</b>	H314 Causes severe skin burns and eye damage. H335 May cause respiratory irritation. H400 Very toxic to aquatic life.
<b>Pictogram (s)</b>	Corrosion, Exclamation mark, Environment



<b>Precautionary statement – Prevention</b>	P260 Do not breathe dust/fume/gas/mist/vapours/spray. P264 Wash thoroughly after handling. P271 Use only outdoors or in a well-ventilated area. P273 Avoid release to the environment. P280 Wear protective gloves/protective clothing/eye protection/face protection.
<b>Precautionary statement – Response</b>	Swallowed P301+P330+P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting. P310 Immediately call a POISON CENTER or doctor/physician. Skin P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. P310 Immediately call a POISON CENTER or doctor/physician. P363 Wash contaminated clothing before reuse. Inhaled P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. P310 Immediately call a POISON CENTER or doctor/physician. Eyes

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<b>Precautionary statement – Storage</b>	P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
<b>Precautionary statement – Disposal</b>	P310 Immediately call a POISON CENTER or doctor/physician. P321 Specific treatment (see First Aid Measures on Safety Data Sheet). P403+P233 Store in a well-ventilated place. Keep container tightly closed. P405 Store locked up. P501 Dispose of contents/container to an approved waste disposal plant.

### 3. Composition/information on ingredients

<b>Chemical Characterization</b>	Liquid				
<b>Ingredients</b>	<u>Name</u>	<u>CAS</u>	<u>Proportion</u>	<u>Hazard Symbol</u>	<u>Risk Phrase</u>
	Water	7732-18-5	72 %		
	Ammonia	1336-21-6	28 %		
	Ammonium chloride	12125-02-9	0.7 %		

### 4. First-aid measures

<b>Inhalation</b>	If inhaled, remove from contaminated area to fresh air immediately, avoid becoming a casualty. Make patient comfortable, keep warm and at rest until fully recovered. If breathing is difficult (or develops a bluish skin discolouration), supply oxygen by a qualified person. Apply artificial respiration with a respiratory medical device if not breathing. Do not use mouth to mouth resuscitation. Immediately medical attention is required.
<b>Ingestion</b>	Rinse mouth thoroughly with water immediately, repeat until all traces of product have been removed. DO NOT INDUCE VOMITING. Seek immediate medical advice.
<b>Skin</b>	If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. Remove contaminated clothing and wash before re-use. Seek medical attention.
<b>Eye contact</b>	If in eyes wash out immediately with water. Seek medical attention.
<b>First Aid Facilities</b>	Maintain eyewash fountain and safety shower in work area.
<b>Advice to Doctor</b>	Treat symptomatically based on judgement of doctor and individual reactions of the patient.
<b>Other Information</b>	For advice, contact a Poisons Information Centre (Phone eg Australia 13 1126; New Zealand 0800 764 766) or a doctor.

### 5. Fire-fighting measures

<b>Hazards from Combustion Products</b>	Oxides of nitrogen.
<b>Specific Methods</b>	Use extinguishing media most appropriate for the surrounding fire. No limitations to the type of extinguishing media. Small fire: Use dry chemical, CO2 or water spray. If safe to do so, move undamaged containers from fire area. Large fire: Use dry chemical, CO2, foam or water spray - Do not use water jets. Cool containers with flooding quantities of water until well after fire is out. Avoid getting water inside containers.
<b>Specific hazards arising from the chemical</b>	Material does not burn. Fire or heat will produce irritating, poisonous and/or corrosive gases. Containers may explode when heated. Contact with metals may evolve flammable hydrogen gas. NOTE: Ammonia is not readily ignited, but explosions of air-ammonia mixtures have occurred in confined spaces.
<b>Hazchem Code</b>	2R
<b>Precautions in connection with Fire</b>	Wear SCBA and chemical splash suit. Fully-encapsulating, gas-tight suits should be worn for maximum protection. Structural firefighter's uniform is NOT effective for these materials.

### 6. Accidental release measures

<b>Spills &amp; Disposal</b>	ELIMINATE all ignition sources (no smoking, flares, sparks or flames) within at least 50m. Do not touch or walk through spilled material. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Stop leak if safe to do so - Prevent entry into waterways, drains or confined areas. Cover with DRY earth, sand or other non-combustible material followed by plastic sheet to minimize spreading or contact with rain. DO NOT GET WATER INSIDE CONTAINERS.
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<b>Personal Precautions</b>	Evacuate the area of all non-essential personnel. Avoid inhalation, contact with skin, eyes and clothing.
<b>Personal Protection</b>	Wear protective clothing specified for normal operations (see Section 8)
<b>Clean-up Methods - Small Spillages</b>	Absorb or contain liquid with sand, earth or spill control material. Shovel up using non sparking tools and place in a labelled, sealable container for subsequent safe disposal. Put leaking containers in a labelled drum or overdrum.
<b>Clean-up Methods - Large Spillages</b>	Seek expert advice on handling and disposal.
<b>Environmental Precautions</b>	Prevent from spreading or entering into drains, ditches or rivers by using sand, earth, or other appropriate barriers.

## 7. Handling and storage

<b>Precautions for Safe Handling</b>	Do not breathe vapour. Avoid contact with eyes, skin and clothing. Avoid prolonged or repeated exposure. Open containers slowly to prevent spurling.
<b>Conditions for safe storage, including any incompatibilities</b>	Store in cool place and out of direct sunlight. Store in well ventilated area. Store away from sources of heat or ignition. Store away from oxidizing agents. Store away from acids. Keep containers securely sealed and protected against physical damage. Temperature may be exceeded to up to +40 °C for a period of max. 48 hours. Store below +25 °C.
<b>Corrosiveness</b>	Corrosive to copper, nickel, zinc and tin and their alloys such as brass. Not significantly corrosive to iron and steel.
<b>Storage Regulations</b>	Refer Australian Standard AS 3780-1994 'The storage and handling of corrosive substances'.

## 8. Exposure controls/personal protection

Occupational exposure limit values	Name	STEL		TWA		Footnote
		mg/m3	ppm	mg/m3	ppm	
	Ammonia	24	35	17	25	
	Ammonium chloride	20		10		
<b>Other Exposure Information</b>	A time weighted average (TWA) has been established for Ammonia, [Ammonia, anhydrous] [7664-41-7] (Safe Work Australia) of 17 mg/m <sup>3</sup> , (25 ppm). The corresponding STEL level is 24 mg/m <sup>3</sup> , (35 ppm). The STEL (Short Term Exposure Limit) is an exposure value that should not be exceeded for more than 15 minutes and should not be repeated for more than 4 times per day. There should be at least 60 minutes between successive exposures at the STEL. The exposure value at the TWA is the average airborne concentration of a particular substance when calculated over a normal 8 hour working day for a 5 day working week.					
<b>Appropriate engineering controls</b>	In industrial situations maintain the concentrations values below the TWA. This may be achieved by process modification, use of local exhaust ventilation, capturing substances at the source, or other methods.					
<b>Respiratory Protection</b>	Where ventilation is not adequate, respiratory protection may be required. Avoid breathing vapours or mists. Select and use respirators in accordance with AS 1716 - Respiratory Protective Devices and be selected in accordance with AS 1715 - Selection, Use and Maintenance of Respiratory Protective Devices. When mists or vapours exceed the exposure standards then the use of the following is recommended: Approved respirator with organic vapour and dust/mist filters. Filter capacity and respirator type depends on exposure levels.					
<b>Eye Protection</b>	The use of a face shield, chemical goggles or safety glasses with side shield protection as appropriate. Must comply with Australian Standards AS 1337 and be selected and used in accordance with AS 1336.					
<b>Hand Protection</b>	Hand protection should comply with AS 2161, Occupational protective gloves - Selection, use and maintenance. Recommendation: Nitrile rubber gloves Avoid skin contact when removing gloves from hands, do not touch the gloves outer surface. Dispose of gloves as hazardous waste.					
<b>Personal Protective Equipment</b>	Final choice of personal protective equipment will depend on individual circumstances and/or according to risk assessments undertaken.					
<b>Footwear</b>	Safety boots in industrial situations is advisory, foot protection should comply with AS 2210, Occupational protective footwear - Guide to selection, care and use.					
<b>Body Protection</b>	Clean impervious clothing should be worn, preferably with an apron for extra protection. Clothing for protection against chemicals should comply with AS 3765 Clothing for Protection Against Hazardous Chemicals.					
<b>Hygiene Measures</b>	Always wash hands before smoking, eating or using the toilet. Wash contaminated clothing and other protective equipment before storing or re-using.					

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## 9. Physical and chemical properties

<b>Form</b>	Liquid
<b>Appearance</b>	Colourless, clear to slightly turbid liquid.
<b>Odour</b>	Characteristic, pungent, stinging, irritating odour.
<b>Boiling Point</b>	18 - 37°C
<b>Solubility in Water</b>	Miscible in water.
<b>Solubility in Organic Solvents</b>	Soluble in ethanol and ether.
<b>pH</b>	10
<b>Flammability</b>	Vapours are combustible.
<b>Flammable Limits - Lower</b>	16%
<b>Flammable Limits - Upper</b>	25%

## 10. Stability and reactivity

<b>Chemical Stability</b>	Stable under normal pressures and cool temperatures.
<b>Conditions to Avoid</b>	Exposure to heat and light.
<b>Incompatible Materials</b>	Acids, alkalis (could form ammonia), acrolein antimony hydride/heat, various alloys (zinc, copper), boron, carbon dioxide, chromyl chloride, dimethylsulfate, ethylene oxide, halogens, hydrogen sulfide, halides, hydrogen bromide, hydrochloric acid, hydrogen fluoride, hydrogen peroxide, interhalogens, iodine, metal halides, mercury/water, various metals, metal salts (chromium VI oxide), nitrogen oxides, nitric acid, oxidising agents, oxygen, phosgene, phosphorus oxides, sulfur dioxide, silver compounds (during storage), Ammonia, nitrogen oxides.
<b>Hazardous Decomposition Products</b>	
<b>Possibility of hazardous reactions</b>	Reacts violently in contact with acids and oxidising agents. Reacts violently or forms explosive products in contact with halogens, interhalogens or halides. May form explosive compounds in contact with metal halides, silver compounds or mercury. Can cause ethylene oxide to polymerise explosively.
<b>Hazardous Polymerization</b>	Will not occur.

## 11. Toxicological Information

<b>Toxicology Information</b>	No adverse health effects expected if the product is handled in accordance with this Safety Data Sheet and the product label. If mishandled or overexposed to this product the following symptom or effects may occur.
<b>Ingestion</b>	Harmful if swallowed. Causes severe burns and pain in the throat, chest and abdomen along with mucosal irritations, gastric pain, nausea, coughing, bloody vomiting, dyspnoea, collapse, shock and unconsciousness. Risk of perforation in the oesophagus and stomach.
<b>Inhalation</b>	May cause severe respiratory tract irritation. Causes irritations of the mucous membranes, coughing and dyspnoea bronchitis, pulmonary oedema. When vapours/aerosols are generated causes strong irritant effect. Brief exposure at 5,000 ppm may cause rapid death due to suffocation or fluid in the lungs.
<b>Skin</b>	Causes burns, irritations. May cause irritant and caustic effects (dermatitis, necrosis).
<b>Eye</b>	Causes burns. Risk of blindness. Vapour may cause irritation. Liquid may cause severe irritation, hemorrhage, swollen eyelids and partial or total blindness.
<b>Skin Sensitisation</b>	No sensitising effect (anhydrous substance).
<b>Carcinogenicity</b>	Not listed in the IARC Monographs.
<b>Chronic Effects</b>	Repeated exposure to gas may cause long-term irritation of the eyes, nose and upper respiratory tract. May cause chemical pneumonitis and kidney damage. Workers repeatedly exposed to ammonia may develop a tolerance to the irritating effects after several weeks.
<b>Serious eye damage/irritation</b>	Severe irritation (29% solution, rabbit).
<b>Mutagenicity</b>	No evidence of mutagenic properties.

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**Skin corrosion/irritation** Severe irritation (29% solution, rabbit).

## 12. Ecological information

**Ecotoxicity** Highly toxic for aquatic organisms. Harmful effect due to pH shift. Forms toxic mixtures in water, dilution measures notwithstanding.

**Persistence and degradability** Abiotic degradation: slow degradation.  
Biologic degradation: not readily degradable.

**Environmental Fate** Behaviour in environmental compartments:  
Distribution: log P (o/w): -1.38.

**Bioaccumulative Potential** No bioaccumulation is to be expected (log P(o/w) <1.0).

**Environmental Protection** Do not allow to enter waters, waste water, or soil!

**Acute Toxicity - Fish** LC50 (Onchorhynchus mykiss): 0.53 mg/l/96 h.  
The following applies to ammonium ions in general: biological effects: fish: toxic as from 0.3 mg/l.

**Acute Toxicity - Daphnia** EC50 (Daphnia pulicaria): 1.16 mg/l/48 h.  
EC50 (Daphnia magna): 24 mg/l/48 h.

**Acute Toxicity - Bacteria** EC50 (Photobacterium phosphoreum): 2 mg/l/5 min.

## 13. Disposal considerations

**Disposal Considerations** Whatever cannot be saved for recovery or recycling should be disposed of according to relevant local, state and federal government regulations.

## 14. Transport information

**Transport Information** Dangerous goods of Class 8 (Corrosive) are incompatible in a placard load with any of the following: Class 1, Class 4.3, Class 5, Class 6, if the Class 6 dangerous goods are cyanides and the Class 8 dangerous goods are acids, Class 7; and are incompatible with food and food packaging in any quantity.

**U.N. Number** 2672

**UN proper shipping name** AMMONIA SOLUTION

**Transport hazard class(es)** 8

**Hazchem Code** 2R

**Packaging Method** 3.8.8RT7

**Packing Group** III

**EPG Number** 8A1

**IERG Number** 37

## 15. Regulatory information

**Regulatory Information** All of the significant ingredients in this formulation are compliant with NICNAS regulations.

**Poisons Schedule** S6

## 16. Other Information

**Literature References** 'Standard for the Uniform Scheduling of Medicines and Poisons No. 15', Commonwealth of Australia, November 2016.  
Lewis, Richard J. Sr. 'Hawley's Condensed Chemical Dictionary 13th. Ed.', Rev., John Wiley and Sons, Inc., NY, 1997.  
National Road Transport Commission, 'Australian Code for the Transport of Dangerous Goods by Road and Rail 7th. Ed.', 2007.  
Safe Work Australia, 'National Code of Practice for the Preparation of Safety Data Sheets for Hazardous Chemicals', 2011.  
Standards Australia, 'SAA/SNZ HB 76:2010 Dangerous Goods - Initial Emergency Response Guide', Standards Australia/Standards New Zealand, 2010.  
Safe Work Australia, 'Approved Criteria for Classifying Hazardous Substances [NOHSC:1008 (2004)]'.  
Safe Work Australia, 'Hazardous Substances Information System, 2005'.

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**Contact  
Person/Point**

Safe Work Australia, 'National Code of Practice for the Labelling of Safe Work Hazardous Substances (2011)'.

Safe Work Australia, 'National Exposure Standards for Atmospheric Contaminants in the Occupational Environment [NOHSC:1003(1995) 3rd Edition]'.

Paul McCarthy Ph. (08) 8440 2000 **DISCLAIMER STATEMENT:**

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