



Navistar[®] Coolant Specification (CEMS-B1-Type IIIa) and Chevron Coolant Recommendations

This technical letter is designed to educate Chevron sales and marketer personnel along with Chevron customers on recent changes to Navistar MAXXFORCE[®] Engine Extended Life Coolant Specifications and Chevron's Delo[®] Extended Life Coolant recommendations.

Background

In August of 2010, Navistar issued new extended life coolant specifications for their MAXXFORCE 11, 13, & 15 EPA10 diesel engines that provide a chemistry change from the previous CEMS-B1-Type III specification for extended life coolants. 2010 Navistar vehicles that have MAXXFORCE 11, 13, & 15 engines are currently being factory filled with the new CEMS-B1-Type IIIa fluid and therefore it's important to provide clarification on key changes.

Navistar CEMS-B1-Type IIIa key properties

Navistar's newest specification targets newer chemistry from previous extended life coolants in the past. The most noticeable changes versus the previous extended life coolant chemistry are provided below:

Chevron Extended Life Coolants Performance

Chevron's Delo Extended Life Coolant and Delo Extended Life Coolant Nitrite Free (NF) Coolants currently do not meet the newest Navistar CEMS-B1-Type IIIa due to the above new chemistry properties (except for the Nitrite - Free & Yellow Color property for the Delo Extended Life NF).

Although our products do not meet the Navistar new specification, we do have years of field performance with our Delo ELC and Delo ELC-NF in all types of diesel engines that have shown consistent protection out to 750,000 miles (1,000,000 miles with addition of Delo Extender) for Delo ELC and 600,000 miles for Delo ELC NF. In addition, our Delo Extended Life Coolant does meet Navistar's previous extended life specification - CEMS-B1-Type III - which would still apply to 2010 MAXXFORCE 7, DT, 9, & 10 models.

Property	Specification	Performance Impact
Nitrite	< 50 ppm	Limited - Molybdate substituted for cavitation protection
Molybdate as MoO ₄	600 to 1,000 ppm	Provides cavitation protection
Color	Yellow	No performance impact - color only used to identify different types of coolant technologies/formulations: Delo ELC - Red in Color Delo ELC NF - Yellow in Color
Carboxylate Technology	Excludes 2-Ethyl Hexanoic Acid (2-EHA) Carboxylate Technology	No performance impact - several European HD OEMs have indicated "gray listing" for toxicology concerns with this chemistry

Chevron Product Recommendation

Chevron recommends that both Delo[®] ELC and Delo ELC NF would be suitable for use in the MAXXFORCE[®] 11, 13, & 15 engines for both fleet and Navistar dealer applications. This recommendation is based on our experience with the product in the field and the technology history at various other North American & European Heavy Duty Truck OEMs.

As part of this recommendation, Chevron extends its Delo Product Warranty to the performance of Delo ELC and Delo ELC NF for use in 2010 MAXXFORCE 11, 13, and 15 engines until a new Chevron Extended Life Coolant product meeting the new CEMS-B1-Type IIIa specification is introduced.

Chevron Upcoming Coolant Product

In 2011, Chevron Lubricants plans to introduce a new extended life coolant that will meet both Navistar (CEMS-B1-Type IIIa) and some newer upcoming European Heavy Duty Truck OEM extended life coolant specifications to provide our customers a full line of extended life coolants to meet the requirements of both new and old trucks minimize complexity of products to be stored. Although our products do not meet the Navistar new specification, we do have years of field performance with our Delo ELC and Delo ELC-NF in all types of diesel engines that have shown consistent protection out to 750,000 miles (1,000,000 miles with addition of Delo Extender) for Delo ELC and 600,000 miles for Delo ELC NF. In addition, our Delo Extended Life Coolant does meet Navistar's previous extended life specification - CEMS-B1-Type III - which would still apply to 2010 MAXXFORCE 7, DT, 9, & 10 models.

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