



PRODUCT DATA SHEET

LINEHAUL EXPRESS

LINEHAUL EXPRESS is a modern high-powered Diesel Engine Oil specifically formulated to meet the demanding requirements of the CI-4(Compression Ignition, four cycle) specification.

Environmental Protection Agencies around the world have been the driving force for change to diesel engine oil specifications. EPA regulations requiring reductions in exhaust gas emissions has forced engine manufacturers to redesign engines to meet more stringent emission standards.

Typically, reduction of nitrous oxide emissions 50% below the 1998 limits forced engine redesigns calling for higher cylinder pressures, increased piston ring zone temperatures and Exhaust Gas Recirculation (EGR). These engine redesigns have added to the stresses on the lubricant.

Principally there are 16 engine and bench tests in this category, four new tests were added using the Cummins M-11 with EGR and the Mack T10 which address wear issues associated with the EGR technology, Caterpillar 1R is a new test for piston deposits and the elastomer compatibility test was added to ensure seal compatibility with the CI-4 oils.

LINEHAUL EXPRESS provides maximum protection for line haul and off-road vehicles operating in arduous conditions. LINEHAUL EXPRESS is recommended for naturally aspirated and turbo charged diesel engines providing the best anti-wear, dispersant and detergent technology available internationally from a multi-function lubricant package.

LINEHAUL EXPRESS also has the capability of extended drain intervals in accordance with the recommendations of the individual engine builders for their specific engines.



TYPICAL PROPERTIES

Density @ 15°C	0.883
Viscosity @ 40°C (cSt)	107.0
Viscosity @ 100°C (cSt)	15.1
Viscosity Index	148
Cold Crank Viscosity (cP@-20°C)	5988
Open Flash Point (°C)	225
HTHS (cP @ 150°C)	>4.0
Sulphated Ash (%mass)	1.39
Phosphorus (%mass)	0.099
Zinc (%mass)	0.1090
Calcium (%mass)	0.3630
TBN	11

PERFORMANCE SPECIFICATIONS

SAE: 15W-40
 API: CI-4/SL Licensed
 ACEA: E7
 CATERPILLAR: ECF-2, ECF-1-A
 CUMMINS: CES 20076/77/78
 DETROIT DIESEL: DDC 93K215
 DEUTZ: DQC 111-10
 GLOBAL: DHD-1
 JASO: DH-1
 MACK: EO-N Approved
 MAN M: 3275
 MB-Approval 228.3
 MTU: Type 2
 RENAULT VI: RLD-2 Approved
 VOLVO: VDS-3 Approved

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