Green Premium Long Life Coolant 100% Concentrate

Nulon Green Premium Long Life Coolant 100% Concentrate (LL) offers long-term cooling system protection for all motor vehicles. Nulon Long Life Coolant 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, anti-freeze/anti-boil protection are maintained until the fluid is replaced at the recommended 500,000 kilometres or 7 years (whichever comes first).

Nulon LL is to be used at 33% to 50% by volume in soft or de-mineralised water. Nulon Long Life Coolant protects for 7 years or 500,000km @ 50% V/V and is safe to use in all Commodores and Ford Falcons (including all V-series Commodores and AU to FG/FG X Falcons).

Nulon Green Premium Long Life Coolant 100% Concentrate 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-freeze/anti-boil coolant.

Nulon Green Premium Long Life Coolant 100% Concentrate meets the specified requirement (HNN217) of General Motors Holden for use in all Australian manufactured four-cylinder vehicles. HNN217 is the specification recommended by GMH for all warranty servicing of Australian built and imported (Opel) four cylinder vehicles.

Nulon Green Premium Long Life Coolant 100% Concentrate formulation is approved by 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.

**Benefits**

- 7 years or 500,000 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
- Eliminates the need for supplemental coolant additives (SCA) in diesel engines
- Reduces the incidence of nucleate or hot spot boiling
- Not aggressive to water pump seals as is often the case with high silicate content coolants
- Performance of organic additive based inhibitors does not diminish with time
- Reduces inventory for fleet operators

**Applications**

Nulon Green Premium Long Life Coolant 100% Concentrate is recommended for the protection of cooling systems of all petrol engines and 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 re diesel engine applications. For maximum protection, particularly in heavy-duty applications, use Long Life Coolant at 50% volume with clean soft or de-mineralised water.

Guaranteed to be suitable for the protection of cooling systems of all passenger vehicles where an anti-freeze/anti-boil coolant is specified. Nulon Green Premium Long Life Coolant 100% Concentrate 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 Additive Technology (OAT) long life coolant, use either of Nulon’s Red Long Life Coolants.

Recommended step-by-step guide for changing all concentrated coolants.

1. Before proceeding, read your owner’s manual as some vehicles may have special requirements.
2. Check that all hose connections are tight. Also check the condition of all hoses, fittings and belts.
3. Use Nulon Radiator Flush and Clean (R40) to ensure that the radiator and engine are as clean as possible. This ensures maximum coolant life.
4. R40 should be added to the old coolant. With the heater on, run the engine, or drive for 20 minutes minimum, 1 hour maximum.
5. Stop the engine and allow it to cool. Remove the bottom radiator hose or drain plug to drain out all the old coolant. It is important to rinse out all traces of old coolant from the engine block and heater circuit. To best achieve this, refill the system with clean water, then run the engine up to operating temperature and when it is cool drain and flush again. This will ensure a clean environment for the new coolant.
6. Check the cooling system capacity of the vehicle and add the required dose of Nulon Concentrated Coolant (do not pre-mix), then fill with soft clean or de-mineralised water. Any leftover product can be pre-diluted and used as a top-up.
7. Some vehicles may require “air bleeding” to remove trapped air from the heater circuit and cylinder head. An air bleeding screw is located on the engine of some vehicles for this purpose. If you are unsure about this procedure please seek further advice before proceeding. Removing the return heater hose from the water pump to establish water flow, whilst topping up, will assist in reducing “air locks”. Note: air locks can cause severe engine damage.
8. Start the engine and monitor coolant level and temperature until the thermostat opens and the vehicle reaches operating temperature.
9. When the vehicle cools down re-check the coolant level.

Note: This check sheet should be used as a guide only. Some vehicles may have special requirements that are not noted above. We strongly advise that you read your owner’s manual or relevant workshop manual before proceeding with a coolant change.

**Mix ratios**

- 33.3%: 1 litre makes 3 litres @ 25°C Boils at 124°C*  Freezes at -18°C* * Using 105kPa Radiator Cap
- 50%: 1 litre makes 2 litres @ 25°C Boils at 128°C* Freezes at -37°C* * Using 105kPa Radiator Cap

**Physical Properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Nulon LL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density (g/ml at 20°C)</td>
<td>1.132</td>
</tr>
<tr>
<td>Freezing point (50% v/v solution, °C)</td>
<td>-37</td>
</tr>
<tr>
<td>Boiling point (undiluted) °C</td>
<td>176</td>
</tr>
<tr>
<td>Boiling point (50% v/v) °C</td>
<td>109</td>
</tr>
<tr>
<td>pH (50% v/v)</td>
<td>7.6</td>
</tr>
<tr>
<td>Reserve alkalinity (meq/l)</td>
<td>17</td>
</tr>
<tr>
<td>Flash point (open cup °C)</td>
<td>118</td>
</tr>
<tr>
<td>Chloride, ppm</td>
<td>&lt;10</td>
</tr>
</tbody>
</table>
Foaming: Volume (mls) 45 max
Break Time (seconds) 2 max
Shelf life 3 years
Colour Green
Odour Characteristic
Glycol content (grams p/litre) 1060

Glassware Corrosion Test (ASTM D 1384)

<table>
<thead>
<tr>
<th>Metal</th>
<th>*AS/NZS 2108.1:2004</th>
<th>*ASTM D 3306</th>
<th>Result for Nulon LL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copper</td>
<td>10</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>Solder</td>
<td>15</td>
<td>30</td>
<td>1</td>
</tr>
<tr>
<td>Brass</td>
<td>10</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>Steel</td>
<td>10</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>Cast iron</td>
<td>10</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>Aluminium</td>
<td>15</td>
<td>30</td>
<td>1</td>
</tr>
</tbody>
</table>

Simulated Service Test (ASTM D 2570)

<table>
<thead>
<tr>
<th>Metal</th>
<th>*AS/NZS 2108.1:2004</th>
<th>*ASTM D 3306</th>
<th>Result for Nulon LL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminium</td>
<td>1.0 max</td>
<td>1.0 max</td>
<td>0.17</td>
</tr>
</tbody>
</table>

* wt. loss mg (max)

Water Pump Cavitation Erosion Test (ASTM D 2809)

<table>
<thead>
<tr>
<th>Metal</th>
<th>GM 1825M (rating)</th>
<th>ASTM D 3306 (rating)</th>
<th>Result for Nulon LL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminium</td>
<td>8 min</td>
<td>8 min</td>
<td>9</td>
</tr>
</tbody>
</table>

First Aid
If poisoning occurs contact a doctor or the Poisons Information Centre in Australia 131 126, or New Zealand 0800 764 766. If swallowed do NOT induce vomiting. If in eyes, hold eyelids apart and flush the continuously with running water. If skin contact occurs, flush with running water.

Meets or exceeds the following oil industry specifications

AS Claims AS 2106-2004 Type A
Audi Audi G11
BMW BMW (UK)
Caterpillar Caterpillar 1 EO 535
Cummins Cummins 92 18-9
Ford ESE M97-818C, ESE M97-844A
GM GM 1825M, GM 1899M
Holden HN 2043, HN 2217
Mazda Mazda MES MN 1210
Mercedes Benz Mercedes Benz DBL 7700
Nissan Nissan NES 5959 LLC
Other Claims BS 6580-1992, ETHYLENE-GLYCOL COOLANT 850, FL22, GME L 1301, JS K2234 (Japan), Mopar Formula HOAT (M5-97G9), MMN Diesel D234 2/15
Paraflu Paraflu 11