

Infosafe No™	3CHCR	Issue Date : October 2016	RE-ISSUED by ACR
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Product Name : **FORMALDEHYDE SOLUTION Neutral Buffered**

Classified as hazardous

## 1. Identification

<b>GHS Product Identifier</b>	FORMALDEHYDE SOLUTION Neutral Buffered	
<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>	Preservation agent, laboratory reagent.	
<b>Other Names</b>	<b>Name</b>	<b>Product Code</b>
	FORMALDEHYDE SOLUTION 4 % Neutral Buffered	0890
	FORMALIN SOLUTION 10% Neutral Buffered	1258
<b>Additional Information</b>	Product code 0890 the 4% formaldehyde is expressed as if the formaldehyde was 100% and the product code 1258 is expressed as 10% formalin of the 40% nominal strength of formaldehyde. Effectively they are the same but expressed differently.	
<b>Other Information</b>	EMERGENCY CONTACT NUMBER: +61 08 8440 2000 Business hours: 8:30am to 5:00pm, Monday to Friday.	

Australian Chemical Reagents (ACR) does not warrant that this product is suitable for any use or purpose. The user must ascertain the suitability of the product before use or application intended purpose. Preliminary testing of the product before use or application is recommended. Any reliance or purported reliance upon Australian Chemical Reagents (ACR) with respect to any skill or judgement or advice in relation to the suitability of this product of any purpose is disclaimed. Except to the extent prohibited at law, any condition implied by any statute as to the merchantable quality of this product or fitness for any purpose is hereby excluded. This product is not sold by description. Where the provisions of Part V, Division 2 of the Trade Practices Act apply, the liability of Australian Chemical Reagents (ACR) is limited to the replacement of supply of equivalent goods or payment of the cost of replacing the goods or acquiring equivalent goods.

## 2. Hazard Identification

<b>GHS classification of the substance/mixture</b>	Carcinogenicity: Category 1 Eye Damage/Irritation: Category 1 Germ Cell Mutagenicity: Category 2 Acute Toxicity - Oral: Category 4 Skin Corrosion/Irritation: Category 2 Specific target organ toxicity - Single Exposure Category 2 Sensitization - Skin: Category 1
<b>Signal Word (s)</b>	DANGER
<b>Hazard Statement (s)</b>	H302 Harmful if swallowed. H315 Causes skin irritation. H317 May cause an allergic skin reaction. H318 Causes serious eye damage. H341 Suspected of causing genetic defects. H350 May cause cancer. H371 May cause damage to organs.
<b>Pictogram (s)</b>	Health hazard, Corrosion, Exclamation mark



<b>Precautionary statement – Prevention</b>	P201 Obtain special instructions before use. P202 Do not handle until all safety precautions have been read and understood. P260 Do not breathe dust/fume/gas/mist/vapours/spray. P264 Wash thoroughly after handling. P270 Do not eat, drink or smoke when using this product.
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**Precautionary statement – Response**

P272 Contaminated work clothing should not be allowed out of the workplace.  
P280 Wear protective gloves/protective clothing/eye protection/face protection.  
Swallowed  
P301+P330+P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.  
P330 Rinse mouth.  
Skin  
P302+P352 IF ON SKIN: Wash with plenty of soap and water.  
P332+P313 If skin irritation occurs: Get medical advice/attention.  
P362 Take off contaminated clothing and wash before reuse.  
Eyes  
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 or doctor/physician.  
P309+P311 IF exposed or if you feel unwell: Call a POISON CENTER or doctor/physician.  
P405 Store locked up.

**Precautionary statement – Storage**

**Precautionary statement – Disposal**

P501 Dispose of contents/container to an approved waste disposal plant.

### 3. Composition/information on ingredients

Chemical	Liquid				
Characterization					
Information on Composition	Stabilised with methanol.				
Ingredients	<u>Name</u>	<u>CAS</u>	<u>Proportion</u>	<u>Hazard Symbol</u>	<u>Risk Phrase</u>
	Formaldehyde	50-00-0	4 %		
	Methanol	67-56-1	2-2.5 %		
	Water to make a total of 100%	7732-18-5	-		

### 4. First-aid measures

<b>Inhalation</b>	Remove victim from exposure - avoid becoming a casualty. Remove contaminated clothing and loosen remaining clothing. Allow patient to assume most comfortable position and keep warm. Keep at rest until fully recovered. If breathing laboured and patient cyanotic (blue), ensure airways are clear and have qualified person give oxygen through a face mask. If breathing has stopped apply artificial respiration at once. In the event of cardiac arrest, apply external cardiac massage. Seek urgent medical assistance.
<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>	Wash affected areas with copious quantities of water immediately. Remove contaminated clothing and wash before re-use. For skin burns, immediately flood burnt area with plenty of water. Cover with a clean, dry dressing. Seek urgent medical assistance.
<b>Eye contact</b>	Immediately irrigate with copious quantity of water for at least 15 minutes. Eyelids to be held open. 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</b>	May liberate toxic fumes in fire including formic acid, methanol, carbon monoxide and carbon dioxide.
<b>Products</b>	
<b>Specific Methods</b>	Combustible liquid Small fire: Use foam, dry chemical, CO2 or water spray. Large fire: Use foam, fog or water spray. Do not use water jets. If safe to do so, move undamaged containers from fire area. Cool containers with flooding quantities of water until well after fire is out. Avoid getting water inside containers. Alcohol resistant foam is preferred however fine water spray can be used.

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**Precautions in connection with Fire** Wear SCBA, fully-encapsulating, gas-tight suit and structural firefighting uniform when handling leaking or damaged containers and equipment. SCBA and chemical splash suits will offer limited protection for brief exposure provided there is no risk of ignition.

## 6. Accidental release measures

**Personal** Evacuate the area of all non-essential personnel. Avoid inhalation, contact with skin, eyes and clothing.

**Precautions**

**Personal Protection** Wear protective clothing specified for normal operations (see Section 8)

**Clean-up Methods - Small Spillages** 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.

**Clean-up Methods - Large Spillages** Seek expert advice on handling and disposal.

## 7. Handling and storage

**Precautions for Safe Handling** Avoid generation of vapours/aerosols. Do not breathe vapour. Avoid contact with eyes, skin and clothing. Avoid prolonged or repeated exposure. Work under hood.  
Avoid exposure - obtain special instructions before use.

**Conditions for safe storage, including any incompatibilities** Store in cool place and out of direct sunlight. Store away from sources of heat or ignition. Store in well ventilated area. Store away from oxidising agents, acids, alkalis, metal salts and foodstuff. Keep containers closed at all times - check regularly for leaks.

## 8. Exposure controls/personal protection

Occupational exposure limit values	Name	STEL		TWA		Footnote
		mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>	ppm	
	Formaldehyde	2.5	2	1.2	1	
	Methanol	328	250	262	200	
<b>Other Exposure Information</b>	<p>A time weighted average (TWA) has been established for formaldehyde (Safe Work Australia) of 1.2 mg/m<sup>3</sup>, (1 ppm) and for methyl alcohol of 262 mg/m<sup>3</sup>, (200 ppm). The corresponding STEL level for formaldehyde is 2.5 mg/m<sup>3</sup>, (2 ppm) and for methyl alcohol is 328 mg/m<sup>3</sup> (250 ppm).</p> <p>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. Note: Absorption through skin may be a significant route of exposure for methyl alcohol.</p> <p>Note: Sensitiser (for formaldehyde). Known to act as a sensitiser. - Safe Work Australia. Sensitiser notice: Some substances can cause a specific immune response in some people. Such substances are called sensitisers and the development of a specific immune response is termed 'sensitisation'. Exposure to a sensitiser, once sensitisation has occurred, may manifest itself as a skin rash or inflammation or as an asthmatic condition, and in some individuals this reaction can be extremely severe.</p>					
<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: Excellent: Vinyl gloves. Good: NR latex, nitrile and neoprene. Avoid skin contact when removing gloves from hands, do not touch the gloves outer surface. Dispose of gloves as hazardous waste.					

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<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.

## 9. Physical and chemical properties

<b>Form</b>	Liquid
<b>Appearance</b>	Colourless liquid; may become cloudy on standing.
<b>Odour</b>	Pungent, suffocating odour.
<b>Solubility in Water</b>	Completely miscible.
<b>Partition Coefficient: n-octanol/water</b>	Log P(oct) = 0.35 (experimental) (formaldehyde).
<b>Flash Point</b>	85 °C
<b>Flammability</b>	Combustible liquid.
<b>Molecular Weight</b>	30.03 (formaldehyde).

## 10. Stability and reactivity

<b>Chemical Stability</b>	Gradually decomposes.
<b>Conditions to Avoid</b>	Open flames, heat, hot surfaces, sparks and other ignition sources.
<b>Incompatible Materials</b>	Strong oxidizing agents (e.g. hydrogen peroxide, potassium permanganate); strong bases (e.g. alkalis, such as sodium hydroxide); phenol; acrylonitrile; strong acids (e.g. sulfuric acid or acetic anhydride); performic acid; hydrochloric acid; aniline and perchloric acid; magnesium carbonate hydroxide; urea, isocyanates, anhydrides or oxides, polymerisation initiators (e.g. alkali metals), nitrogen oxides.
<b>Hazardous Decomposition Products</b>	Formic acid, methanol, carbon monoxide and carbon dioxide.
<b>Possibility of hazardous reactions</b>	Strong oxidizing agents (e.g. hydrogen peroxide, potassium permanganate) - may react violently, with the risk of fire and explosion; strong bases (e.g. alkalis, such as sodium hydroxide) - reaction produces flammable hydrogen gas, which may ignite. This reaction may lead to possible pressurization in closed containers, which may rupture. Phenol - runaway reactions have occurred during production of phenol-formaldehyde resins. Acrylonitrile - a violently exothermic and runaway reaction may result from the reaction between acrylonitrile and formaldehyde (as paraformaldehyde or trioxane) in the presence of strong acids (e.g. sulfuric acid or acetic anhydride). Performic acid - formaldehyde reacts violently with 90% performic acid. Hydrochloric acid - form highly toxic bis(chloromethyl)ether. Aniline and perchloric acid - aniline treated with perchloric acid, then formaldehyde gives a resinous condensation product, which burns with explosive violence. Magnesium carbonate hydroxide - reaction may release carbon dioxide gas, which may rupture closed containers. Urea, isocyanates, anhydrides, or oxides - may react vigorously or violently. Explosive with air in a vaporous/gaseous state when heated.

## 11. Toxicological Information

<b>Toxicology Information</b>	This substance should be treated with great care.
<b>Acute Toxicity - Oral</b>	LD50 (rat): >200 mg/kg (Formaldehyde).
<b>Ingestion</b>	Toxic if swallowed. Ingestion causes immediate irritation of the mouth, throat and stomach resulting in nausea. In extreme cases swallowing can result in vomiting, diarrhoea, abdominal pain, convulsions, chemical burns, loss of consciousness, collapse and possible death. Risk of perforation in the oesophagus and stomach. Systemic effects: narcosis and blindness.
<b>Inhalation</b>	Toxic! Irreversible damage possible. Inhalation may lead to the formation of oedemas in the respiratory tract. Vapour is irritating to mucous membranes and the respiratory tract. Inhalation can result in headache, dizziness and possible nausea.
<b>Skin</b>	Toxic in contact with skin. Corrosive to skin - may cause hardening or cracking of the skin, burns and dermatitis. Repeated or prolonged skin contact may lead to allergic contact dermatitis. A skin sensitizer. A component of this material (methanol) can be absorbed through the skin, however symptoms of

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<b>Eye</b>	poisoning via this route are unlikely because of low absorption. Danger of skin absorption. Irreversible damage is possible. Corrosive to eyes. Severe irritant to the eye. Vapour may cause inflammation of the eyelids. Contact can cause corneal burns. Contamination of the eyes can result in permanent injury.
<b>Skin Sensitisation</b>	Known to act as a sensitiser.
<b>Carcinogenicity</b>	Formaldehyde [50-00-0]: Group 2: The agent is probably carcinogenic to humans. Safe Work Australia Probable human carcinogens are those substances for which there is sufficient evidence to provide a strong presumption that human exposure might result in the development of cancer. This evidence is generally based on appropriate long term animal studies, limited epidemiological evidence or other relevant information. Formaldehyde [50-00-0] is evaluated in the IARC Monographs (Vol. 88; in preparation) as Group 1: Carcinogenic to humans. For addition information see IARC publication: <a href="http://monographs.iarc.fr/ENG/Monographs/vol100F/mono100F-29.pdf">http://monographs.iarc.fr/ENG/Monographs/vol100F/mono100F-29.pdf</a>
<b>Reproductive Toxicity</b>	Formaldehyde [resp], human: one study suggests a slight percentage increase in spontaneous abortion and subtle neurobehavioral abnormalities, animal-decreased sperm motility, reduced fetal and maternal weight.
<b>Chronic Effects</b>	Repeated or prolonged skin contact may cause chronic dermatitis. Harmful: possible risk of irreversible effects through inhalation, in contact with skin and if swallowed. Chronic exposure to methanol from skin contact, inhalation and/or swallowing at concentrations greater than 1000 ppm can result in permanent blindness and central nervous system effects. Some long term animal test data suggests a carcinogenic potential for formaldehyde contained in this solution. This was found to occur at levels, which caused chronic tissue irritation and was well above the exposure standard. These particular data are not considered relevant to normal use because these high concentrations would not be voluntarily tolerated by humans, but do emphasise the need for care in handling.
<b>Mutagenicity</b>	Formaldehyde [50-00-0]: DNA damage system-human: fibroblast 100 mmol/l.

## 12. Ecological information

<b>Ecological Information</b>	The following statements refer to individual components of the preparation:
<b>Persistence and degradability</b>	Abiotic degradation: Rapid degradation. (air, formaldehyde) Biologic degradation: Biodegradation: 97.4 % /5 d (Formaldehyde). Readily biodegradable. COD: 1.06 g/g (Formaldehyde); TOD: 1.068 g/g (Formaldehyde)
<b>Mobility</b>	Distribution: log p(o/w): 0.00 (Formaldehyde).
<b>Bioaccumulative Potential</b>	No bioaccumulation is to be expected (log P(o/w) <1).
<b>Biological Properties</b>	Toxic for aquatic organisms. Protoplasmic toxin. Caustic even in diluted form. Disinfectant effect. Toxic effect on fish and plankton. Sludge decomposition impaired or not possible even in diluted concentration. Endangers drinking-water supplies if allowed to enter soil and/or waters in large quantities.
<b>Environmental Protection</b>	Do not allow to enter waters, waste water, or soil!
<b>Acute Toxicity - Fish</b>	LC50 (P.promelas): 24 mg/l /96 h (Formaldehyde); LC50 (Br.rerio): 41 mg/l /96 h (Formaldehyde).
<b>Acute Toxicity - Daphnia</b>	Daphnia magna EC50: ~2 mg/l /48 h (Formaldehyde).
<b>Acute Toxicity - Algae</b>	Maximum permissible toxic concentration: Algal toxicity: Sc.quadricauda IC5: 2.5 mg/l /8 d (Formaldehyde).
<b>Acute Toxicity - Bacteria</b>	Photobacterium phosphoreum EC50: 8.5 mg/l /30 min (Formaldehyde). Bacterial toxicity: M.aeruginosa EC5: 0.39 mg/l /8 d (Formaldehyde).

## 13. Disposal considerations

<b>Disposal Considerations</b>	Whatever cannot be saved for recovery or recycling should be disposed of according to relevant local, state and federal government regulations.
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## 14. Transport information

<b>Transport Information</b>	Not classified as a Dangerous Good according to the Australian Code for the Transport of Dangerous Goods by Road and Rail.
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## 15. Regulatory information



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**Regulatory Information** Listed in the Australian Inventory of Chemical Substances (AICS).

**Poisons Schedule** S6

## 16. Other Information

<b>Literature References</b>	<p>'Standard for the Uniform Scheduling of Medicines and Poisons No. 15', Commonwealth of Australia, November 2016.</p> <p>Lewis, Richard J. Sr. 'Hawley's Condensed Chemical Dictionary 13th. Ed.', Rev., John Wiley and Sons, Inc., NY, 1997.</p> <p>National Road Transport Commission, 'Australian Code for the Transport of Dangerous Goods by Road and Rail 7th. Ed.', 2007.</p> <p>Safe Work Australia, 'National Code of Practice for the Preparation of Safety Data Sheets for Hazardous Chemicals', 2011.</p> <p>Standards Australia, 'SAA/SNZ HB 76:2010 Dangerous Goods - Initial Emergency Response Guide', Standards Australia/Standards New Zealand, 2010.</p> <p>Safe Work Australia, 'Approved Criteria for Classifying Hazardous Substances [NOHSC:1008 (2004)]'.</p> <p>Safe Work Australia, 'Hazardous Substances Information System, 2005'.</p> <p>Safe Work Australia, 'National Code of Practice for the Labelling of Safe Work Hazardous Substances (2011)'.</p> <p>Safe Work Australia, 'National Exposure Standards for Atmospheric Contaminants in the Occupational Environment [NOHSC:1003(1995) 3rd Edition]'.</p>
<b>Contact Person/Point</b>	<p>Paul McCarthy Ph. (08) 8440 2000 <b>DISCLAIMER STATEMENT:</b></p> <p>All information provided in this data sheet or by our technical representatives is compiled from the best knowledge available to us. However, since data, safety standards and government regulations are subject to change and the conditions of handling and use, or misuse, are beyond our control, we make no warranty either expressed or implied, with respect to the completeness or accuracy to the information contained herein. Australian Chemical Reagents (ACR) accepts no responsibility whatsoever for its accuracy or for any results that may be obtained by customers from using the data and disclaims all liability for reliance on information provided in this data sheet or by our technical representatives.</p> <p>...End Of MSDS...</p>

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