

## Long Life Concentrated Coolant

Nulon Long Life Concentrated Coolant (LL) offers long-term cooling system protection for all motor vehicles. Nulon LL is based on Hybrid Additive Technology (HAT), which is a blend of organic and inorganic additives. The advantage of this product over conventional ethylene glycol type coolants is that the corrosion-inhibiting package has minimal depletion over an extended period of time. This means that maximum corrosion and anti-freeze/anti-boil protection are maintained until the fluid is replaced at the recommended 350,000 kilometres or five years (whichever comes first).

Nulon LL Concentrated Coolant is to be used at 33% to 50% by volume in soft or demineralised water. Nulon LL protects for five years or 350,000 km and is safe to use in all Commodores & Ford Falcons (including V series Commodores and AU to BF Falcons).

Nulon LL is a low-silicate formulation containing no nitrite, phosphate or amine. These chemicals are often used in conventional coolants and have limitations in performance, protection afforded, and vehicles to which they are suited. Nulon LL is guaranteed suitable for use in all vehicles where the manufacturer specifies anti-boil/anti-freeze coolant.

Nulon LL meets the specified requirement (HN2217) of General Motors Holden for use in all Australian-manufactured four-cylinder vehicles. HN2217 is the specification recommended by GMH for all warranty servicing of Australian built and imported (Opel) 4- cylinder vehicles.

Nulon LL's formulation meets the performance requirements of Ford Australia (ESE-M97B44-A specification) for initial fill in all Australian-manufactured 6 and 8 cylinder vehicles. This specification is recommended by Ford for all in- warranty and post-warranty servicing of Ford vehicles where a glycol-based coolant is required.

Applications: Nulon LL is recommended for the protection of cooling systems of all petrol engines as well as heavy and light duty diesel engines operating in on-road, off-road, or stationary conditions. LL provides maximum protection against cavitation erosion of wet cylinder liners in diesel engines. Refer to Nulon Fact Sheet No. 108 for more information regarding diesel engine applications. For maximum protection, particularly in heavy-duty applications, use LL at 50% volume with clean, soft or demineralised water.

Guaranteed to be suitable for the protection of cooling systems of all passenger vehicles where an anti-boil/anti-freeze coolant is specified. Nulon Long Life Concentrated Coolant is also suitable for older vehicles where a broader cooling system operating temperature range is required, or as a replacement for conventional corrosion inhibitors.

Note: Where a manufacturer specifies Organic Acid Technology (OAT) long life coolant, use either of Nulon's Red Long Life Coolants.

### Benefits:

- 5 years or 350,000 km service life (whichever comes first)
- Guaranteed to suit every vehicle
- Provides optimum protection against corrosion of all metals in vehicle cooling systems
- Compatible with hoses and rubber fittings
- Expands operating temperature range of cooling systems (see details below)
- Suitable for use in heavy duty diesel in conjunction with supplemental coolant additives (SCA).
- Reduces the incidence of nucleate or hot spot boiling
- Not aggressive to water pump seals as is often the case with silicate-based coolants
- Performance of organic acid-based inhibitors does not diminish with time
- Reduces inventory for fleet operators

### Specifications and Standards:

Nulon LL Concentrated Coolant satisfies the performance requirements of the following standards and specifications.

- AS 2108.1:2004 Type, AS 2108.84
- ASTM D 1384 Glassware Corrosion Test
- ASTM D 2570 Simulated Service Corrosion Test
- ASTM D 2809 Cavitation Erosion Test
- ASTM D 3306
- ASTM D 4340 Heat Rejection Corrosion Test
- ASTM D 4656
- ASTM D 4985 (heavy duty engines)
- BMW (UK)
- BS 6580:1992
- Caterpillar 1 EO 535
- Cummins 92 T8-9
- Ford ESE M97-B44A
- Ford ESE-FM97B18-C
- GM 1825M / 1899M
- GME L 1301
- Holden HN 2043
- Holden HN 2217
- JIS K 2234 (Japan)
- Mazda MES MN 1210
- Mercedes Benz DBL 7700
- MWN Diesel D234 2/15
- Nissan NES 5059 LLC
- SAAB FSD 8704
- SAE J 1034
- Toyota K2601G-1G
- Volvo (UK)
- VW/Audi/Skoda TL 774B/C (G11)

Part No	Pack Size	Barcode	Cartoon QTY
LL1	1 Litre	9311090 000292	12
LL2.5	2.5 Litre	9311090 000308	6
LL5	5 Litre	9311090 000315	3
LL20	20 Litre	9311090 000322	1
LL205	205 Litre	9311090 000582	1



# Long Life Concentrated Coolant (Cont'd)

## Physical Properties:

Property	Nulon LL
Density (g/ml at 20°C)	1.135
Freezing point 50 v/v: solution, °C	-37
Boiling point (undiluted) (°C)	176
Boiling point (50%v/v) (°C)	109 Unpressurised
pH (50% v/v)	7.6
Reserve alkalinity (ml)	17
Flash point (open cup °C)	118
Chloride, ppm	<10
Foaming: Volume/(mls)	
Break Time/ (seconds)	45 max
2 max	
Shelf life	3 years
Colour	Green
Odour	Characteristic
Glycol content (grams p/litre)	1060
Glycol content (ml/litre)	960

## First Aid Directions:

If poisoning occurs, contact a doctor or Poisons Information Centre (Ph: Australia 131 126; New Zealand 0800 764 766). If swallowed and more than 15 minutes from hospital, induce vomiting, preferably using ipecac syrup (a.p.f). Not to be used as a food container.

## Temperature protection chart (Using 105kPa radiator cap)

Mix ratio	Makes	Boils@	Freezes@
33.3%	1 litre makes 3 litres	127°C	-18°C
50%	1 litre makes 2 litres	132°C	-37°C

## Glassware Corrosion Test (ASTM D 1384)

Metal	*AS 2108.1:199	*ASTM D 3306	Result for Nulon LL
Copper	10	10	1
Solder	15	30	1
Brass	10	10	0
Steel	10	10	1
Cast iron	10	10	2
Aluminium	15	30	1

\* Maximum allowed weight loss (mg)

## Corrosion of Cast Aluminium Alloys at Heat Rejecting Surfaces (ASTM D 3430)

Metal	*AS 2108.1:2004	*ASTM D 3306	Result for Nulon LL
Aluminium	1.0 max	1.0 max	0.17

\*Llimit (mg/cm<sup>2</sup>/week)

## Water Pump Cavitation Erosion Test (ASTM D 2809)

Metal	GM 1825M (rating)	ASTM D 3306 (rating)	Result for Nulon LL
Aluminium	8 min	8 min	9

