



PRODUCT INFORMATION SHEET

WYNN'S KWIK KOOL

Product Number: 60205 24 x 500 ml

WYNN'S KWIK KOOL is radiator coolant concentrate developed to protect car, light duty truck and fluid cooled motorcycle engines from damage caused by heat, cold and corrosion. It finds application in designs using both ferrous and aluminium construction and is especially useful in preventing erosion corrosion damage to alloy water pumps.

Wynn's Kwik Kool is formulated with ethylene glycol and a blend of inhibitors, giving a high degree of protection to the metals usually found in engine cooling systems, and meets the requirements of the Australian / New Zealand Standard AS/NZS 2108.1:1997 for Engine Coolant Type B.

Advantages

Wynn's Kwik Kool is a concentrated solution of corrosion inhibitors, anti-foam agents, anti-scale compounds, and ethylene glycol, formulated to provide excellent protection for modern cooling systems.

Wynn's Kwik Kool has been formulated to be used in the cooling systems of petrol and light duty diesel engines.

Wynn's Kwik Kool has been formulated with Wynn's Radiator Treatment corrosion inhibitor package and ethylene glycol to provide these advantages:

- **REDUCES CORROSION**

The action of highly effective corrosion inhibitors significantly reduce rust and the corrosion of metals used in cooling systems, well below the figures established by ASTM Standard Specifications.

- **PREVENTS SCALE DEPOSITS**

The action of special compounds prevents scale deposits from forming and clogging radiators and other vital components of cooling systems.

- **REDUCES EROSION CORROSION**

The action of ethylene glycol reduces coolant vapour bubble formation and the subsequent bubble implosion on the surface of the engine cylinder walls.

Benefits

Wynn's Kwik Kool has been specially formulated to provide the following benefits:

- Protects aluminium, alloy and cast iron against corrosion.
- Combats harmful electrolysis.
- Protects all cooling system parts against rust corrosion and scale formation.
- Extends corrosion protection of cooling systems.
- Prevents erosion corrosion of alloy water pumps and cylinder walls.
- Prolongs cooling system life.

Applications

Wynn's Kwik Kool exceeds the performance requirements of the Australian and New Zealand Standard AS/NZS 2108.1:1997. Wynn's Kwik Kool is a "TYPE B" coolant concentrate and is not recommended as an alternative for formulated ethylene glycol "TYPE A" coolant concentrates where they are specified for use by the manufacturer. Wynn's Kwik Kool is not recommended as an initial fill, complete fill, top-up, or fill from empty, where "TYPE A" coolant is specified.

Shake bottle well before use. Drain and thoroughly flush the cooling system with fresh water. Use Wynn's Radiator Flush if the system is dirty. Close all drain plugs and partly fill the system with clean water. Add the total contents of the bottle to the cooling system. Fill system with clean water and run engine with radiator cap off for 15 minutes. Stop engine and top-up radiator with clean water. Follow air-bleeding procedures as per vehicle manufacturer's instructions. Check for leaks. To prevent and stop leaks, use Wynn's Radiator Stop Leak. If product is accidentally spilled on paintwork, wash immediately with fresh water. The contents of bottle will treat a cooling system with capacity of up to 10 litres.

Typical Characteristics

Appearance	Opaque Liquid
Colour	Dark Fluorescent Green
Density @ 15°C	1.100 (ASTM D 4052)
Flash Point (°C)	None
Boiling Point (°C)	107 (ASTM D 1120)
Freeze Point (°C)	-32 (ASTM D 1177)

Features

The Wynn's Radiator Treatment corrosion inhibitor package used in Wynn's Kwik Kool meets or exceeds the following cooling system tests:

*	ASTM D 1881	Glassware Foaming Test
*	ASTM D 1384	Glassware Corrosion Test
*	ASTM D 2570	Simulated Service Corrosion Test
*	ASTM D 2847	Vehicle Service Test
*	ASTM D 2809	Cavitation Aluminium Corrosion Test
*	ASTM D 4340	Hot Surface Aluminium Corrosion Test

ASTM D-1384 CORROSION TEST FOR ENGINE COOLANT IN GLASSWARE

This is a beaker type procedure used for evaluating the corrosive effects of engine coolants on six standard metal test specimens under controlled laboratory conditions.

Wynn's Radiator Treatment was added directly to the standard ASTM Corrosive Water (anhydrous sodium salts and distilled water) at 5% by volume.

ASTM D1384 CORROSION TEST COUPON WEIGHT CHANGE (mg) AVERAGE OF THREE SETS

	<u>Without Wynn's Radiator Treatment</u>	<u>With Wynn's Radiator Treatment</u>	<u>Specification Maximum*</u>
Copper	-3.00	-0.2	10
Solder	-61.00	-3.1	15
Brass	-3.00	-2.4	10
Steel	-125.00	0.4	10
Cast Iron	-216.00	-0.6	10
Cast Aluminum	-40.00	1.7	15

*The maximum allowable losses (mg) from Standard Specification AS/NZS 2108.1:1997.

ASTM D 1881 FOAMING TENDENCIES OF ENGINE COOLANTS IN GLASSWARE

This is a beaker test used to evaluate the tendency of engine coolants to foam under laboratory controlled conditions of aeration and temperature. The volume of foam and the time for the foam to break, are measured to determine if a coolant passes or fails. If a coolant foams and becomes aerated as it circulates through the cooling system of a vehicle, the air trapped within the coolant will not allow the coolant to dissipate heat from the cooling system as readily as a coolant that controls the rate of foaming. In addition, air entrapment in the coolant rapidly depletes the corrosion inhibitors in the system due to the presence of free oxygen which results in premature corrosion of metallic components.

The following tests were conducted to show the foam control benefits provided by Wynn's Radiator Treatment when added at 5% by volume to anti-freeze/water solutions.

	<u>Foam Volume (ml)</u> <u>5 minutes</u>	<u>Break Time</u> <u>Seconds</u>
50/50 Anti-Freeze and distilled water	26.6	2.1
50/50 Anti-Freeze and distilled water plus Wynn's Radiator Treatment	11.6	1.2

Wynn's Radiator Treatment was also tested at 5% by volume in distilled water to test its ability to help control foaming in a "water only" environment.

	<u>Foam Volume (ml)</u> <u>5 minutes</u>	<u>Break Time</u> <u>Seconds</u>
Distilled water plus Wynn's Radiator Treatment	17	2.8
Standard Specification AS/NZS 2108.1:1997 maximum allowable specifications	150	5.0

ASTM D 2570 SIMULATED SERVICE CORROSION TESTING OF ENGINE COOLANTS

This test procedure developed jointly by the ASTM and SAE to evaluate the affects of circulating engine coolants on metal test specimens and automotive cooling system components under controlled, laboratory conditions.

Duration of this test is 1064 hours at a controlled temperature of 88°C and a 114 to 132 litres per minute circulating flow.

The ASTM corrosive water used in the test is made from three anhydrous sodium salts: 1) sodium sulphate, 2) sodium chloride and 3) sodium bicarbonate, and is very corrosive to the six standard metal test specimens and automotive components used in the test.

The test was conducted using ASTM corrosion water to increase the test severity and Wynn's Radiator Treatment at 5% volume with no anti-freeze present to dilute the ASTM corrosive water.

ASTM D 2570 CORROSION TEST
COUPON WEIGHT CHANGE (mg)
AVERAGE OF THREE SETS

	<u>With Wynn's Radiator Treatment</u>	<u>Specification Maximum</u> *
Copper	-4.7	20
Solder	-1.4	60
Brass	-0.8	20
Steel	0.5	20
Iron	3.6	20
Aluminum	2.9	60

* The maximum allowable weight loss from Standard Specification ASTM D 3306, SAE J 1034 and AS/NZS 2108.1:1997.

**ASTM D 2847
ENGINE COOLANTS IN VEHICLE SERVICE**

This test was developed jointly by the ASTM and SAE for evaluating the corrosion protection and performance of an engine coolant in vehicle service. Six standard metal test specimens, which are representative of the metals typically used for cooling system components, were installed into the coolant flow of the vehicle by means of a special holder.

The scope of this test was two fold. First, to establish the corrosion protection level of the used unknown brand of anti-freeze in each vehicle. Second, after baseline was established, to treat the prestressed anti-freeze of the vehicle with Wynn's Radiator Treatment at 5% volume.

A Mazda RX4 was operated for 112 days on the baseline test and 99 days for the treated portion of the test with 5% volume Wynn's Radiator Treatment.

**ASTM D 2847 VEHICLE SERVICE TEST
WEIGHT CHANGE (mg)**

	<u>Without Wynn's Radiator Treatment</u>	<u>With Wynn's Radiator Treatment</u>	<u>Specification Maximum</u>
Copper	-1.9	-0.2	20
Solder	-18.9	-22.7	60
Brass	-5.1	-1.7	20
Steel	0.5	0.7	20
Cast Iron	1.8	1.8	20
Cast Aluminum	12.4	16.4	60

*The maximum allowable weight loss from Standard Specification ASTM D 3306 and SAE J 1034.

**ASTM D 4340
TEST FOR ALUMINIUM CYLINDER HEAD HEAT TRANSFER CORROSION**

This test is to help achieve a better understanding of heat transfer corrosion that takes place on aluminum cylinder heads and to better understand what effect different anti-freeze corrosion inhibitor type packages have in retarding heat transfer corrosion of aluminum.

Three commercially available brand name anti-freezes were tested. After completion of the above baseline test, the tests were again duplicated but with the addition of Wynn's Radiator Treatment at a treat level of 5% to test for performance characteristics and compatibility of product with anti-freezes that are commercially available on the market place today and recommended for use in engines incorporating aluminum components.

**ASTM D4340 CORROSION TEST
WEIGHT LOSS (mg/cm²/week)**

<u>50/50 Commercial Available Antifreeze and ASTM Corrosive Water</u>	<u>Without Wynn's Radiator Treatment</u>	<u>With Wynn's Radiator Treatment</u>
Brand A	-0.176	0.034
Brand B	-0.083	0.044
Brand C	-0.029	0.034
Specification Maximum*	1.000	1.000

* The maximum allowable weight loss from Standard Specification ASTM D 3306 and AS/NZS 2108.1:1997.

The following tests were conducted using tap water only, to help measure the corrosion that can take place on aluminum components within the cooling system of an automobile using water only as a coolant where applicable.

A test was conducted using tap water to establish a baseline on the rate of corrosion on an aluminum disc.

The test was re-conducted with the addition of Wynn's Radiator Treatment at a treat level of 5% by volume to a new sample of the above tap water to show the corrosion protection provided by product in water only systems.

ASTM D 4340 CORROSION TEST
WEIGHT LOSS (mg/cm²/week)

	<u>Without Wynn's Radiator Treatment</u>	<u>With Wynn's Radiator Treatment</u>
Tap Water Sample	-1.302	-0.240
Specification Maximum*	1.000	1.000

* The maximum allowable weight loss from Standard Specification ASTM D 3306 and AS/NZS 2108.1:1997.