



**PROFESSIONAL
HEAVY DUTY
ANTIFREEZE/
COOLANT**

SUPERIOR ALUMINUM PROTECTION • NO SCA OR EXTENDER NEEDED
NITRITE, 2-EHA & SILICATE FREE

PRO SHIELD
OAT CORROSION DEFENSE™

ENDURANCE
MAXIMUM SERVICE
LIFE DIESEL
ENGINEERED FOR NEWER COOLING SYSTEMS

OEM APPROVED*

UP TO
8 YEARS / **1,600,000 KM** / **20,000**
1,000,000 MILES / **HOURS**

ENDURANCE GOES THE EXTRA MILE.

OEM approved and offering the longest service life possible, Endurance is ideal for newer cooling systems in any on and off-road application.

FORMULATION FEATURES & BENEFITS:

***OEM Approved:** Endurance now carries multiple formal OEM approvals including **Cummins, Detroit Diesel, Mercedes Benz, Daimler, MAN, MTU, Navistar International and Deutz.** This extensive approval listing ensures wide application breath, and peace of mind for any HD applications including where high heat and aluminum protection is required. Suitable for use in all on-road and off-road vehicles requiring a coolant that does not contain Nitrite, Amine, Phosphate and Silicate (NAPS free).

Maximum Service Life: Provides up to 1,600,000 km/ 1,000,000 miles, 20,000 hours or 8 years under normal operating conditions provided the coolant is kept in good condition and in line with the engine's OEM's requirements. Silicate-free provides for no possibility of silicate drop-out or gel formation.

Proven Protection: It protects the latest coolant system materials against rust, corrosion and deterioration and provides superior aluminum protection, excellent CAB flux compatibility and wet sleeve liner cavitation protection as determined through fleet testing and the Deere Liner Cavitation Test, ASTM D7583. Being 2-EHA free, it is compatible with all system elastomeric materials ensuring optimal system performance.

Field Compatibility: Being a silicate and nitrite free, it is compatible with, however does not require, additional SCA or coolant extender during the service interval, saving you time and money. Its compatibility extends to use with other similarly formulated engine antifreeze/ coolants and generally can tolerate hard water.

Powered by ProShield OAT Corrosion Defense: Our proprietary OAT corrosion inhibitor system, ProShield is engineered for new cooling systems, offering protection against corrosion and deterioration, providing excellent high temperature aluminum and liner cavitation protection. HD Expert Endurance is Nitrite, 2-EHA and Silicate free.

All Climate Performance: Provides protection against low temperature freeze-up or high temperature boil-over and suitable for all season use throughout winter and summer. When used as 50% diluted with high quality water, provides freeze protection down to -37°C/-34°F and boil-over protection up to +132°C/+269°F (with the use of a 100 kPa pressure cap). Available in Concentrate and 50-50 Pre-diluted formats.



PROFESSIONAL HEAVY DUTY ANTIFREEZE/COOLANT

ENDURANCE Maximum Service Life Diesel protects the latest coolant system materials against corrosion and deterioration and provides excellent CAB flux compatibility and wet sleeve liner cavitation protection. Designed for intense heavy duty diesel and natural gas applications where high heat and aluminum protection is required Endurance is recommended for use in all on-road and off-road vehicles including, but not limited to, Caterpillar, Cummins, Detroit Diesel/MTU, GM Heavy Truck, Freightliner, PACCAR/DAF and Volvo Mack. This nitrite, amine, phosphate and silicate free product is the recommended choice to meet some coolant chemistry composition restrictions of major Heavy Duty OEMs around the globe.

Approvals & Specifications

OEM Approved; meets or exceeds performance requirements of:	Recommended and suitable for use with:
<ul style="list-style-type: none"> • ASTM D3306, D6210, D7583, D7820 • AS/NZS 2108.2004 Type A • Cummins CES 14603 • Daimler DBL 7700 • Detroit Diesel DFS 93K217 & 93K227, 7SE298 • Deutz DQC CB-14 • MAN 324 Type SNF • Mercedes Benz MB 325.3, 326.3 • MTU MTL 5048 • International Truck and Engine / Navistar CEMS B-1 Type III-A • TMC RP 364 	<ul style="list-style-type: none"> • Komatsu KES 07.892 • Case New Holland • Freightliner 48-22880 • GM Heavy Truck • JIS K2234 • Kenworth R026-170-97 • Mack 014GS17004, 014GS17009 • PACCAR CS0185 • DAF 74002 • Peterbilt 8502.002 • Scania TB1451 • Volvo Heavy Truck

Typical Physical and Chemical Characteristics

CHARACTERISTIC	PERFORMANCE		TEST METHOD
	CONCENTRATE	50/50 PREMIX	
Appearance	Clear and transparent fluid	Clear and transparent fluid	
Colour	Gold	Gold	
pH	7.8 – 9.0	7.8 – 9.0	ASTM D1287
Reserve Alkalinity, ml	9.0 min.	4.0 min.	ASTM D1121
Specific gravity	1.125 – 1.135	1.070 - 1.080	ASTM D1122
Freeze point, °C/°F	60/40: -52/-61 70/30: -64/-83	-37/-34	ASTM D1177
Foam volume, ml	50 max.	50 max.	ASTM D1881
Foam break time, second	5 max.	5 max.	ASTM D1881
Chloride, ppm	< 25	< 25	ASTM D3634
Silicon	< 10	< 10	ASTM D6130
Phosphate	< 10	< 10	ASTM D5827
Nitrite	< 10	< 10	ASTM D5827
Shelf Life, (Unopened, original container)	5 years	5 years	

These characteristics are typical of current production. While future production will conform to Recochem's specification, variations in these characteristics may occur.



PROFESSIONAL HEAVY DUTY ANTIFREEZE/COOLANT

Dilution Chart

Protection against Freezing (°C/°F)	-37 / -34	-52 / -61	-64 / -83
Volume % Antifreeze	50	60	70
Volume % Deionized Water	50	40	30
**Protection against Boil-Over (°C/°F)	129 / 264	132 / 269	136 / 276

***with a 100 kilopascals (15 psi) radiator cap in good condition

Coolant concentrate must be diluted with water prior to use. Antifreeze/Coolant should not be used in concentrated form. A 50% dilution is generally recommended for the best balance of protection against freezing, corrosion and summer boil-over. For increased freeze protection in extremely cold areas, a 60% volume concentration can be used. Concentrations of greater than 70% by volume are not recommended. High quality soft, de-ionized or distilled water should always be used to dilute coolant concentrate.

Typical Coolant Performance Testing Results

METAL TYPE	ASTM D 1384 GLASSWARE CORROSION		ASTM D 2570 SIMULATED SERVICE	
	Test Results ¹	Max. Spec.	Test Results ¹	Max. Spec.
Copper	2	10	3	20
Solder	2	30	14	60
Brass	4	10	1	20
Steel	-1	10	1	20
Cast Iron	0	10	1	20
Aluminum	4	30	9	60

¹ Weight loss, except minus signs which indicate weight gain, per coupon in milligrams. Values are for coolant made from virgin ethylene glycol.

Typical Coolant Performance Testing Results (continued)

	Test Results ¹	Specification
ASTM D4340 Heat Rejecting Aluminum Corrosion (mg/cm ² /week)	0.1	1.0 maximum
ASTM D2809 Aluminum Water Pump Cavitation – Erosion Corrosion Rating	8	8 minimum
ASTM D7583 Deere Liner Cavitation Test	106	200 maximum

¹ Weight loss per coupon in milligrams (average for 2 tests). Values are for coolant made from virgin ethylene glycol.



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Product Packaging Specifications

CANADA

Item No.	Formulation	Container Size	Case Pack	UPC	SCC
16-924	Concentrate	3.78 L	4	0-56438-16924-6	400-56438-16924-4
16-914	50-50 premixed	3.78 L	4	0-56438-16914-7	400-56438-16914-5

USA

Item No.	Formulation	Container Size	Case Pack	UPC	SCC
86-924	Concentrate	1 gal	4	0-56438-86924-5	400-56438-86924-3
86-914	50-50 pre-diluted	1 gal	4	0-56438-86914-6	400-56438-86914-4

DRUM/TOTE

Item No.	Formulation	Container Size	Case Pack	UPC	SCC
26-929	Concentrate	208 L / 55 gal	NA	0-56438-90791-6	NA
26-919	50-50 premixed	208 L / 55 gal	NA	0-56438-90792-3	NA
26-929-1000	Concentrate	1000 L / 264 gal	NA	0-56438-90793-0	NA
26-919-1000	50-50 premixed	1000 L / 264 gal	NA	0-56438-90794-7	NA

Warranty

When added as an initial fill and properly maintained in accordance with engine manufacturer's maintenance recommendation, this product will provide an in-service life of up to 1,000,000 miles/1,600,000 km, 20,000 hours or 8 years, whichever comes first. While deleterious effects are not expected to be significant, mixing with conventional coolants will result in a lower than expected lifetime.

Handling, Storage & Shelf Life

Product should be stored in original container or appropriate dedicated tank or vessel. Although temperature fluctuations will not adversely affect coolant, unused coolant should be stored at ambient conditions. Under typical conditions and when the container integrity is maintained, product can be stored for up to 5 years without any adverse effect on quality. Product should be agitated before use.

Health, Safety & Environment

For detailed information and recommended practices related to Health and Safety, please refer to the appropriate Safety Data Sheet (SDS). New or spent coolant is never to be disposed of into a septic system, storm sewer or onto the ground. Always dispose coolant in accordance with local, provincial/ state and federal guidelines. Contain any spilled coolant and contact appropriate authorities on appropriate clean-up instructions.

NOTICE: This product is shipped in compliance with applicable laws and regulations regarding classification, packaging, shipping and handling. The performance and physical property data described for this product are typical results not sale specifications, except where maximum or minimum is indicated. Refer to Safety Data Sheets for further information.

Because use conditions and applicable laws may differ from one location to another and may change with time, the customer is responsible for determining whether product and the information in this document are appropriate for their use and for ensuring that their workplace and disposal practices are in compliance with applicable laws and other governmental enactments. Recochem's warranty is limited to the claims of product meeting stated performance specifications. It is the responsibility of the end-user to determine product suitability as recommended in the owner's manual and to follow engine manufacturer's instructions.