

### Industry Standards

This product is formulated to meet or exceed the following industry specifications:

- ASTM D3306 (automotive/light-duty)
- ASTM D4985 (heavy-duty diesel/low silicate)
- ASTM D6210 (fully formulated and precharged)
- TMC of ATA RP 329/338\*

*\*The Maintenance Council of the American Trucking Assoc. Antifreeze also meets the non-phosphate requirements of European OEM's and non-silicate requirements of Japanese OEM's*

### Product Specifications

### Features

HDELC Antifreeze Concentrate is a heavy-duty, extended life coolant that combines two organic acid inhibitors with azoles, nitrite and molybdate. This combination of inhibitors provides superior protection for all engine materials of construction including steel, aluminum, cast iron, copper, brass and solder.

HDELC Antifreeze Concentrate provides outstanding cylinder liner cavitation/pitting protection through the combination of organic acids and nitrite. It is compatible with all commonly used plastics and elastomers found in gaskets, washers, seals, and hoses. Additionally, HDELC Antifreeze Concentrate is compatible with most extended-life and conventional coolants available in the market.

HDELC Antifreeze Concentrate coolant contains no phosphates, silicates, borates, nitrates or amines. Since the coolant is free of phosphate and silicate and contains an anti-scalant, hard water deposits are minimized, and water pump seal life is extended. Without phosphate and silicates in the coolant, gel formation is practically eliminated. This antifreeze/coolant contains additives that lubricate the water pump and reduce internal friction, which reduces engine operating temperatures.

The combination of aliphatic mono- and di-acids minimizes maintenance costs by providing extended coolant maintenance and change-out intervals, and by eliminating the need for the use of supplemental coolant additives (SCA's). With the addition of an extender at 300,000 miles, HDELC Antifreeze Concentrate has a service life of 600,000 on-road miles. In off-road service, including stationary engines for compressors and turbines, it has a service life of 12,000 hours or 6 years, whichever comes first.

PARAMETER	LIMIT
Appearance	clear, red liquid *
Ethylene glycol (WT%)	90.0 min
pH (50% v/v)	8.0 – 9.0
Reserve alkalinity (ml)	6.0 min

\*Standard color. Custom color available upon request.

### Typical Properties\*

PROPERTY	VALUE
Corrosion inhibitors (WT%)	9.0 min
Boiling point (°F, 50% v/v, 15psi)	265 min **
Freezing point (°F, 50% v/v, 15psi)	-34
Specific gravity (60/60°F)	1.110 – 1.115
Density (PPG, 60°F)	9.3 min
Flash point (°F)	none
Nitrite (ppm)	900 min
Molybdate (ppm)	1000 min
Chloride (ppm)	25 max
Ash content (WT%)	2.5 max
Silicates (WT%)	nil
Foam	150 ml max; 5 s break max
Effect on engine or vehicle finish	no effect
Effect on nonmetals	no adverse effect

\*These values should not be construed as sales specifications.

\*\*Boiling point shown using conventional 15 psig radiator cap.

Before using this product, the user is advised and cautioned to make its own determination and assessment of the safety and suitability of the product for the specific use in question and is further advised against relying on the information contained herein as it may relate to any specific use or application. It is the ultimate responsibility of the user to ensure that the product is suited and the information is applicable to the user's specific application. Berryman Chemical Inc. does not make, and expressly disclaims, all warranties, including warranties of merchantability or fitness for a particular purpose, regardless of whether oral or written, express or implied, or allegedly arising from any usage of any trade or from any course of dealing in connection with the use of the information contained herein or the product itself. The user expressly assumes all risk and liability, whether based in contract, tort or otherwise, in connection with the use of the information contained herein or the product itself. Further, information contained herein is given without reference to any intellectual property issues, as well as federal, state or local laws which may be encountered in the use thereof. Such questions should be investigated by the user.