



Certop Industrial™

Advanced Performance Gear and Bearing Oil
ISO 68, 150, 220, 320, 460, 680



Heavy duty gear and bearing oil specifically formulated for heavy industrial equipment.

Provides superior protection against leaking seals, dry starts, water contamination, oxidation and foaming.







LASTS UP TO FOUR TIMES LONGER THAN CONVENTIONAL GEAR OILS

Provides Superior Equipment Protection for:

- Industrial Manufacturing
- Food Processing
- Steel Mills & Foundries
- Paper Mills, Printing, & Packaging
- Federal, State & Local Agencies
- Construction, Mining, Agriculture
- Excavation & Demolition
- Utility Construction
- Concrete & Asphalt Paving



For Peak Performance, use with LubeMaster System Purge

-  Helps Eliminate Dry Start Wear
-  Helps Prevent Seals from Leaking
-  Prevents Rust and Corrosion
-  Displaces Water for Easy Drainage
-  Controls Foaming
-  Lowers Operating Temperature and Resists Oxidation to Prolong Oil Life
-  ISO 460 & 680 Ideal for Bronze Gears
-  Wide temperature range - operates from 20°F to 275°F.

Meets or Exceeds the Following Performance Requirements:

- All API GL-3, GL-4 (most GL-1 and GL-2 applications)
- DIN 51517 Part 3
- David Brown S1.53.101
- Cincinnati Milacron P-59 CM ref# 1100207
- US Steel #224
- AGMA 9005, 215.02 and 250.04
- AGMA 4EP to 8EP

USDA H2



CERTOP INDUSTRIAL contains a total additive package that sets it apart from other gear oils

Additives	User Benefits
Premium Grade Base Oil	Superior grade, highly-refined base oil resists oxidation and high-temperature breakdown to maintain better lubricity.
Adhesive and Cohesive Polymers, Tackiness Agents	Keep oil on gears during high-speed operations and during idle periods. Helps prevent mechanical wear, stress fractures and dry starts
Rust and Corrosion Inhibitors	Blocks out corrosive elements such as acids, water, condensate and steam by forming a protective barrier on equipment surfaces to prevent chemical wear.
Extreme Pressure (EP) Agents	Heat seeking additive which increases the ability of the lubricant to prevent the extreme wear that can occur under loads.
Oxidation Inhibitors	Extends service life of the lubricant by retarding the oxidation or breakdown process.
Shock Load Reducers	Cushions impact to minimize the stress, vibration and chatter that can occur under heavy loads and during start-stop operations.
Anti-Wear Agents	Forms a lubricant film on metal surfaces in the presence of heavy loads and high temperatures. Prevents cold welding.
Friction Reducers	Plates out on metal surfaces to prevent friction and wear under heavy loads.
Anti-Foam Agents	Withstand agitation and heat without forming foam contaminants. Reduce pressure levels on seals and vents.

PHYSICAL PROPERTIES

Properties	ISO 68	ISO 150	ISO 220	ISO 320	ISO 460	ISO 680
Color	Red	Red	Red	Red	Red	Green
API Gravity:	29.3	32.4	29.3	27.85	26.3	24
Flash Point (COC):	435	425	450	500	560	565
Pour Point, °F:	5	15	15	15	15	20
Viscosity Index:	107	102	102	107	104	95
Kinematic Viscosity, CST @ 40°C:	73.6	164.42	220.85	291.46	468.6	680
Kinematic Viscosity, CST @ 100°C:	9.54	15.86	20.94	25.58	30.59	38.9
Rust Protection:	Pass	Pass	Pass	Pass	Pass	Pass
Corrosion Protection:	1A	1A	1A	1A	1A	1A
4-Ball Wear Scar Dia., mm	0.31	0.31	0.32	0.32	0.28	0.28
4-Ball Weld Load, kg	250	250	250	250	250	250
Timkin OK Load, lbs.	60	65	65	65	65	65

IDEAL FOR USE IN:

Oil filled bearings, gear boxes including enclosed gears of spur type, hypoid, spiral bevel, worm, herringbone, helical, planetary and unusual combinations of gear types. Can be used as a cylinder oil, except for steam cylinders. Can be added as make up oil to other Industrial grade mineral gear oils. For Bronze Gears use **CERTOP Industrial 460 & 680 only**.

DO NOT USE FOR:

Do not use CERTOP 68, 150, 220 or 320 for copper, bronze worm gears (use **CERTOP Industrial 460 or 680**). Any equipment for which the manufacturer does not recommend this type of gear lubricant.





HOC™

Advanced Performance Hydraulic Oil ISO 22, 32, 46, 68, 100, 150, 220



Single-grade hydraulic oil specifically formulated for construction and heavy industrial equipment.

Provides superior protection against leaking seals, contaminants, pump wear, and erratic operation.










HYDRAULIC OIL OF CHOICE FOR ALMOST EVERY SINGLE-GRADE APPLICATION

Provides Superior Equipment Protection for

- Industrial Manufacturing
- Food processing
- Steel Mills & Foundries
- Paper mills, printing, & packaging
- Federal, State & Local Agencies
- Construction, Mining, Agriculture
- Excavation & Demolition
- Utility Construction
- Concrete & Asphalt paving

For Peak Performance, use with LubeMaster System Purge

-  Controls Seal Swell to Help Prevent Seals From Leaking
-  Highly Resistant to Oxidation
-  Controls Water and Other Contaminants
-  Controls Foaming
-  Prevents Rust and Corrosion
-  Prevents Pump and Cylinder Wear
-  Ideal for Use With Vane Pumps, Piston Pumps, Gear Pumps

Meets or Exceeds the Following Performance Requirements

- Dennison-Abex HF-1, HF-2, HF-O
- Vickers I-286-S and M-2950-S
- Ford M6C32
- GM LH Specs: 04, 06, 03
- JCB AW VG-32
- Parsons AMCA AW Hydraulic
- DIN 51524 part 2



HOC contains a total additive package that sets it apart from other hydraulic oils

Additives	User Benefits
Premium Grade Base Oil	Superior grade, highly-refined base oil resists oxidation and high-temperature breakdown to maintain better lubricity.
Seal Conditioners	Special compounds that soften and condition seals to keep them from hardening and cracking.
Leak Inhibitors	Most seal leaks occur because many oils cause seals to shrink. Special agents provide a controlled swell to bring the seals back to their normal size.
Rust and Corrosion Inhibitors	Blocks out corrosive elements such as acids, water, condensate and steam by forming a protective barrier on equipment surfaces to prevent chemical wear.
Oxidation Inhibitors	Extends service life of the lubricant by retarding the oxidation or breakdown process.
Demulsifiers	Separates water from oil to keep metal surfaces dry. Allows excess water to be drained from equipment.
Anti-Wear Agents	Forms a lubricant film on metal surfaces in the presence of heavy loads and high temperatures. Prevents cold welding.
Anti-Foam Agents	Inhibit oil foaming during operation to reduce seal pressure, prevent pump cavitation wear and decrease air entrapment that can cause erratic operation.
Sludge Inhibitors	Keeps seals cleaner by preventing the build-up of sludge, varnish and lacquer.
Shock Load Reducers	Cushions impact to minimize the stress, vibration and chatter that can occur under heavy loads and during start-stop operations.
Friction Reducers	Plates out on metal surfaces to prevent friction and wear under heavy loads.
Metal Deactivators	Prevent corrosion on yellow metals such as bronze, copper and brass.
Pour Point Depressants	Keeps oil flowing properly in cold temperatures. Lowers frictional drag and keeps equipment running in temperatures down to -20 degrees.

PHYSICAL PROPERTIES

	HOC 22	HOC 32	HOC 46	HOC 68	HOC 100	HOC 150	HOC 220
API Gravity 60/60°F	31.85	30.75	30.15	29.3	28.4	27.65	26.85
lbs./gal.	7.213	7.262	7.289	7.328	7.368	7.404	7.441
Specific Gravity:	0.8663	0.8891	0.88	0.88	0.8849	0.8854	0.8862
Evaporation Rate:	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fire Coc. °F	435	475	480	495	515	520	550
Flash Point: °F	>375	400	450	450	460	460	460
Viscosity							
SAE	5W	10W	20	20	30W	40W	50W
ISO	22	32	46	68	100	150	220
cSt. @ 40 °C	23	32.3	47	67.5	102	155	225
cSt. @ 100 °C	4.25	5.45	6.6	8.66	12	15.2	18.1
Viscosity Index	104	105	108	95-100	103	102	99
Four Ball Wear Test, Scar Diameter, MM (ASTM D2266):	0.31	0.31	0.31	0.3	0.3	0.26	0.28
Vickers Pump Wear Test, mg Steel	26	26	24	20	18	12	12
Pour Point °F	-30	-35	-30	-30	-25	-10	-20

IDEAL FOR USE IN:

Heavy duty straight hydraulics, all Sperry-Vickers vane and piston pumps for standard operation (200 psi, 1200 rpm, 150-175°F) or severe operation (3000 psi, 2400 rpm, 200°F).

DO NOT USE FOR:

Brake systems, transmissions, aircraft, Lucas hydraulic pumps or other silver-lined pumps (**use Lubemaster™ Mult-Oil™**). Not for systems requiring water-based hydraulic oils. Not for universal multi-purpose power transmission systems found in rubber-tired backhoes and tractors (**use Lubemaster™ OIL-ALL™**).



Comparison of ISO 46 Hydraulic Oil

Hydraulic Oil Test Methods, Descriptions, Test Result Values and What They Mean	Certified Labs HOC ISO46 Hydraulic Oil	Mobil DTE ISO46 Hydraulic Oil	Hydraulic Oil Property	Performance Benefit
ASTM D 2602: Viscosity by Cold Cranking Simulator Measures the apparent viscosity of the oil at 0°C. The results are related to the cranking characteristics of the oil. The lower the viscosity reading, the less stress on the pump.	<2200cp	Mobil Does Not Publish This Data	Hydraulic Oil Operating Viscosity	HOC has better low temperature flow which reduces equipment warm-up time. HOC has a wider operating viscosity with a 20% increase in film strength. This will extend hydraulic pump life.
ASTM D 2270: Viscosity Index Measures variation in viscosity due to changes in temperature. The higher the number, the more stable the oil will be at varying temperatures and conditions	109	98		
ASTM D 2882: Vickers Vane Pump Wear Test Measures wear characteristics of hydraulic fluids. The lower the number, the less wear occurs during operation and the longer the pumps will stay in service.	4.5mg	Mobil Does Not Publish This Data	Extreme Pressure and Anti-Wear	HOC provides 50% better pump wear protection.
Vickers 35VQ25 Hydraulic Pump Wear Test Measures wear in three successive 50-hour test runs with total ring and vanes wear must be below 90 mg in each of the three tests.	3mg	Mobil Does Not Publish This Data	Extreme Pressure and Anti-Wear	HOC provides three times the pump wear protection.
ASTM D 943: Oxidation Stability Measures the oxidation stability of the oil in hours. The higher the number, the more stable the fluid.	8000+hrs	Mobil Does Not Publish This Data	Oxidation Resistance	HOC has excellent oxidation resistance properties.
ASTM D 892: Foaming Tendency test Measures the foaming characteristics of oil after agitation. Most hydraulic fluids show foam tendencies 15 to 30 minutes after agitation. The shorter the time in minutes, the less foaming will occur.	<5 minutes	<50 minutes	Foaming	HOC prevents foam build-up which contributes to pump cavitation and system failure.
ASTM D 1401: Water Separation Measures the time it takes for water to separate from oils. The less amount of time it takes to separate, the better.	< 10 minutes	20 minutes	Emulsification	HOC has excellent water separation properties.

Comparison of ISO 46 Hydraulic Oil

<p>ASTM D 92: Flash Point Measures the lowest temperature at which application of the test flame causes the vapors above the surface of the liquid to ignite. The higher the temperature the better (safer).</p>	<p>460°F</p>	<p>429°F</p>	<p>Flash Point and Operating Range</p>	<p>HOC has a wider operating temperature range.</p> <p>This will extend component and oil life and reduce system failures.</p>
<p>Operating Range The temperature range at which the oil is fully functional. The greater the range, the better the product.</p>	<p>-30 to 375°F</p>	<p>Mobil Does Not Publish This Data</p>		<p>HOC produces almost no carbon residue during high temperature operation.</p>
<p>ASTM D 189: Carbon Residue Measures the residue formed by evaporation and thermal degradation of the oil. The lower the percentage of carbon residue, the better.</p>	<p>0.4%</p>	<p>Mobil Does Not Publish This Data</p>	<p>Deposits</p>	



Spectra™ Xtreme 15W40 CJ-4

Advanced Performance Synthetic Blend Motor Oil

SAE 15W-40



Synthetic blend, multi-grade Diesel or Gasoline motor oil formulated for severe duty and extended drain intervals

Provides superior protection against deposit formation, oil breakdown, parts wear, and loss of compression.

Specifically Engineered for

- Construction
- Agriculture
- Trucking & Fleet
- Logging
- Waste Hauling
- Material Handling Equipment
- Marine
- Federal, State, and Local Agencies
- Other Industries that Utilize Heavy Equipment



For Peak Performance, use with LubeMaster System Purge

- Synthetic Blend Formula Engineered for Extended Drain Intervals*
- TBN of 13 Provides Extended Acid Neutralization While Maintaining Low Ash
- Excellent Performance with EGR, ACERT™, ASET™ and Turbo Charged Equipment
- Superior Thermal Stability for Higher Temperature Operation
- High Detergent Retention Prevents Deposit Build-up
- Contains SOLUMOL** for Superior Wear Protection
- Highly Resistant to Oxidation for Longer Oil Life
- High V.I. Number Provides Stable Viscosity Over a Wide Temperature Range
- Superior Cold Cranking and Oil Pumpability at Low Temperature
- Compatible with Synthetic, Synthetic Blend, and Mineral Based Motor Oils

* Always use oil analysis to establish new drain intervals

** SOLUMOL is an oil soluble synthetic molybdenum compound

Meets or Exceeds the Following Performance Requirements

- API Service Classification: CJ-4, CI-4, CI-4 Plus, CH-4 Plus, CH-4, and SM for gasoline engines
- ACEA E&-04 (2004)
- MIL-PRF-2104G, CID-A-A-52306A, and CID-A-A-52039B
- Mack EO-O Premium Plus 07
- MTU Type 2
- MAN 3275
- Caterpillar ECF-1-A, ECF-2, ECF-3
- Cummins CES 20081
- Renault RVI RLD-3
- Daimler Chrysler MB228.31, MB228.3
- Detroit Diesel DDC 93K218
- Volvo VDS-4

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Consult the label for complete directions and precautions before using this product.



Division of Certified Laboratories

Comparison of CJ-4 Engine Oils

Engine Oil Test Methods, Descriptions, Test Result Values and What They Mean	Engine Oil Property	Amsoil CJ-4 15W40	Shell Rotella T 15W40	Mobil Delvac Elite 15W40	Schaeffer Supreme 7000 15W40	Chevron Ursa Plus EC 15W40	Royal Purple CJ-4 15W40	Castrol Hypuron 15W-40	Certified Labs Spectra Xtreme 15W40 CJ-4	Performance Benefit	
ASTM D 3945: Shear Stability Index Measures the percent viscosity loss at 100°C of polymer-containing fluids when evaluated by using the Fuel Injector Shear Stability Test (FISST). The less viscosity loss the better protection and lubrication.	Engine Oil Thermal Performance and Operating Viscosity	4.2%	Data Not Available	Data Not Available	9.9%	Data Not Available	Data Not Available	Data Not Available	<3% Loss	Spectra Xtreme has greater shear stability which allows for improved protection and extended drain intervals.	
ASTM D 2270: Viscosity Index Measures variation in viscosity due to changes in temperature. The higher the number, the more stable the oil will be at varying temperatures and conditions.		153	135	140	145 Ave	138	140	133	134		
ASTM D 2602: Viscosity by Cold Cranking Simulator Measures the apparent viscosity of the oil at cold temperatures. The results are related to the cranking characteristics of the oil. The lower viscosity reading the easier the oil will flow at low temperatures.		5210cp	Data Not Available	Data Not Available	5,460cp	Data Not Available	3250cp	Data Not Available	6200cp		
ASTM D 4683: High Shear/High Temperature Viscosity at the shear rate and temperature of this test method is the condition encountered in the bearings of automotive engines in severe service. Should have a minimum viscosity of 3.5 cp according to SAE.		4.2cp	Data Not Available	Data Not Available	4.3cp	Data Not Available	Data Not Available	Data Not Available	4.8cp		
ASTM D 3829: Borderline Pumping Temperature of Engine Oil Measures the lowest temperature at which engine oil can be continuously and adequately supplied to the oil pump inlet of an automotive engine. In this case, measures viscosity at 20°C.		Data Not Available	Data Not Available	Data Not Available	-20 °F -	20 °F -	20°F	Data Not Available	-25°F		
FTM 203C: Stable Pour Point Measures the lowest temperature at which movement of the fluid is observed. The lower the pour point, the better utility the fluid has for certain applications at low temperatures.		-40°F -	30°F -	32°F -	41°F -	41°F -	30°F -	38°F	-17°F		
ASTM D 2896: Total Base Number (TBN) Measures the engine oil's ability to neutralize acid formation, which commonly occurs. The highest TBN for engine oil is 14. The higher the TBN, the more acid will be neutralized and the longer the oil will last.		10.4	10	.1	10	.7	12	8	10.5		11
ASTM D 5158: Phosphorous/Zinc Content Measures the amount of additive elements, wear metals and contaminants in lubricating oils. Phosphorous and zinc are part of the anti-wear package. The greater the concentration in ppm's of each in the oil the better the oil will protect various engine components.	Data Not Available	Data Not Available	Data Not Available	<0.003% Ave Phosphorous/ Zinc Content	<0.003% Ave Phosphorous/ Zinc Content	n/a ppm Phosphorus 812 ppm Zinc	<0.003% Ave	0.07% Phosphorus 0.05% Zinc			
ASTM D 874: Sulfated Ash Content Measures the amount of sulfated ash from unused lubricating oils containing additives. The less amount of sulfated ash the better.	1.0%	1.	0%	0.	9%	1.	0%	0.96%	0.96%	1.0%	<1%



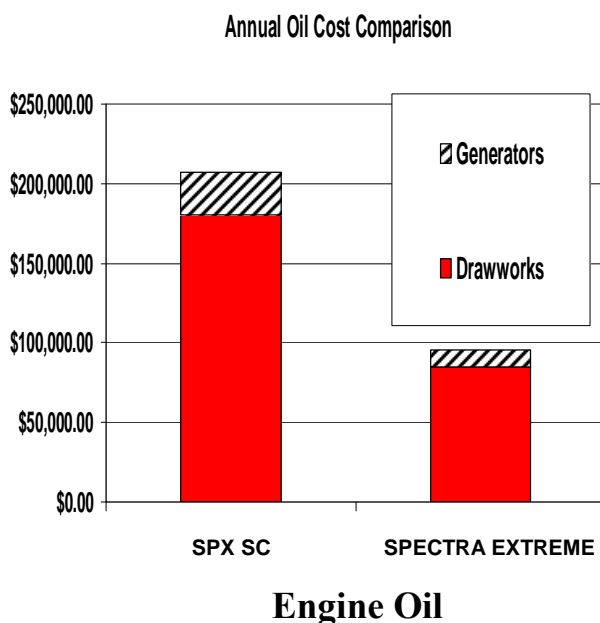
Value Recognition Report

A Drilling Company in US

Account History: The company's fleet of 8 rigs accommodates shallow-to-medium depth drilling projects. The fleet of directional tools designed to accommodate a full range of hole sizes and directional profile considerations. Pinpoint utilizes both mud pulse (MP) and electromagnetic (EM) telemetry measurement while drilling (MWD) technologies.

Certified Labs' Objective: Provide a reliability partner starting with a performance engine oil (**SPECTRA XTREME**) in place of the Simons Petroleum SPX SC to reduce oil changes and labor costs producing a recognizable savings. Using the *Certified Complete Reliability-Based Partnership Model*, Certified Labs is creating a value based relationship through the following in order to establish a Reliability Centered Maintenance approach using

- Performance Products
- Complete Diagnostic Support
- Oil and Fuel Analysis



Results: Upon implementation, a recognized annual savings from extended engine oil drain intervals using **SPECTRA XTREME** was **\$111,384.48**. Additional Savings will increase through a reduction of engine parts replacement, labor costs and downtime.

See back for details





Value Recognition Report

Using Caterpillar Equipment

Drawworks (2 Caterpillar 3406 TA), Mud Pumps (2 Caterpillar D398), Power Swivel (Caterpillar C-9 Engine)

Oil	SPX SC 15W-40	SPECTRA XTREME 14W-40
Oil Amount	(5) 12 gal = 60	(5) 12 gal = 60
Oil Cost per Gallon, Unit, Total	\$15.61/gal, \$187.32, \$936.60	\$20.95/gal, \$251.40, \$1,257.00
Oil Filter	(5) \$20 (2) = \$200	(5) \$20 (2) = \$200
Labor	(5) \$50 = \$250	(5) \$50 = \$250
Cost per Change, Total Units	(5) \$277.32 = \$1,386.60	(5) \$341.40 = \$1,707.00
Annual Change Interval	300 Hours	750 Hours
Operation Runs 24/7/325 days	7,800/unit	7,800/unit
Number of Units	5	5
Number of Oil Changes	26	10
Annual Cost per Unit	\$36,051.60	\$17,070
Total Annual Cost for 5 Units	\$180,258.00	\$85,350.00
Savings	--	\$94,908.00

Engine Generator Sets (2 Detroit Series 60 Diesel Engines)

Oil	SPX SC 15W-40	SPECTRA XTREME 15W-40
Oil Amount	(2) 12 gal = 24	(2) 12 gal = 24
Oil Cost per Gallon, Unit, Total	\$15.61/gal, 187.32, \$374.64	\$20.95/gal, \$251.40, \$502.80
Oil Filter	(2) \$20	(2) \$20
Labor	(2) \$50	(2) \$50
Cost per Change	(2) \$257.32 = \$514.64	(2) \$321.40 = \$642.80
Annual Change Interval	(2) at 300 Hours	(2) at 1000 Hours
Operation Runs 24/7/325	7,800/unit	7,800/unit
Number of Units	2	2
Number of Oil Changes	26	8
Annual Cost	\$13,380.64	\$5,142.40
Total Annual Cost for 2 Units	\$26,761.28	\$10,284.80
Savings	--	\$16,476.48

Annual Savings from Extended Engine Oil Drain Intervals = \$111,384.48

Additional Savings Will Increase Through a Reduction of Engine Parts Replacement, Labor Costs and Downtime.





Spectra™ Xtreme 15W40 CJ-4

Advanced Performance Synthetic Blend Motor Oil

SAE 15W-40



Synthetic blend, multi-grade Diesel or Gasoline motor oil formulated for severe duty and extended drain intervals

Provides superior protection against deposit formation, oil breakdown, parts wear, and loss of compression.

Specifically Engineered for

- Construction
- Agriculture
- Trucking & Fleet
- Logging
- Waste Hauling
- Material Handling Equipment
- Marine
- Federal, State, and Local Agencies
- Other Industries that Utilize Heavy Equipment



For Peak Performance, use with LubeMaster System Purge

- Synthetic Blend Formula Engineered for Extended Drain Intervals*
- TBN of 13 Provides Extended Acid Neutralization While Maintaining Low Ash
- Excellent Performance with EGR, ACERT™, ASET™ and Turbo Charged Equipment
- Superior Thermal Stability for Higher Temperature Operation
- High Detergent Retention Prevents Deposit Build-up
- Contains SOLUMOL** for Superior Wear Protection
- Highly Resistant to Oxidation for Longer Oil Life
- High V.I. Number Provides Stable Viscosity Over a Wide Temperature Range
- Superior Cold Cranking and Oil Pumpability at Low Temperature
- Compatible with Synthetic, Synthetic Blend, and Mineral Based Motor Oils

* Always use oil analysis to establish new drain intervals

** SOLUMOL is an oil soluble synthetic molybdenum compound

Meets or Exceeds the Following Performance Requirements

- API Service Classification: CJ-4, CI-4, CI-4 Plus, CH-4 Plus, CH-4, and SM for gasoline engines
- ACEA E&-04 (2004)
- MIL-PRF-2104G, CID-A-A-52306A, and CID-A-A-52039B
- Mack EO-O Premium Plus 07
- MTU Type 2
- MAN 3275
- Caterpillar ECF-1-A, ECF-2, ECF-3
- Cummins CES 20081
- Renault RVI RLD-3
- Daimler Chrysler MB228.31, MB228.3
- Detroit Diesel DDC 93K218
- Volvo VDS-4

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Consult the label for complete directions and precautions before using this product.



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SPECTRA XTREME Motor Oils contain a total additive package that sets it apart from all other motor oils

Additives

Benefits

Premium, Synthetic Blend Base Oil	Highly-refined, oxidation-resistant synthetic blend base oils provide exceptional, long-term lubrication to reduce friction, decrease heat and prevent wear.
Acid Neutralizers	SPECTRA XTREME prevents the formation of various acids and sludge. SPECTRA XTREME outlasts conventional oils by up to 300% due to its high residual TBN.
Friction Reducers	Plate out on metal surfaces to prevent friction and wear under heavy loads. Prevents dry starts.
Anti-Wear Agents	Form a lubricant film on metal surfaces in the presence of heavy loads and high temperatures. Prevents cold welding.
Shear Stabilizers	Increase surface viscosity and improve shear stability to carry heavier loads, withstand extreme pressures and prevent shock impact.
Dispersants	Keep sludge, carbon, soot, varnish and gum suspended in the oil and carry them to the filter. Prevent deposits on high-contact surfaces.
Detergents	Keep surfaces clean and free of deposits that cause wear and increase blow-by.
Oxidation Inhibitors	Extend service life of the lubricant by retarding the oxidation or breakdown process.
Corrosion Inhibitors	Shield sensitive metals against acids and other corrosive compounds.
Rust Inhibitors	Plate metal surfaces to retard metal deterioration and reduce abrasive rust contaminants.
Viscosity Index Improvers	Maintain full viscosity over a wider temperature range to ensure full protection in fluctuating conditions. Eliminates the need to switch oil grades in different seasons.
Pour Point Depressants	Keep oil flowing properly in cold temperature. Lowers frictional drag and keeps equipment running in cold temperatures.
Solumol	An oil soluble synthetic molybdenum compound that plates onto the metal to provide exceptional wear protection.

Physical Properties

TEST	15W-40
Specific Gravity (API)	29.7
Viscosity, CCS	
cP @-20 °C, Max	6200
Viscosity SUS	
cSt @ 40 °C	105.5
cSt @100 °C	14.1
Viscosity Index	134
Flash Point (°F)	440
Pour Point (°F)	-17
ASTM D130 Corrosion	1A
Foam Suppression	
Sequence I	0
Sequence II	0
Sequence III	0
Sulphated Ash, %	1
TBN	13

IDEAL FOR USE:

Compatible with gasoline or diesel engines or combustion engines which have been converted to natural gas.

DO NOT USE:

Not compatible with 2-cycle gasoline engines that mix oil with fuel.



Comparison of CJ-4 Engine Oils

Engine Oil Test Methods, Descriptions, Test Result Values and What They Mean	Engine Oil Property	Amsoil CJ-4 15W40	Shell Rotella T 15W40	Mobil Delvac Elite 15W40	Schaeffer Supreme 7000 15W40	Chevron Ursa Plus EC 15W40	Royal Purple CJ-4 15W40	Castrol Hypuron 15W-40	Certified Labs Spectra Xtreme 15W40 CJ-4	Performance Benefit
ASTM D 3945: Shear Stability Index Measures the percent viscosity loss at 100°C of polymer-containing fluids when evaluated by using the Fuel Injector Shear Stability Test (FISST). The less viscosity loss the better protection and lubrication.	Engine Oil Thermal Performance and Operating Viscosity	4.2%	Data Not Available	Data Not Available	9.9%	Data Not Available	Data Not Available	Data Not Available	<3% Loss	Spectra Xtreme has greater shear stability which allows for improved protection and extended drain intervals.
ASTM D 2270: Viscosity Index Measures variation in viscosity due to changes in temperature. The higher the number, the more stable the oil will be at varying temperatures and conditions.		153	135	140	145 Ave	138	140	133	134	
ASTM D 2602: Viscosity by Cold Cranking Simulator Measures the apparent viscosity of the oil at cold temperatures. The results are related to the cranking characteristics of the oil. The lower viscosity reading the easier the oil will flow at low temperatures.		5210cp	Data Not Available	Data Not Available	5,460cp	Data Not Available	3250cp	Data Not Available	6200cp	
ASTM D 4683: High Shear/High Temperature Viscosity at the shear rate and temperature of this test method is the condition encountered in the bearings of automotive engines in severe service. Should have a minimum viscosity of 3.5 cp according to SAE.		4.2cp	Data Not Available	Data Not Available	4.3cp	Data Not Available	Data Not Available	Data Not Available	4.8cp	
ASTM D 3829: Borderline Pumping Temperature of Engine Oil Measures the lowest temperature at which engine oil can be continuously and adequately supplied to the oil pump inlet of an automotive engine. In this case, measures viscosity at 20°C.		Data Not Available	Data Not Available	Data Not Available	-20 °F -	20 °F -	20°F	Data Not Available	-25°F	
FTM 203C: Stable Pour Point Measures the lowest temperature at which movement of the fluid is observed. The lower the pour point, the better utility the fluid has for certain applications at low temperatures.		-40°F -	30°F -	32°F -	41°F -	41°F -	30°F -	38°F	-17°F	
ASTM D 2896: Total Base Number (TBN) Measures the engine oil's ability to neutralize acid formation, which commonly occurs. The highest TBN for engine oil is 14. The higher the TBN, the more acid will be neutralized and the longer the oil will last.		10.4	10	.7	12	8	10.5	11	13	
ASTM D 5158: Phosphorous/Zinc Content Measures the amount of additive elements, wear metals and contaminants in lubricating oils. Phosphorous and zinc are part of the anti-wear package. The greater the concentration in ppm's of each in the oil the better the oil will protect various engine components.	Data Not Available	Data Not Available	Data Not Available	<0.003% Ave Phosphorous/ Zinc Content	<0.003% Ave Phosphorous/ Zinc Content	n/a ppm Phosphorus 812 ppm Zinc	<0.003% Ave	0.07% Phosphorus 0.05% Zinc		
ASTM D 874: Sulfated Ash Content Measures the amount of sulfated ash from unused lubricating oils containing additives. The less amount of sulfated ash the better.	1.0%	1.	0% 0.	9% 1.	0%	0.96%	0.96%	1.0%	<1%	



Lubemaster™ T0-4 Transmission Oil

Advanced Performance SAE 10W, 30, 50



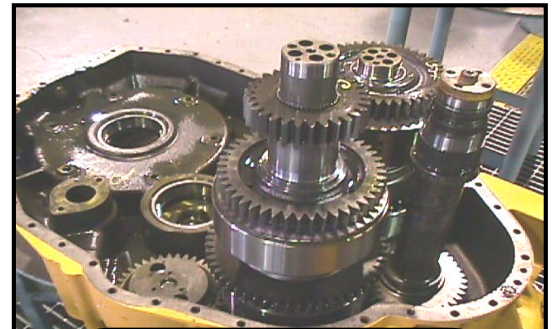
Transmission oil specifically formulated for Caterpillar T0-4 TDTO oil specification.

Provides superior protection for transmissions, drive trains, hydraulics, and wet brakes.

BALANCED for CATERPILLAR LUBRICATION and WETBRAKE REQUIREMENTS

Provides Superior Equipment Protection for:

- Construction
- Mining
- Waste Management
- Agriculture
- Logging
- Federal, State, and Local Agencies
- Other Industries that Utilize Heavy Equipment



For Peak Performance, use with LubeMaster System Purge

• Hydrostatic Transmissions

Increases EP performance and reduces shock loads even under high operating temperatures.

• Powershift Transmissions

Prevents friction and wear of critical components upon shifting into or out of action.

• Gear Boxes

Helps maintain proper lubrication on gears, dissipates heat, minimizes deposit formation.

• Differential Gears

Prevents sludge build-up and oxidation on directional gears, inhibits rust and corrosion.

• Hydraulics

Anti-wear additives reduce friction and valve wear.

- Resists Oxidation
- Minimizes Brake Chatter
- Reduces Clutch Plate and Pump Wear
- Minimizes Deposit Build-up
- Prevents Rust and Corrosion
- Reduces Transmission and Final Gear Wear

Meets or Exceeds the Following Performance Requirements:

- Caterpillar T0-4 TDTO
- Allison C-4



Lubemaster TO-4 Transmission Oil contains a total additive package for Caterpillar Equipment

Additives	Benefits
Premium Grade Base Oil	Superior grade, highly-refined base oil resists oxidation and high-temperature breakdown to maintain better lubricity.
Anti-Wear Agents	Forms a lubricant film on metal surfaces in the presence of heavy loads and high temperatures. Prevents cold welding.
Friction Reducers	Plates out on metal surfaces to prevent friction and wear under heavy loads.
Rust and Corrosion Inhibitors	Blocks out corrosive elements such as acids, water, condensate and steam by forming a protective barrier on equipment surfaces to prevent chemical wear.
Extreme Pressure (EP) Agents	Heat seeking additive which increases the ability of the lubricant to prevent the extreme wear that can occur under loads.
Oxidation Inhibitors	Extends service life of the lubricant by retarding the oxidation or breakdown process.
Shock Load Reducers	Cushions impact to minimize the stress, vibration and chatter that can occur under heavy loads and during start-stop operations.

Physical Properties

	SAE 10W	SAE 30	SAE 50
Density, lbs/gl	7.33	7.46	7.51
Flash Point °F	428	465	500
Viscosity Index ASTM D-2270	102	102	102
Brookfield Viscosity cP at °F	59,400 at -30°F	70,000 at -11°F	46,500 at 5°F
Cold Crank Viscosity cP at 0°F	3200	--	--
Borderline Pumping Viscosity cp at °F	4,300 at -11°F	6,900 at 5°F	10,300 at 14°F
Sulphur, % Wt.	0.32	0.32	0.32
Phosphorus, % Wt.	0.09	0.09	0.09
Zinc, % Wt.	0.11	0.11	0.11
Calcium, % Wt.	0.42	0.42	0.42
Pour Point °F	-32	-20	5

IDEAL FOR USE IN:

Caterpillar power-shift transmissions, hydrostatic transmissions, hydraulic systems which call for a TO-4 fluid.

DO NOT USE FOR:

Automatic Transmission (use **LubeMaster ATF**). Truck transmissions that only allow the use of GL-1 gear oil / motor oil (**use STRATA Motor Oils**), Spicer/Dana or Fuller transmissions (use **LubeMaster Eaton Approved Lubricants**) or any other equipment for which the manufacturer does not recommend this type of gear lubricant. Never mix with asphaltic-type or "SCL"-type lubricants.



TO-4 Gear Oil Performance Comparison

Gearbox Failure Source	Gear Oil Property	Gear Oil Test Methods, Descriptions, Test Result Values and What They Mean	LubeMaster TO-4 SAE 30	Mobil Mobiltrans HD SAE 30
Oil Flow Increases or Decreases	Change in Oil Operating Viscosity	ASTM D 2270: Viscosity Index Measures variation in viscosity due to changes in temperature. The higher the number, the more stable the oil will be at varying temperatures and conditions	102	97
Gears and Bearings Wear Out or Seize	Extreme Pressure and Wear Protection	ASTM D 3233: Falex Load Test Measures extreme pressure properties (in pounds) of a fluid lubricant using the falex pin method. Greater amount equals greater extreme pressure characteristics.	2500 lb	Mobil Does Not Publish This Data
		ASTM D 2783: Film Strength Uses 4-ball method to determine load-carrying properties of lubricating fluid. The higher number the better protection.	2,300	Mobil Does Not Publish This Data
		ASTM D 2783: Weld Point Measures the lowest applied load in kilograms at which the rotating ball welds to the three stationary balls. The higher the number the better extreme pressure characteristics.	300 kg	Mobil Does Not Publish This Data
		ASTM D 2783: Load Wear Index An index of the ability of a lubricant to minimize wear at applied loads. The higher the number the better the wear protection.	52	Mobil Does Not Publish This Data
		ASTM D 2782: Timken Method Line contact, similar to roller bearing, the higher the number the greater load carrying capabilities.	50 lb	Mobil Does Not Publish This Data
		ASTM D 4172: Four-ball (wear scar) Measures the relative wear preventive properties of lubricating fluids in sliding contact, using the 4-ball method. The lower the number the more protection the oil provides.	0.32 mm	Mobil Does Not Publish This Data
Rust and Corrosion	Corrosion Protection	ASTM D 130: Copper Corrosion Measures ability to protect yellow metals from corrosion .The range is 1A being the best rating and 4 being worst, 1B is typical.	1A	Mobil Does Not Publish This Data
Pump Cavitation, Dry Areas	Foaming Tendency	ASTM D 892: Foam Test Measures the amount of foam produced at specified temperatures and different air blowing intervals. No foam (0/0) is best.	0/0	Mobil Does Not Publish This Data

Oil Deposit Build-up	Oxidation Resistance	ASTM D 189: Conradson Carbon Residue Measures the residue formed by evaporation and thermal degradation of the oil. The less percentage of carbon residue the better.	1%	Mobil Does Not Publish This Data
Flash Point	High Temp	ASTM D 92: Flash Point Measures the lowest temperature at which application of the test flame causes the vapors above the surface of the liquid to ignite. The higher the temperature the better (safer).	495°F	Mobil Does Not Publish This Data
Thickening in Cold Temperature	Low Temp. Flow and Pumpability	FTM 3456: Channel Point When a gear passes through the gear oil, the oil flows in behind it filling in the channel left by the gear. This method records the temperature at which the gear oil no longer flows back into the channel.	-17°F -	10°F
		ASTM D 97: Pour Point The lowest temperature at which movement of the fluid is observed is recorded as the pour point. The lower the pour point, the better utility the fluid has for certain applications at low temperature.	-20°F -	16°F



Oil-All™ Plus

Premium Universal Hydraulic Fluid
10W-30



Universal power torque fluid specifically formulated for construction and farm equipment.

Provides superior protection against leaking seals, clutch slippage, system wear, extreme temperatures.

UNIVERSAL HYDRAULIC OIL OF CHOICE FOR ALMOST EVERY POWER TORQUE FLUID APPLICATION

Provides Superior Equipment Protection for:

- Construction
- Mining
- Waste Management
- Agriculture
- Logging
- Federal, State, and Local Agencies
- Other Industries that Utilize Heavy Equipment



For Peak Performance, use with LubeMaster System Purge

- **Reduces Oil Inventory** – Can also be Used in Straight Hydraulic Systems Requiring an ISO 46 or ISO 68 Oil.
- **Helps Eliminate Dry Start Wear**
- **Displaces Water for Easy Drainage**
- **Reduces Brake Chatter**
- **Prevents PTO Clutch Slippage**
- **Prevents Rust and Corrosion**
- **Reduces Pump, Cylinder, Gear and Clutch Wear**
- **Stops Seals from Leaking**
- **Wide Temperature Range (-15 °F to 375°F)**

Meets or Exceeds the Following Performance Requirements:

- AGCO/Allis Power Fluid 821, P/N 257541
- Deutz-Allis PF821XL
- Case, Case IH, International, Hytran Plus MS-1206, MS-1207, MS-1209, JIC-143, Case TFD
- John Deere JD27, JDM, J20C/D
- Ford New Holland FNHA-2-C-200 and 201, M2C159-B1/C1
- Ford ESN M2C86-B/C, M2C134-C/D
- Steiger SEMS 17001
- Caterpillar TO-2
- Kubota Universal tractor Fluid
- Massey-Ferguson Permatran, M1127A, M1129A, CMS M1135, M1139, M1141, M1143, M1144
- White Farm Equipment P/N Q-1722, Q1826 Universal Fluid
- Allison C3
- API GL-4



OIL-ALL PLUS contains a total additive package that sets it apart from other universal hydraulic oils

Additives	Benefits
Premium Grade Base Oil	Superior grade, highly-refined base oil resists oxidation and high-temperature breakdown to maintain better lubricity.
Adhesive / Cohesive Polymers	Keep oil on components during high speed operations and during idle periods. Helps prevent mechanical wear, stress fractures and dry starts.
Demulsifiers	Separates water from oil to keep metal surfaces dry. Allows excess water to be drained from equipment.
Brake Conditioners	Reduces chatter for better stopping performance and sharper turning response. Dissipates heat for less disc distortion.
PTO Buffers	Prevent PTO clutch slippage to promote faster stall-out if work implement jams on a foreign object.
Seal Conditioners	Special compounds that soften and condition seals to keep them from hardening and cracking.
Leak Inhibitors	Most seal leaks occur because many oils cause seals to shrink. Special agents provide a controlled swell to bring the seals back to their normal size.
Oxidation Inhibitors	Extends service life of the lubricant by retarding the oxidation or breakdown process.
Corrosion Inhibitors	Shield sensitive metals against acids and other corrosive compounds.
Anti-Wear Agents	Forms a lubricant film on metal surfaces in the presence of heavy loads and high temperatures. Prevents cold welding.
Extreme Pressure (EP) Agents	Heat seeking additive which increases the ability of the lubricant to prevent the extreme wear that can occur under loads.
Anti-Foam Agents	Inhibit oil foaming during operation to reduce seal pressure, prevent pump cavitation wear and decrease air entrapment that can cause erratic motion.
Pour Point Depressants	Keeps oil flowing properly in cold temperatures. Lowers frictional drag and keeps equipment running in temperatures down to -20 degrees.
Friction Modifiers	Keep high-friction surfaces fully lubricated to reduce breakdowns and lower operating temperatures.
Shock Load Reducers	Cushions impact to minimize the stress, vibration and chatter that can occur under heavy loads and during start-stop operations.
Metal Deactivators	Prevent corrosion on yellow metals such as bronze, copper and brass.

Hydrostatic Transmissions

Increases EP performance and reduces shock loads even under high operating temperatures.

Power Take Off (PTO)

Prevents friction and wear of critical parts upon shifting into or out of action.

Wet Brake - Helps oil maintain proper torque on brake discs and dissipates heat.

Power Steering Assembly

Prevents sludge build-up in directional valves.

Hydraulics - Anti-wear additives reduce friction to protect pumps and valves. Excellent for use in straight hydraulics as well.

PHYSICAL PROPERTIES

Viscosity at 100°F Centistokes	292
Viscosity at 210°F (new fluid) Centistokes	58
Viscosity at 210°F (after super sonic shear) Centistokes	53
Viscosity Index	141
Pour Point (°F)	-35
Flash Point (°F)	410
Timkin EP Test OK Load	35-40
Contact Pressure	21.000
Oxidation Test (100 hrs. at 300°F)	Pass
Evaporation Loss %	1.5
Viscosity at 100°F increase %	6
Viscosity at 210°F increase %	4
Separation/Sludge	None
Seal Test (70 hrs. at 212°F)	Pass
Volume Change %	2
Precipitation	None

IDEAL FOR USE IN:

Universal hydraulics, straight hydraulic systems, power transmission systems and equipment calling for a torque fluid.

DO NOT USE FOR:

Crankcases or engines (use **LubeMaster™ STRATA** oils), or compressors (use **LubeMaster™ SYNCOM** oils), or automatic transmission fluids (use **LubeMaster™ ATF**) that run through the transmission.





Value Recognition Report

Heavy Construction Company, Portland & S.W. Washington

Account History: This is a Heavy Construction company that specializes in Excavating, Road Building, Utility Work, Flood Repair, Wetland Mitigation, Commercial and Residential Site Work. Located in the Portland Metro and Southwest Washington region with more than 165 employees and 100 pieces of heavy equipment. Maintenance labor cost is \$30/Hr. Downtime costs range between \$75/Hr. and \$500/Hr. depending on the type of equipment and job requirements.

Certified Labs' Objective: Provide performance grade lubricants and value added services to increase equipment reliability and longevity, reduce overall cost of lubrication, and increase equipment resale value. Many of the savings listed resulted from process improvements initiated by Management.

Reduced Consumption & Process Improvements

- Reduced grease consumption by 40% over 5 years by using Premalube Grease.....**\$3,856**
- Reduced contract maintenance service replaced by performing routine maintenance in-house**\$141,677**
- Reduced motor oil consumption by 70% and extended change intervals with Strata Xtreme motor oil and Trilogy Off-line filters**\$33,660**
- Transmission/hydraulic oil replaced with Oil All and installed Trilogy off-line filters. **Savings To Be Determined**
- Reduced fuel consumption by approximately 5% using LubeMaster's Fuel Quality Assurance Program....**\$99,025**

Annual Savings - Parts Repair, and Replacement

- Prevented grease related pin & bearing repair and replacement with Premalube Grease **N/A**
- Reduced fuel system repairs and reduced fuel filter replacements by using LubeMaster's Fuel Quality Assurance Program..... **N/A**

Annual Savings - Lubricant Related Downtime

- Extended greasing intervals on heavy equipment by 50% to 75% by using Premalube grease. Premalube reduced labor costs using approximately 15%.....**\$71,209**
- Extended off-road equipment motor oil change intervals by 50% to 85% and on-road change intervals by 55% to 85% which reduced the time necessary to change oil by 403 Hrs.....**N/A**
- Eliminated fuel related downtime since 2004 with the Fuel Quality Assurance Program..... **N/A**

Savings Summary

Lubricant Consumption & Process Improvements	\$264,218
Parts Repair & Replacement	N/A
Lubricant Related Downtime	\$71,209
Waste & Pollution Prevention...	\$4,176

Total Savings **\$339,603**





Value Recognition Report

Heavy Construction, Portland & S.W. Washington

Annual Savings - Waste & Pollution Prevention

- Extending motor oil change intervals over 70% generated 2,725 gallons less used motor waste.
- Extending motor oil change intervals and improving fuel quality generated about 50% less used fuel and motor oil filters.
- Extending radiator fluid 50% using Cool Plus\$3,772
- Reduced Radiator Fluid Waste Disposal by 50%\$ 404
- Using Diesel-Mate fuel improver to keep fuel injectors clean and increase Cetane Number -- this reduced black smoke and engine emissions by an average of:
 - 34% Black Smoke reduction
 - 27% Particulates reduction
 - 16.7% HC reduction
 - 1.7% NOx reduction
 - 19.8% CO reduction

Value Added Contributions

- Fuel Improver Proportioning Pump and Trilogy Filter Equipment\$4,300
- 1200 Oil Analysis Tests & 24 Fuel Laboratory Tests\$21,600
- 3 On-Site Lubrication Training Seminars \$1,500
- Oil Analysis Results Prevented 4 Major Equipment Repairs..... \$38,000

Additional Value

- Oil & Fuel Analysis ...\$21,600
- Equipment\$4,300
- Training Seminars\$1,500
- Preventative Maint....\$38,000
- Total Value** **\$65,400**

Total Savings Over 5 Year Relationship \$339,603





Value Recognition Report

Heavy Construction, Portland & S.W. Washington

Cost Reduction Calculations:

Annual Lubricant Consumption Reduction & Process Improvement:

-Grease: Savings of \$3856.

Replaced Texaco Starplex Moly to Premalube and experienced a reduction in grease consumption of about 40%. Equipment Fleet Growth accounted for each year.

Estimated savings of \$320 in 2001 (2800Lbs x \$2.00Lb - 2000Lbs X \$2.64Lb)

Estimated savings of \$320 in 2002 (2800Lbs x \$2.00Lb - 2000Lbs X \$2.64Lb)

Estimated savings of \$384 in 2003 (3360Lbs x \$2.00Lb - 2400Lbs X \$2.64Lb)

Estimated savings of \$480 in 2004 (4480Lbs x \$2.05Lb - 3200Lbs X \$2.72Lb)

Estimated savings of \$932 in 2005 (6216Lbs x \$2.15Lb - 4440Lbs X \$2.80Lb)

Estimated savings of \$1420 in 2006 (8288Lbs x \$2.40Lb - 5920Lbs X \$3.12Lb)

-Reduced Contract Maintenance Service: Savings of \$141,677.

The Companies Equipment Manager evaluated their planned maintenance agreement with their heavy equipment dealership and developed a cost savings plan to perform routine maintenance

in-house. The CFO approved the plan and on average, they were able to reduce their annual 1000 & 2000 hour routine service cost per piece of heavy equipment by over 70% (see chart below).

The result is annual savings of \$141,677 (\$195,163 - \$53,486 for a fleet of 73 pieces of heavy equipment. For example, the annual cost to have the heavy equipment dealership provide routine maintenance service on a fleet of 13 Backhoes was \$29,016 and the cost now is \$4836.

Equipment Type	# of Units	Previous Service Cost Per Unit / Per Yr.	Current Service Cost Per Unit / Per Yr.
Backhoes	13	\$2232	\$372
Loaders	8	\$2721	\$670
Excavators	23	\$3083	\$930
Mini Excavators	5	\$2400	\$300
Dozers	15	\$2818	\$800
Scrapers/Motor Graders	3	\$3200	\$1200
Rollers	6	\$1600	\$800



Value Recognition Report

Heavy Construction, Portland & S.W. Washington

Cost Reduction Calculations:

Annual Lubricant Consumption Reduction & Process Improvement:

-Motor Oil: Estimated Savings of \$33,659.58

In an effort to improve engine performance and extend oil change intervals, they began replacing Chevron Delo 400 motor oil @ \$7.00 Gal. with Strata Xtreme Synthetic Blend motor oil @ \$16.05 Gal. 56 Trilogy™ 1 micron Off-line filters were also installed to maximize oil performance and drain intervals. All results are monitored with an independent oil analysis lab.

69 Pieces of Off-Road Equipment –

Their 69 pieces of off-road equipment operate an average of 1700 hours per year each. Motor oil was changed every 250 hours and required an average of 10 gallons oil @ \$7.00 per gallon, \$30 of filters, and 1 hour of labor @ \$30 for a total cost of \$130. This equates to an average annual cost of \$884 per year per piece of equipment (6.8 changes per year x \$130).

Total annual cost for fleet was \$60,996.

After installing Strata Xtreme Synthetic Blend motor oil and Trilogy Off-line filters the average oil change is now 750 hours at a cost of \$220.50 per change, 2.3 changes per year. (\$16.05 x 10 gallons, \$30 filters, \$30 labor). This equate to \$507.15 per year per vehicle.

Total annual cost for fleet is now \$34,993.35.

Annual Savings for Off-Road Fleet = \$26,002.65

12 Semi/Tractor Trucks –

Their fleet of 15 on-road trucks travel an average of 45,000 miles per year. Motor oil was changed every 7,500 miles and required an average of 11 gallons oil @ \$7.00 per gallon, \$30 of filters, and \$30 labor. This equates to an average cost of \$1,178.20 per year per vehicle. (8.6 changes per year X \$137)

Total annual cost for 12 on-road trucks was \$14,138.40

7 Mack Trucks with CH613 Engines: After installing Strata Xtreme Synthetic Blend motor oil and Trilogy Off-line filters the oil change intervals has been extended from 7,500 miles to an average of 37,000 miles at a cost of \$236.55 per change (\$16.05 X 11 gallons, \$30 filters, \$30 labor). This equates to an average cost of \$283.55 per year per vehicle. (1.2 changes per year X \$236.55).
Total annual cost for these 7 Mack CH613 Trucks is now \$1,987.02

5 Mack Trucks with CV713 (EGR) Engines: After installing Strata Xtreme Synthetic Blend motor oil and Trilogy Off-line filters the oil change intervals has been extended from 7,500 miles to an average of 12,000 miles at a cost of \$236.55 per change (\$16.05 X 11 gallons, \$30 filters, \$30 labor). This equates to an average cost of \$898.89 per year per vehicle. (3.8 changes per year X \$236.55)
Total annual cost for these 5 Mack CV713 Trucks is now \$4,494.45

3 Miscellaneous Trucks: Motor oil and change intervals have not been adjusted on this fleet.

Annual Savings for On-road Truck Fleet = \$7,656.93



Value Recognition Report

Heavy Construction, Portland & S.W. Washington

Cost Reduction Calculations:

-Transmission/Hydraulic Fluid: Savings To Be Determined

Began replacing commodity transmission/hydraulic oil @ \$7.50 gallon with Oil All Universal Hydraulic Fluid @ \$14.56 gallon in 2005 and began installing Trilogy Off-Line Filters to reduce wear caused by excessive contamination and to reduce oil consumption. The goal is to extend the average change interval on this oil from every 2,000 hours to 6,000 to 8,000 hours.

They were using independent oil analysis to determine the best change intervals beyond 2000 hours.

-Fuel Consumption: Savings \$99,025

The customer was having severe problems with Microbial Growth in their fuel that was clogging filters and fuel lines and resulted in lengthy equipment downtime. They began using the LubeMaster Fuel Quality Assurance Program and eliminated fuel related equipment shutdowns and excessive fuel filter replacements. In addition, they increased their fuel economy by an average 5%. The Fuel Quality Assurance Program sterilizes fuel storage systems by killing bacteria and fungus, improves diesel fuel performance with Diesel-Mate, and provides quarterly fuel lab analysis to monitor results.

2004 savings of \$16,750 (\$31,250 - \$14,500)

(Increased Fuel Economy 5% X 500,000 Gallons Used X \$1.25 Fuel Price – Cost of Fuel Program)

2005 savings of \$32,175 (\$48,125 - \$15,950)

(Increased Fuel Economy 5% X 550,000 Gallons Used X \$1.75 Fuel Price – Cost of Fuel Program)

2006 savings of \$50,100 (\$67,500 - \$17,400)

(Increased Fuel Economy 5% X 600,000 Gallons Used X \$2.25 Fuel Price – Cost of Fuel Program)

Annual Parts Repair and Replacement Cost Reduction: Savings Not Available

-Reduced Bearing Replacement Costs with Premalube Grease = Savings Not Available

Since using Premalube there have been no grease related bearing or pin failures.

-Reduced Engine Repairs = Savings To Be Determined

Too early to identify lower repair costs since adding Trilogy Filters & using Strata Extreme motor oil.

-Reduced Universal Hydraulic System Repairs = Savings To Be Determined

Too early to identify lower repair costs since adding Trilogy Filters & using Oil.

-Reduced Fuel System Repairs & Replacements= Savings Not Available

Eliminated microbial growth in the fuel which reduced the cost of fuel filter replacements and substantial downtime.



Value Recognition Report

Heavy Construction, Portland & S.W. Washington

Cost Reduction Calculations

Annual Lubricant Related Downtime Reduction

-Greased Bearings, Pins & Labor Savings- \$71,209

After switching to Premalube, the excavator & loader Operators were safely able to reduce grease intervals from 2 times per day to 1 time per day or every other day. They have experienced no grease related equipment downtime since beginning use of Premalube in 2000. Estimated costs based on 15% of the fleet working in severe conditions daily. Average piece of equipment takes 10 mins less or 2 times the amount to grease when using Premalube.

Before $2 \text{ (amount)} \times 10\text{mins} \times 70 \text{ vehicles} = 1400\text{mins}$. Now $1\text{(amount)} \times 10\text{mins} \times 70 \text{ vehicles} = 700\text{mins}/60\text{mins} = 11.66 \text{ hrs.} \times 260 \text{ work-days} = 3033.33 \text{ hrs} \times \$30.00 = \$90,999.90$ labor saved $\times 15\%$ of fleet = \$13,649 for 2006. 10% growth per year, 2005 = \$12,285, 2004 = \$11,056, 2003 = \$9,950, 2002 = \$8,955, 2001 = \$8,060, 2000 = \$7,254.

-Motor Oil - Eliminated About 403 Hours Spent Changing Oil

Extended motor oil change intervals from an average of 6.8 changes per year to an average of 2 changes per year. At 1 hour per oil change this reduced 4.8 hours of maintenance labor/downtime per piece of equipment = 403 Hours. Savings not available

-Fuel Related Downtime - Not Available

They experienced tremendous downtime caused by fuel infected with microbial growth. Since using Certified's Fuel Quality Assurance Program the customer has not experienced any fuel related downtime. Savings not available.

Annual Waste & Pollution Prevention:

-Motor Oil – Waste Oil Reduced By 2,725 Gallons.

Annual motor oil use reduced from 3714 gallons to 990 gallons since installing Strata Xtreme Synthetic Blend motor oil. Waste oil reduced by 73% or 2,725 gallons.

-Extended Radiator Fluid Life By 2 years Saving \$3,772

Equipment Mgr. extended fleet radiator life from one to two years with Cool Plus Radiator Additive. Annual radiator fluid on 92 vehicles with avg. sump capacity of 8 gals = 736gal $\times \$4.75\text{gal} = \$3,496 - \$1,104\text{(Cool Plus)} + \$1,380 \text{ (labor per year)} = \$3,772$.

-Reduced Radiator Fluid By 736 gallons every 2 years \$404.80

Waste Disposal Cost is $\$0.55 \text{ per gallon} \times 736 \text{ gallons} = \404.80



Value Recognition Report

Heavy Construction, Portland & S.W. Washington

Cost Reduction Calculations

-Diesel Fuel -

- By treating their diesel fuel with Diesel-Mate the customer used approximately 30,000 gallons less diesel fuel than they would have.

- Independent engine tests document that using Diesel-Mate reduces the following emissions

and black smoke by the following average amounts:

34% Reduction in Black Smoke

27% Reduction in Particulates

16.7% Reduction in HC

1.7% Reduction in NOx

19.8% Reduction in CO

-Filters -

- By treating their diesel fuel with Diesel-Mate and extending their motor oil change intervals by over 70%, they generated about 50% fewer fuel and motor oil filters.



Value Recognition Report

Heavy Construction, Portland & S.W. Washington

Cost Reduction Calculations

Value Added Contributions - \$77,000

- Provided Dosmatic Fuel Treatment Proportioning Equipment at no charge **\$1,900 Value**
- Managed the Ordering and Installation of Fuel Treatment Tank and Pump. **Value Undetermined**
- Provided Two Trilogy Filter Systems for Testing at no charge **\$1,200 Value**
- Provided Special Pressure Reducing Fittings for Trilogy Filters at no charge **\$1,200 Value**
- Provided 1200 x \$15 Ea. Oil Analysis Tests at no charge **\$18,000 Value**
- Provided 24 X \$150 Ea. Fuel Lab Tests at no charge **\$3,600 Value**
- Provided 3 Lubricant Training Seminars for Nutter Employees at no charge **\$1,500 Value**
- 60 Monthly Certified Representative Visits Over 5 Years. **Value Undetermined.**
- Oil Analysis Helped Prevent Costly Repairs:
 - Oil analysis indicated high sodium level in Loader engine oil. Head gasket was replaced and prevented a \$10,000 engine re-build. **\$16,000 Value**
 - Oil Analysis indicated severe level of silicone (dirt) in D-25 Haul Wagon Engine. Prevented a \$15,000 repair. **\$15,000 Value**
 - Oil Analysis indicated severe level of silicone (dirt) in Mini-Excavator Engine. Prevented a \$7,000 repair. **\$7,000 Value**
- Fuel Quality Assurance program reduced black and white smoke emissions by over 20%. **Value Undetermined**
- Single Source for All Lubricant Products and Service. **Value Undetermined**
- Helped establish extensive oil analysis program to establish best oil change intervals and prevent costly downtime with preventative maintenance. **Value Undetermined**
- Helped establish a lubrication program that is projected to extend the useful life of equipment from 7500 Hours in 2000 to 10,000 to 12,000 Hours today. **Value Undetermined**
- Helped establish equipment oil analysis program service documentation that is expected to increase the resale value of used equipment by 20% to 50%. **Value Undetermined**
- Helped reduce equipment downtime which prevented the cost for Replacement Rental Equipment. **Value Undetermined**



Value Recognition Report

Heavy Construction, Portland & S.W. Washington

Major Accomplishments:

Safely Extended Engine Oil Change Intervals

Installed Trilogy Filters, Provided Strata Xtreme Motor Oil and Established a Comprehensive Oil Analysis Program to Extend Change Intervals. Off-Road Equipment Change Intervals Have Safely Been Extended From 500 Hours to 2000 Hours. On-Road Equipment Change Intervals Have Safely Been Extended From 7,500 Miles to 36,000 Miles.





Value Recognition Report

Heavy Construction, Portland & S.W. Washington

Major Accomplishments:

Safely Extended Hydraulic/Transmission Oil Change Intervals

Installed Trilogy Filters, Oil All Hydraulic/Transmission Oil and Established a Comprehensive Oil Analysis Program to Monitor Oil Condition and Safely Extend Change Intervals. The customer is Still In the Process of Setting New Change Intervals.





2000 - 2006 Value Recognition Report Construction Co. Portland & S.W. Washington

Major Accomplishments:

Performing All Routine Maintenance In-House

Customer Contracted Out Most of Their Routine Equipment Maintenance to the Local John Deere Dealer. Equipment Mgr Purchased 2 Lubrication Service Trucks and Established Their Own Preventative Maintenance Program and Have Realized Substantial Savings.





Value Recognition Report

Heavy Construction, Portland & S.W. Washington

Major Accomplishments:

Installed Fuel Quality Assurance Program

Customer Experienced Severe Fuel Related Downtime. To Prevent Future Problems, they Began Using LubeMaster's 3-Step Diesel Fuel Maintenance Program Designed to Provide High Quality Fuel with Every Load. They Installed an Automated System to Consistently Improve Their Fuel and Prevent Unnecessary Downtime.





Value Recognition Report

Heavy Construction, Portland & S.W. Washington

Goals:

- **Continue lubricant education for employees.**
- **Install remaining engine and hydraulic filter systems.**
- **Continue improving oil analysis database and sampling procedures.**
- **Maintain 750hr baseline engine oil change interval on all heavy equipment.**
- **Establish engine oil change interval for CV713 EGR Truck Engines.**
- **Monitor hydraulic oil performance and continue extending lubricant life.**
- **Assist and support B20 Bio-Diesel Program with our Fuel Quality Assurance Program and quarterly diesel fuel sampling.**
- **Maintain, improve, and support maintenance/ lubrication program in all ways possible.**