



## PRODUCT BULLETIN

# Introducing Cooling System Conditioner

***Australia***

**2009**



## **Cooling System Conditioner**

### **Description**

Cooling System Conditioner is a long-life, concentrated organic acid, water-based treatment for automotive cooling systems. It is a phosphate and silicate free formulation containing a pH-buffered blend of additives that markedly reduce the corrosion of steel, cast iron, aluminium alloy, brass, copper and solder. Its main protection factors are cavitation erosion (pit holes in diesel engine piston liners) caused by oxygen implosion, and electrolysis (the disintegration of dissimilar metals such as listed above).

Cooling System Conditioner exceeds the performance requirements of the following standards:

1. ASTM D1384 "Corrosion Test for Engine Coolants in Glassware" using 20 ml per litre hard water.
2. ASTM D4340 "Corrosion of Cast Aluminium Alloys in Engine Coolants under Heat Rejecting Conditions" using 20ml per litre hard water.

Australian/New Zealand Standard 2108.1:1997 "Engine Coolants Type A and Type B for Engine Cooling Systems" using 30 ml per litre hard water, (100ml per 5ltrs) (200mls per 10ltrs) (300mls per 15ltrs)

### **Product Use**

This is a general purpose water-based automotive cooling system protector. It will **not** reverse pre-existing corrosion problems. It is **not** an anti-freeze/anti-boil type coolant and should not be used in conflict with engine manufacturers' recommendations re antifreeze. However it will take temperatures of -2 deg C.

Use Cooling System Conditioner at 30mls per litre in clean rain water. If required, top-up with diluted inhibitor to avoid a rundown in concentration. Replace at 24 month / 40,000 km intervals. This product may be replaced more frequently depending on engine and driving conditions, or engine manufacturer's requirements. To avoid possible incompatibility problems, do not mix with any other inhibitors. Ethylene Glycol anti-freeze products may be used without conflict.

### **Directions For Use**

- When the vehicle is cool, drain the cooling system (including the heater), as per vehicle owner's manual. Thoroughly flush using Cooling System Flush, and rinse clean.
- Reconnect all hoses, drain plugs, etc.
- Add the correct amount of Cooling System Conditioner at 1ltr per 20ltr of radiator water content or 5% per volume.
- Fill with correct volume of water (Refer to the vehicle owner's handbook for the volume needed).
- Fill through top opening of cooling system.

- Check level after engine has reached operating temperature and allowed to cool again.
- Any spillage on paintwork should be flushed off with water.
- Dispose of used material in accordance with local regulations.
- Do not mix with any other inhibitors or coolants.

### Safety

Cooling System Conditioner is not classified as hazardous. Read Material Safety Data Sheet before use. Keep out of reach of children.

### Properties

- Formulation Type: Water-based, hybrid organic acid
- Colour: Green (other colours by request)
- Specific Gravity: 1.05 -1.10
- pH (2%): 7.5 - 8.5 approx
- Hazard Class: Non-hazardous
- Use Rate: 30ml/L in distilled water

### Test Results (typical)

#### 1. Glassware Corrosion : ASTM D1384

	Maximum Allowable Weight Change (mg)						FM Test Result
	AS 2108	ASTM D3306	BS 6560	GM 1825M	GM 6277M	CAT.EC1	
Copper	10	10	10	10	10	10	1
Solder	15	30	15	20	20	15	2
Brass	10	10	10	10	10	10	1
Mild Steel	10	10	10	10	10	10	1
Cast Iron	10	10	10	10	10	10	1
Cast Aluminium	15	30	15	20	20	20	2

No evidence of pitting or other corrosion.

#### 2. Heat-stressed Alloy Corrosion : ASTM D4340

Heat Transfer Corrosion Rate : 0.3 mg/cm<sup>2</sup>/week  
Max allowable corrosion : 1.0 mg/cm<sup>2</sup>/week  
Crevice/pitting Attack : None

- **THIS PRODUCT IS NOT AN ANTIFREEZE.**
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- **IF OPERATING TEMPERATURES IN YOUR VEHICLES ARE FROM -2°C TO -10°C, add 20% ETHYLENE GLYCOL to the radiator as well.**
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- **IF TEMPERATURES ARE OVER -10°C TO -20°C add 40% ETHYLENE GLYCOL to the radiator as well**

### **MOST IMPORTANT;**

**Ethylene Glycol is NOT A COOLING SYSTEM PROTECTOR and WILL NOT protect dissimilar metals against the ravages of electrolysis in the engine, especially where the cylinder head is made from aluminium. Also, it will not protect the cooling system against corrosion or rust.**

**MATERIAL SAFETY DATA SHEET**

**IDENTIFICATION**

**PRODUCT NAME:** Cooling System Conditioner  
**SYNONYMS:** N/A  
**UN NUMBER.:** N/A  
**POISONS SCHEDULE:** N/A  
**DANGEROUS GOODS CLASS:** N/A  
**SUB CLASS:** N/A  
**HAZCHEM:** N/A  
**POISONS SCHEDULE:** N/A  
**USE AND APPLICATION:** Corrosion retardant for cooling systems in engines

**PHYSICAL DESCRIPTION / PROPERTIES**

**APPEARANCE:** A green coloured mobile fragrant liquid.  
**BP / MP (°C):** 103°C / -5 °C  
**FLASH POINT (°C):** N/A  
**VAPOUR PRESSURE:** 2 - 20  
**SPECIFIC GRAVITY:** 0.9 approx  
**FLASHPOINT:** >100° C  
**FLAMMABILITY LIMITS - LEL** Not known      **UEL** Not known  
**VOLATILES** 80%  
**AUTOIGNITION TEMP:** N/A  
**SPECIFIC GRAVITY:** 1.01 - 1.05  
**pH:** 10.5 - 10.9 (neat)  
**SOLUBILITY:** Not soluble in water

<b>COMPOSITION:</b>	<b>PROPORTION</b>
Sodium Borate	5%
Inhibitors	10 -30%
Dye	<10%
Water	to 100%
CAS No.	1330-43-4

**HEALTH HAZARDS**

**SWALLOWED:** Slightly toxic. Unlikely to cause harm if swallowed in small amounts.  
**SKIN:** If on skin, wash off with soap and water.  
**EYE:** Moderate irritant. Flood with water for 15 minutes.  
**INHALATION:** Remove to fresh air. Seek medical advice if effects persist.

**FIRST AID**

**IF SWALLOWED:** If poisoning occurs, contact a doctor or poisons information centre. If swallowed, do NOT induce vomiting. Wash out the mouth if contaminated.  
**SKIN:** If skin contact occurs, remove clothing and wash off with

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	soap and water. Remove and launder clothing before re use.
<b>EYE:</b>	If contacted in the eye, flood with water for at least 15 minutes and seek medical advise immediately.
<b>INHALATION:</b>	Move to fresh air. Keep warm and at rest. Seek medical attention if effects persist.

### **SAFE HANDLING INFORMATION**

<b>STORAGE AND TRANSPORT</b>	Store and transport in polyethylene or polypropylene drums. Store in a cool place. Keep sealed when not in use.
<b>SPILLS AND DISPOSAL:</b>	Contain with inert absorbent such as sand. Dispose off in accordance with local council regulations.
<b>FIRE AND EXPLOSION HAZARD:</b>	Low hazard. Non combustible.

### **PRECAUTIONS FOR USE**

<b>EXPOSURE LIMITS:</b>	T-value Sodium Borate : 100 Estimated theoretical T - value Product :5
<b>VENTILATION:</b>	Avoid inhalation of mist, fumes or vapour generated during use. Use in well ventilated are. Ensure ventilation is adequate to maintain air concentrations below exposure standards.
<b>PERSONAL PROTECTION:</b>	The wearing of gloves and goggles is recommended. Avoid eye and skin contact.
<b>FLAMMABILITY:</b>	Avoid heat and sources of ignition.

### **CONTACT POINT:**

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#### **PLEASE NOTE:**

We believe that the information contained herein is reliable. but we shall not be liable for any inaccuracy of the information or for any loss, Injury, or damage whatsoever or howsoever arising which may result.