DELTA LUBRICANTS

Product Data Sheets

DELTA®
LUBRICANTS

DELTA LUBRICANTS®

DELTA VERTEX SAE 15W-40 API CI-4

Description:

Delta Vertex is a high-quality, long-drain lubricating oil, primarily manufactured from high quality base oils. It is specially developed for use in all types of high-output, normally aspirated and turbo-charged diesel engines with Exhaust Gas Recirculation (EGR), which are operating under very severe duty, or are subject to deposit formation or excessive wear due to design characteristics or the fuel employed.

Application:

Delta Vertex is recommended for the lubrication of naturally aspirated, turbo charged and EGR engines in trailer trucks, dump trucks, urban and highway passenger buses and diesel engines in industrial and construction equipment. Recommended for Recommended for modern heavy duty engines, wide range of turbo-charged and naturally aspirated diesel engines as well as all kinds of gasoline engines. All types of generators, trucks, construction machinery, passenger cars or mixed fleet comprising diesel and gasoline powered cars.

Performance Level:

- API CI-4/CH-4/CG-4/CF-4/SL
- ACEA E7/B4/A3
- MB-Approval 228.3
- MAN 3275
- Volvo VDS-3
- Mack EO-M Plus
- Cummins 20071/73/76/77/78
- MTU Category 2
- CAT ECF-2, ECF-1a
- Renault Truck RLD-2/RLD

Features & Benefits:

- High thermal and oxidation stability
- Reduced sludge build-up, deposits and viscosity increase
- Stay-in-grade shear stability
- Excellent low temperature properties
- Wear protection and viscosity control
- Improved viscosity control and oil pumpability

Typical Properties & Characteristics

Test Properties	Test Method	Test Results
Appearance	Visual	Clear & Bright
Color	Visual	3.5
Kinematic Viscosity @100°C, cSt	ASTM D 445	15.56
Viscosity Index	ASTM D 2270	135
Pour Point, °C	ASTM D 97	-24
Flash Point, COC, °C	ASTM D 92	240
TBN, mg KOH/g	ASTM D 2896 B	11.6

The above data is indicative of recent averages value only. Minor variations that do not affect product performance or quality may be expected in manufacture.

Product of
Delta Fuel & Lubricants Nigeria Limited.
Plot C36A Obikings Road, Amuwo Odofin Industrial Estate, Lagos.Nigeria
.Email: delta.nigeria@wearedelta.com, Website: www.wearedelta.com

CERTIFIED ISO 9001-2015 COMPANY

DELTA LUBRICANTS®

DELTA PARAMOUNT SAE 15W-40 CF-4

Description:
Delta Paramount is a multigrade oil suitable for the lubrication of many types of diesel engines, naturally aspirated and supercharged models, cars, trucks, buses, earthmoving and heavy equipment, stationary engines, etc. It may also be used in older gasoline engines.

Application:
Delta Paramount oil recommended for high performance engines of Turbo charged & naturally aspirated, Diesel Gen-Sets, Engines operating under heavy load for construction machinery, farm equipment's and tractors.

Performance Level:
- API CF-4/SG
- ACEA E2-96
- MB-Approval 228.1
- MAN 271
- Volvo VDS
- Mack EO-M Plus

Features & Benefits:
- Fuel saving and reduces maintenance expenses for machines and engines.
- Very long oil changing period.
- Resists oil thickening and the formation of carbon, varnish and sludge deposits.
- Good viscosity control.
- Prolonged engine life.
- Safeguards the moving parts.
- Keeps engine Clean.

Typical Properties & Characteristics

Test Properties	Test Method	Test Results
Appearance	Visual	Clear & Bright
Color	Visual	3.5
Kinematic Viscosity @100°C, cSt	ASTM D 445	14.56
Viscosity Index	ASTM D 2270	126
Pour Point, °C	ASTM D 97	-18
Flash Point, COC, °C	ASTM D 92	232
TBN, mg KOH/g	ASTM D 2896 B	7.6

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DELTA LUBRICANTS®

DELTA PRIME HD MONO GRADE

Description:
Delta Prime HD SAE 40 is high quality mono grade engine oil formulated with highly refined base stock and an additive package, designed to protect diesel engines against wear, particularly those engines using higher sulfur diesels. It contains inhibitors, dispersant-detergents and anti-wear additives that protect engines against corrosion, rust, and oxidation.

Application:
Delta Prime HD 40 recommended for use in off-highway diesel equipment, farm machinery, marine engines, and mixed commercial fleets, as well as in passenger cars and light trucks with either diesel or gasoline engines, where mono grade engine oils are specified. Also, may be used in some heavy-duty manual transmissions in trucks and buses.

Performance Level:

- API CF/SF
- ACEA E2-96/A3/B3
- MB 228.2
- MIL-L-2104E
- CAT TO-2
- MAN 270
- MTU TYPE 1
- ALLISON C4

Features & Benefits:

- Provides high thermal stability and oil oxidation resistance
- High control over wear, rust and corrosion to ensure long life of engine parts
- Provide a high standard of piston cleanliness
- Improved fuel economy and filter ability.
- Longer maintenance intervals and oil change period
- Excellent fluidity at low temperatures ensures good starting
- Properly balanced detergency and dispercancy ensures a clean engine.

Typical Properties & Characteristics

Test Properties	Test Method	Test Results
Appearance	Visual	Clear & Bright
Color	Visual	2.5
Kinematic Viscosity @100°C, cSt	ASTM D 445	14.62
Viscosity Index	ASTM D 2270	100
Pour Point, °C	ASTM D 97	-12
Flash Point, COC, °C	ASTM D 92	230
TBN, mg KOH/g	ASTM D 2896 B	6.84

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DELTA LUBRICANTS®

DELTA ULTRA PREMIUM SAE 20W-50 API SL

Description:
Delta Ultra Premium SAE 20W-50 a premium high performance engine oil especially formulated for new generation four stroke engines. It is fortified with high level of detergent & dispersant additives and Viscosity Modifier which provides maximum protection for the engines.

Application:
Delta Ultra Premium multi-grade oil for Gasoline engines that exceeds the latest standards required in all modern engines, It is s suitable for lubrication of four-stroke engines, cars/SUV engines under moderate to severe operating conditions.

Performance Level: API SL/CF

Features & Benefits:

- High viscosity index
- Excellent viscosity stability
- Excellent detergency and dispersancy
- Very high anti-wear and anti-corrosion properties
- Very good antioxidant, anti rust, anti foaming properties.

Typical Properties & Characteristics

Test Properties	Test Method	Test Results
	Visual	Clear & Bright
Color	Visual	2.5
Kinematic Viscosity @100 °C	ASTM D 445	18.84
Viscosity Index	ASTM D 2270	130
Pour Point, °C	ASTM D 97	-21
Flash Point, COC, °C	ASTM D 92	240
TBN, mg KOH/g	ASTM D 2896 B	7.71

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DELTA LUBRICANTS®

DELTA ULTRA GOLD SAE 20W-50 API SL JASO MA-2

Description:
Delta Ultra Gold is high performance mineral based 4-stroke motorcycle engine oil specially developed for new generation motorcycles. It is formulated with premium quality base stocks and cutting-edge technology of high-performance additive system which provides excellent performance and optimum power output.

Application:
Delta Ultra Gold 4T oil is recommended for 4all 4-Stroke motorcycles including cruisers and off-road motorcycles.. Best for Bajaj, TVS motorcycles.

Performance Level:
- API SL
- JASO MA-2

Features & Benefits:
- Excellent shear stability
- Provides high temperature protection
- Outstanding wet clutch protection for maximum power transfer and smooth shifting
- Excellent wear and corrosion protection
- Maximizes power and acceleration
- Added protection against harmful deposits

Typical Properties & Characteristics

Test Properties	Test Method	Test Results
Appearance	Visual	Clear & Bright
Color	Visual	3.5
Kinematic Viscosity @100 °C	ASTM D 445	17.91
Viscosity Index	ASTM D 2270	130
Pour Point, °C	ASTM D 97	-21
Flash Point, COC, °C	ASTM D 92	234
TBN, mg KOH/g	ASTM D 2896 B	6.6

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DELTA LUBRICANTS®

DELTA PEARL SYNTHETIC OIL SAE 5W-30 API SN

Description:
Delta Pearl is premium quality fully synthetic car engine oil designed for new generation cars fitted with naturally aspirated, turbo-charged and super-charged engines. Its advanced synthetic formula reduces the friction, maximizes the engine performance, and provides excellent thermal stability, low temperature oil flow and enhanced fuel economy.

Application:
Delta Pearl Synthetic engine oil designed for gasoline and diesel engines found in the latest passenger cars and light vans. Recommended latest new generation cars manufactured by all leading OEMs of Honda, Suzuki, GM, Ford, Toyota, Nissan, Renault, Hyundai etc.

Performance Level:
- API SN/CF
- ACEA A3/B3/B4
- ACEA A5/B5 (HTHS <3.5)
- Porsche A40
- MB 226.5/229.3/229.5
- Renault RN0700/RN0710

Features & Benefits:
- Quick cold weather starting and fast protection helps extend engine life
- Outstanding thermal and oxidation stability
- Used for all high performance gasoline engine cars equipped with direct-injection, multi-vave, and turbo-charged technologies
- Helps to improve fuel economy
- High quality detergents and dispersants keep engine parts clean.

Typical Properties & Characteristics

Test Properties	Test Method	Test Results
	Visual	Clear & Bright
Color	Visual	2.5
Kinematic Viscosity @100 °C	ASTM D 445	11.6
Viscosity Index	ASTM D 2270	166
Pour Point, °C	ASTM D 97	-42
Flash Point, COC, °C	ASTM D 92	234
TBN, mg KOH/g	ASTM D 2896 B	9.89

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DELTA LUBRICANTS®

DELTA AUTOMATIC TRANSMISSION FLUIDS

Description:

Delta Automatic Transmission Fluids are blended from highly refined mineral base oils and a high-performance additive package to meet the stringent performance requirements. This fluid imparts anti-wear, anti-oxidation, dispersancy, de-foaming and desired friction characteristics. The fluid is compatible with seal materials used in transmission systems.

Applications:

Delta Automatic Transmission Fluids recommended for automatic transmission and power steering units of automobiles and light trucks. They are recommended for use in power shift transmission, torque converters, fluid drives, hydraulic systems, brake boosters, transfer boxes, hydrostatic drives, and synchromesh gear boxes.

Performance Levels:

- Type A Suffix A, Dexron IID, Dexron III of General Motors.
- (Mercon V) of Ford Motors.
- Allison C-3 & C-4 Transmission Fluid.

Features & Benefits:

- Very high viscosity index linked with an excellent viscosity stability in operation
- Very low pour point
- Very good thermal stability
- Excellent resistance to oxidation
- Friction properties specific to the requirements of GENERAL MOTORS Hydramatic

Typical Properties & Characteristics

Parameters	Unit	Test Method	GRADE		
			Type A Suffix A	DEX II D	DEX III
Kinematic Viscosity @ 100 ^{0}C	mm^2/s	ASTM D445	7.6	7.18	6.99
Kinematic Viscosity @ 40 ^{0}C	mm^2/s	ASTM D445	38.9	37.0	31.8
Viscosity Index	-	ASTM D2270	150	160	170
Flash Point, Min	°C	ASTM D92	180	180	180
Pour Point (max)	°C	ASTM D97	-39	-39	-42
Color		Visual	Red	Red	Red

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DELTA AUTOMOTIVE GEAR OILS

Description:

Delta automotive gear oils are high quality extreme pressure type multigrade gear lubricant specially designed for heavy commercial vehicles and other automotive equipment's operated under high-speed high-shock load, high-speed low-torque, and low-speed high-torque conditions. Delta automotive gear oils are high performance gear oil designed to provide effective lubrication in wide range of automotive and transmissions and axle drives. The advance formula with hi quality extreme pressure additive technology provides all-rounder protection of gears, its components against wear and scoring.

Applications:

Delta automotive gear oils recommended for Limited-slip differentials, axles and final drives requiring API GL-4 & API GL-5 level performance on passenger cars, on highway light and heavy duty trucks, buses and vans. Other industrial and automotive applications involving hypoid and other gears operating under conditions where high speed/shock load, high speed/low torque and/or low speed/high torque conditions prevail.

Performance Levels & Grades

API GL4 & API GL5, SAE 80W-90 & 85W-140, SAE 90 & SAE 140.

Features and Benefits

- Formulated for higher speeds, higher torque and heavier loads.
- Increased protection and resistance to high temperatures means reduced maintenance costs and longer equipment life.
- Excellent viscosity/temperature properties
- Minimizes wear
- Does not attack common sealing materials
- Reduces running noise
- High pressure-absorption capability
- Excellent resistance to aging.

Typical Properties & Characteristics

PARAMETERS	TEST METHOD	UNIT	GREADES			
			SUPER GEAR 90	SUPER GEAR 140	GEAR PLUS 85W90	GEAR PLUS 85W140
Kinematic Viscosity @ 40°C	ASTM D-7042	cSt	195	410	198	278
Kinematic Viscosity @ 100°C	ASTM D-7042	cSt	17.5	28.9	17.5	28.0
Viscosity Index (min)	ASTM D-2270	-	97	98	95	134
SP. Gravity @15°C	ASTM D-4052	g/cm3	0.896	0.898	0.895	0.895
Flash Point (min)	ASTM D-92	°C	230	250	230	220
Pour Point (max)	ASTM D-97	°C	-12	-12	-18	-18
Brookfield Viscosity @ -12 °C	ASTM D-5293	mPa.s	-	-	<150,000	<150,000

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DELTA LUBRICANTS

DELTA Hi-TRANS HD TRANSMISSION FLUIDS

Description:

Delta Hi-Trans HD SAE 30, SAE 50, SAE 10W are special oils for hydrodynamic gears, hydraulic reducers, regulator fittings and torque converters of heavy mining, construction and other machines which request oil that meets Allison C-4 and Caterpillar TO-4 specifications.

Applications:

Delta Hi-Trans HD series oil can be used in Heavy duty transmissions, gear boxes, final drives, and hydraulic systems used in off-highway applications. Off-highway industries including mining, construction, quarrying, and agriculture. Manual, power-shift, and automatic transmissions where Allison C-4 fluids recommended.

Performance Levels:

- ALLISON: C4 (SAE 10W & SAE 30)
- CATERPILLAR: TO-4
- KOMATSU: MICRO-CLUTCH
- ZF: TE-ML 03C (SAE 10W & SAE 30) ,ZF: TML-ML 07F (SAE 30)

Features & Benefits:

- Excellent gear wear protection
- Extends component life
- Excellent thermal stability
- Compatible with crankcase oils
- Excellent frictional characteristics
- Outstanding cleanliness
- Excellent protection against rust and corrosion.

Typical Properties & Characteristics

Parameters	Unit	Test Method	GRADE		
			SAE 10W	SAE 30	SAE 50
Kinematic Viscosity @ 100 ^{0}C	mm^2/s	ASTM D445	6.15	11.2	18.4
Kinematic Viscosity @ 40 ^{0}C	mm^2/s	ASTM D445	38.1	93.40	208.0
Viscosity Index	-	ASTM D2270	107	106	100
Flash Point, Min	°C	ASTM D92	107	230	230
Pour Point (max)	°C	ASTM D97	-24	-21	-21
Color		Visual	4.0	4.0	4.0

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DELTA LUBRICANTS

DELTA HYPER AW SERIES

Description:

Delta Hyper AW Series Hydraulic Oils are high performance Anti-Wear hydraulic oil blended from highly refined hydro treated high viscosity index base oils fortified with Anti-Wear, Anti-Rust, Anti-Oxidant, Anti-corrosion and anti-foam additives to provide excellent protection against wear, rust & corrosion and oxidation.

Applications:

Delta Hyper AW Series Hydraulic Oils can be used in hydraulic systems operating under moderate to severe conditions. Recommended for use in hydraulic systems where high temperature, pressure and pump speed are encountered. Suitable for hydraulic systems, enclosed gear boxes, chain drives, vacuum pumps, machine tools etc.

Performance Levels:

- DIN 51524 Part II HLP
- IS 10522-1983 (Reaffirmed 1993) (Vis grades of 32 to 150)
- US Steel 126 & 127 (ISO 32, 46, 68)
- ISO 6743: 1999 Part 4
- ISO 1158:2009

Benefits:

- High protection against wear.
- Very good hydrolytic stability and water separation capability.
- Excellent protection against rust and corrosion.
- High oxidation stability provides extended oil service life.
- Good anti-foam and air-release properties to ensure smooth operation and improve system efficiency.

Typical Properties & Characteristics

Parameters	Unit	Test Method	ISO GRADES					
			32	46	68	100	150	220
Specific Gravity @ 15^{0}C	g/mL	ASTM D4052	0.872	0.872	0.878	0.883	0.895	0.896
Kinematic Viscosity @ 40^{0}C	mm^2/s	ASTM D445	31.0	44.0	67	99.1	149.8	220
Color	-	ASTM D1500	1.0	L 1.5	L 2.0	2.0	2.0	2.0
Viscosity Index	-	ASTM D2270	103	101	100	98	97	97
Flash Point	°C	ASTM D92	214	220	228	238	240	248
Pour Point	°C	ASTM D97	-15	-15	-12	-12	-9	-9
FZG Fail Load Stage			12	12	12	12	12	12

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DELTA LUBRICANTS®

DELTA HYPER HLP SERIES

Description:

Delta Hyper HLP Series are high performance Hydraulic Oils for modern Hydraulic High Pressure Pumps and Hydraulic systems. Delta Hyper HLP Oils are blended from highly refined hydro treated high viscosity index base oils fortified with latest additive technology to provide complete protection on wear, corrosion, rust, oxidation and foaming.

Applications:

Delta Hyper HLP Series Hydraulic Oils can be used in to meet or exceed the performance requirements of all hydraulic equipment manufacturers and Industry Organization Specifications. These oils are recommended for sophisticated high performance hydraulic systems where high temperature and pressure are encountered.

Performance Levels:

- DIN 51524 Part II & Part. I
- Parker (formerly Denison) HF-0, HF-1, HF-2 (HM/HL)
- SAE MS 1004 Type H Hydraulic Oil Specifications (HM Anti-wear)
- AGMA 9005-E02 Anti-wear
- Eaton Vickers M-2950-S & I-286-S3
- Meets Bosch Rexroth RD/E 90235
- ISO 11158 (HM & HL)
- IS 10522:1983 (Reaffirmed 2004)

Benefits:

- Excellent Oxidation & Thermal Stability
- Improved filterability and consequently less downtime.
- Complete protection of critical components
- Outstanding wear protection for maximum equipment life.
- Very good energy saving potential and extended oil drain interval and filter life.
- Good sludge & particulate control.
- Long Oil and filter life ensuring unsurpassed equipment protection.

Typical Properties & Characteristics

Parameters	Unit	Test Method	HLP GRADES				
			HLP 32	HLP 46	HLP 68	HLP 100	HLP 150
Specific Gravity @ 15^{0}C	g/mL	ASTM D4052	0.862	0.867	0.878	0.883	0.895
Kinematic Viscosity @ 40^{0}C	mm^2/s	ASTM D445	31.80	45.60	68.7	99.11	152.8
Color	-	ASTM D1500	1.0	L 1.5	L 2.0	2.0	2.0
Viscosity Index	-	ASTM D2270	103	101	100	95	95
Flash Point	°C	ASTM D92	214	220	228	238	240
Pour Point	°C	ASTM D97	-15	-15	-12	-12	-9
Demulsibility Test		ASTM D130	PASS	PASS	PASS	PASS	PASS

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DELTA LUBRICANTS®

DELTA HYPER HVI SERIES

Description:

Delta Hyper HVI Series Oils are high performance High Viscosity Index, Ashless and Fuel-Efficient Hydraulic Oils for modern Hydraulic systems. Delta hyper HVI oils are blended from highly refined hydro treated high viscosity index base oils along with Premium Ashless Hydraulic Technology with the environment in mind. It provides excellent protection to hydraulic systems against wear, corrosion, rust, oxidation, and foaming.

Applications:

These oils are recommended to high pressure systems and power transmission systems requiring very high viscosity index oil, operating under high speeds, load and temperature These Oils are also recommended for mobile and static hydraulic applications of industrial and other equipment. Hydraulic cranes and lifts, loaders, reach trucks, forklifts, excavators, dumpers, loading ramps, and tailboards. Sometimes recommended for: hydraulic systems of metalworking machines, or circulation systems of industrial machinery.

Performance Levels:

- DIN 51524 Part III, II & I
- Parker (formerly Denison) HF-0, HF-1, HF-2 (HV/HM)
- SAE MS 1004 Type H Hydraulic Oil Specifications (HV Anti-wear & Viscosity Improver)
- AGMA 9005-E02 Anti-wear
- ISO 11158 (HV & HM)
- Cincinnati MAG P-68 (VG 32), 69 (VG 68) & P-70 (VG 46)
- GM LS-2
- Bosch Rexroth RE 90220
- Eaton Vickers 35VQ25

Benefits:

- Excellent demulsibility
- Very good corrosion protection to steel
- Good corrosion protection to copper
- High ageing stability / high oxidation stability
- Good AW wear protection
- Very good hydrolytic stability
- Excellent filtration behaviour (dry, wet)
- Low foaming
- Excellent air release

Typical Properties & Characteristics

PARAMETERS	TEST METHOD	UNIT	HVI GRADES			
Grade			32	46	68	100
Kinematic Viscosity @ 40°C	ASTM D-445	cSt	32	46	68	100
Kinematic Viscosity @ 100°C	ASTM D-445	cSt	6.0	7.9	10.6	14
Viscosity Index (min)	ASTM D-2270	-	135	135	140	140
SP. Gravity @15°C	ASTM D-4052	g/cm3	0.860	0.865	0.870	0.880
Flash Point (min)	ASTM D-92	°C	200	200	200	200
Pour Point (max)	ASTM D-97	°C	-18	-18	-18	-18

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DELTA LUBRICANTS®

DELTA Hi-LUBE OIL -GENERAL PURPOSE LUBRICATING OIL

Description:

Delta Hi-lube oils are specially formulated oil blends designed for use as general purpose machinery oils. These oils are ideal for the lubrication of all types of industrial machines general oiling/lubricating process. Delta Hi-Lube Oils are general purpose lubricants for once through' application situation in textile mills, paper mills and machine tools. They are used in steel mills.

Application:

Delta Hi-Lube oil recommended for the lubrication of machine tools, textile machinery and lightly loaded moving components of industrial machines. Its higher viscosity grades are recommended for lubrication of small open gears operating under light duty conditions with intermittent lubrication. It is recommended for hand oiling application involving lubrication of bearings, open gears, lightly loaded slides, and guide ways of machine tools. Appropriate viscosities are widely used in textile mills for lubrication of looms and other equipment's. It has excellent flushing characteristics. It has good lubricity properties to take care of a specific lubrication requirement.

Performance benefits:

- Excellent oil film strength
- Very good oiliness
- Very good of once through' application and boundary lubrication

Typical Properties & Characteristics

Parameters	Grades						
	32	68	100	150	220	320	460
Viscosity, Kinematic, @ 40 deg c, cSt	32	68	100	150	220	320	460
Viscosity Index, min.	90	90	90	90	90	90	90
Flash Point, COC, deg C, min.	190	190	190	190	190	240	240
Pour Point, C, Max.	-12	-12	-9	-9	-9	-6	-6

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DELTA BEARING OILS

Description:

Delta Bearing Oil is a heavy duty circulating oils specifically designed for the lubrication of plain bearings in metal rolling mills. They are particularly effective in systems subjected to water contamination such as back-up roll bearings.

Application:

- Backup roll bearings manufactured by Morgan Construction Company
- Backup roll bearings in hot and cold rolling mills
- Bearing lubrication in steel mills
- Circulating systems where water contamination is a problem
- Large, slow-speed gears in mixers and mills

Performance Level:

- Morgan Construction Advanced Lubricant Specification, Revision 2.5 (05/2009)
- SMS Siemag SN 180 Part 4 (07/2009)
- U.S. Steel 135, Mill Circulating Oil

Benefits:

- Outstanding demulsibility
- Good resistance to oxidative degradation
- Excellent rust and corrosion protection
- Extended oil charge life and reduced oil replacement costs
- Enhanced equipment protection and equipment life

Typical Properties & Characteristics

Parameters	Grades				
	100	150	220	320	460
Viscosity, Kinematic, @ 40 degC, cSt	100	150	220	320	460
Viscosity Index, min.	90	90	90	90	90
Flash Point, COC, deg C, min.	190	190	190	240	240
Pour Point, deg C, max.	-9	-9	-9	-6	-6

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DELTA LUBRICANTS®

DELTA SLIDEWAY OIL

Description:

Delta Slide way oils are specially formulated tacky lubricants for Machine Tool slide ways. They contain anti-wear, anti-rust and mild extreme pressure additives and friction modifiers.

Application:

Delta Slide way oils are used for the lubrication of slides and ways of all kinds, particularly the slide-way of machine tools such as lathes, planers, grinding machines and similar equipment

Performance Level:

- ISO:19378, IS:493, IS:11695-1986,

Benefits:

Delta Slideway Oils imparts good anti-wear qualities and improves adhesiveness that promotes and assists in maintaining a film of lubricant on the bearing surface. These premium slide-way lubricants prevent chatter and stick-slip on machine-tool ways and slides. They increase the efficiency of light and heavy duty machining. The corrosion protection is excellent.

Typical Properties & Characteristics

	Characteristics	Test Method	Grades					
			32	46	68	100	150	220
1	**Appearance**	Visual	Bright & Clear	Bright & Clear	Bright & Clear	Bright & Clear	Bright & Clear	Bright & Clear
2	**Flash point, COC, °C min.**	ASTM D 92	190	190	210	220	230	240
3	**Kinematic viscosity at 40, °C, cSt min.**	ASTM D 445	32	49	68	102	150	210
4	**Pour point , °C min.**	ASTM D 97	-6	-6	-6	-3	-3	-3
5	**Rust test (24 hrs)**	ASTM D 665	Complies					

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.Email: delta.nigeria@wearedelta.com, Website: www.wearedelta.com

DELTA LUBRICANTS®

DELTA ROCK DRILL OILS

Description:

Delta Rock Drill Oil is specially formulated to lubricate and cool the internal mechanisms and moving parts of pneumatic drilling equipment. This advanced fluid provides reliable and efficient performance in extreme conditions for increased productivity and long equipment life.

Application:

Delta Rock Drill Oil is designed to enhance the operation of percussion type rock drills and associated equipments such as jackhammers, paving breakers, quarry drills, spike drivers, clink breakers and concrete vibrators. Additionally, it is recommended for pneumatic tools such as impact wrenches, rivet hammers, drills and reamers, wood borers, safety saws, diggers, tampers, concrete surfacers, sanders and air hoists as well as cleaning, scaling, caulking and chipping tools.

Performance Level:

- Ingersoll-Rand -Light, medium, and heavy rock drill oils.
- Gardner Denver -Light, medium, and heavy rock drill oils.

Benefits:

- Possess good metal-wetting characteristics ensuring that the lubricant reaches critical parts rapidly.
- Minimizes deposit formations.
- Non-hazardous and non-toxic.
- Excellent resistance to rust & corrosion.
- No disagreeable odour making it ideal for underground operations.

Typical Properties & Characteristics

PROPERTIES	TEST METHOD	TYPICAL VALUES
Appearance	Visual	Clear & Bright
ASTM Colour	D1500	L3.5
Density @ 15°C , gm/cm^3	D1298	0.8875
Kin. Viscosity @ 40 °C , cSt	D445	105.9
Kin. Viscosity @ 100°C , cSt	D445	11.54
Viscosity Index	D2270	96
Flash Point, COC, °C	D92	226
Pour Point, °C	D97	-6

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DELTA LUBRICANTS®

DELTA QUENCHING OIL

Description:

Delta Quench Oil is low viscosity quenching oil with special additives with marked oxidation stability and low sludge formation. Delta Quench Oil is based on selective base oils and fortified with modern additive which offer excellent stability in services.

Application:

Delta Quench Oil is specially developed for quenching of bearings, bolts, sprints etc.

Benefits:

Delta Quenching Oils are non-corrosive and non-toxic. They facilitate quenching through proper and controlled cooling and help achieve uniform hardness of quenched components. These oils possess excellent thermal and oxidation stability as well as high flash and fire points. They also have low volatility which results in reduced consumption. There is also lower oil loss due to reduced carry-over.

Typical Properties & Characteristics

S.No	Characteristics	Test Method	Grades	
			32	46
1	**Appearance**	Visual	Bright and Clear	Bright and Clear
2	**Flash point COC, °C, min.**	ASTM D 92	200	220
3	**Pour point, °C, max.**	ASTM D 97	-6	-6
4	**Kinematic viscosity at 40 °C, cSt min.**	ASTM D 445	31	43
5	**Viscosity index, min.**	ASTM D 2270	95	95
6	**Copper strip corrosion, 3 hrs. at 100 °C, max.**	ASTM D 130	1	1

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DELTA LUBRICANTS®

DELTA D-CUT SOLUBLE CUTTING OIL

Description:

DELTA D-CUT Soluble Cutting Oil is a high quality, water soluble cutting oil emulsion, produced by base oils of an exceptional quality level, and enrich with additives which protect from rust, corrosion and bacterium development. Its outstanding formulation provides excellent lubrication properties and effective cooling. Recommended ratio 2% - 5%. This cutting oil is extremely effective by providing rust and corrosion protection of parts, cutting tools, and the machine.

Application:

DELTA D-CUT Soluble Cutting Oil is specially designed for machining operations. Applications include cutting, drilling, milling and grinding, where a general purpose coolant is required. Also recommended all machining operations where cooling and rust protection are important.

Benefits:

- Protects against rust and corrosion.
- Non-foaming.
- Excellent wetting and cooling capabilities.
- Resists bacterial attack.

Typical Properties & Characteristics

Emulsion	
Refraction 5%	4.2
Colour	Milky White
pH -5% Concentrate	9.0
Typical Properties	
Flash Point	210 °C
Viscosity @ 100 °C	6.58 cSt
Viscosity @ 40 °C	41.60 cSt
Colour	Amber - brown
Odor	Strong Odor
Specific Gravity	0.9 g/cm3
Foaming	Nil

The above data is indicative of recent averages value only. Minor variations that do not affect product performance or quality may be expected in manufacture.

NOTE: DELTA D-CUT Soluble Cutting Oil must be added to the water whilst stirring. When topping up do not add the concentrate to the emulsion!! Only add to a pre-mixture of 1-2% emulsion.

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DELTA LUBRICANTS®

DELTA THERMIC OIL

Description:

Delta HT-32 is excellent heat transfer oil based on specially refined and hydro treated base oils and fortified with modern and effective oxidation inhibitors. The low volatility of the oil prevents build-up of excessive pressures in closed system. Its viscosity is suitable for a high ratio of circulation under a wide range of operating temperatures.

Application:

Delta HT-32 High quality heat transfer oil for use in closed indirect heating installations. It is suitable for industrial closed systems, asphalt plants, low temperature open systems, oil filled radiators and heat shunts or wherever a mineral oil of this type has been recommended. Closed Systems: It can be used up to a bulkk temperature of 300deg C in closed systems and film temperature of 340 deg C. Open Systems: Can be used up to 200 deg C in open systems.

Benefits:

- Possess excellent heat transfer capacity
- Low volatility
- Operates under a wide range of temperatures
- Low vapour pressure to give long trouble free service life in heat transfer systems.

Typical Properties & Characteristics

PROPERTIES	TEST METHOD	TYPICAL VALUES
Appearance	Visual	Clear & Bright
Density @ 29.5 °C, gm/cm3	D1298	0.8624
Kinematic Viscosity @ 40 °C cSt	D445	30.30
Kinematic Viscosity @ 100 °C, cSt	D445	5.285
Viscosity Index	D2270	106
Flash Point, COC, °C	D92	232
Fire Point, COC, °C	D92	260
Auto Ignition Temperature, °C	E659	425
Conradson Carbon Residue, %	D4530	<0.01
Total Acid Number, mg KOH/gm	D 2896	0.05
Pour Point, °C	D97	-1
Copper Strip Corrosion Test @ 1000 °C for 3Hrs	D130	1a
Vapour Pressure	D2878	
@ 200 °C		0.008
@ 250 °C		0.050
@ 300 °C		0.200

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DELTA LUBRICANTS®

DELTA GEARMAX- INDUSTRIAL GEAR OILS

Description:

Delta Gear-Max HD series is premium quality extreme pressure industrial gear lubricants meeting the stringent requirements of new generation gears of heavy industrial machinery. These oils are blended with high viscosity index base stocks and EP additives based on sulphur & phosphorus chemistry to provide the protection to machine gears against wear and corrosion.

Application:

Delta Gear-Max HD series gear oils can be used in enclosed gear drives of industrial machinery working under heavy to shock load conditions. It can be used for lubrication of roller bearings, chain drives, highly loaded drives under extreme pressure conditions. Also suitable for Systems requiring Anti-Wear properties.

Performance Level:

- AGMA 250.04 (EP)
- U.S. STEEL 224
- DIN 51517 PART 3

Benefits:

- High load carrying capacity.
- Have reduced tendency to foam.
- Ensure excellent wear protection.
- Excellent oxidation and thermal stability.
- Minimise formation of sludge and deposits, even at high bulk oil Temperatures.
- Good demulsibility property.
- Protect metals against rust and corrosion.

Typical Properties & Characteristics

Parameters	Unit	Test Method	ISO GRADES					
			100	150	220	320	460	680
Kinematic viscosity @ 100 Deg^{0}C	mm^{2}/s	ASTM D445	99	152	216	318	435	619
Viscosity Index	-	ASTM D2270	90	90	90	90	90	90
Flash Point	°C	ASTM D92	220	220	230	240	240	250
Pour Point (max)	°C	ASTM D97	-9	-9	-9	-6	-6	-6
FFG Rating, 12th Stage			Pass	Pass	Pass	Pass	Pass	Pass

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DELTA LUBRICANTS®

DELTA STEEL EP100

Description:

Delta Steel EP 100 is premium industrial gear oil with extreme pressure (EP) sulfated additive system combine with anti-friction property and high heavy-duty capability. Delta Steel EP 100 is a top choice for industrial lubrication. Containing neither lead / Chlorine, it is environmentally friendly.

Application:

Delta Steel EP 100 is recommended for all types of industrial gears in both enclosed and open. Also suitable for lubrication of systems containing worm gears, bearings, sliding parts, etc. It can be used for the lubrication of almost any type of industrial gear box, even when exposed to heavy duty and shock loads.

Performance Level:

- ISO 12925-1 Category CKD
- AIST (US Steel) 224
- ANSI/AGMA 9005-F16
- DIN 51517 Part 3
- Cincinnati Lamb P-63 series
- Textron David Brown S1.53 101
- FZG 12

Benefits:

- Superior load-carrying EP capability
- Outstanding protection against wear and shock
- Good thermal and oxidation stability
- Excellent anti-rust and anti-corrosion properties.
- Prolongs gear life

Typical Properties & Characteristics

GRADE	100
Kinematic viscosity, cSt @40 deg°C	95-105
Kinematic Viscosity, cSt @ 100 deg°C	10.98
Viscosity Index, Min	100
Flash Point (COC), deg°C ,min.	248
Pour Point, deg C, max.	(-) 12
Dynamic demulsibility @ 52deg C, 30 mins% % water in oil after centrifuging % oil in water after centrifugation	 4.8 nil
Demulsibility @ 82 deg°C in mins.	41- 39- 0 (10)
FFG rating	12^{th} (Pass)

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DELTA LUBRICANTS®

DELTA DYNAMO TURBINE OIL

Description:

Delta Dynamo Turbine Oils are high quality super long life Turbine oils. They are formulated with high quality hydro-treated base oils and fortified with Anti-Wear & Rust Inhibitor additives which give excellent protection to all components of steam and gas turbines.

Application:

Delta Dynamo Turbine oil recommended for use in large open and combined cycle, gas and steam turbines, high speed turbo compressors, turbo compressors for gas and atomic power generation turbines. Delta Dynamo Turbine oils are recommended for use in all turbines without gearbox.

Performance Level:

IS: 1012-2002, BS 489, General Electric GEK27070, Siemens (KWU) spec. TPS 9013 04 (KWU), GEK 28143A, GEK 32568C, GEK 101941A.

Benefits:

- Superior physical and chemical stability.
- High oxidation stability in presence of heat, water and impurities.
- Very good antiwear characteristics.
- High resistance to change in viscosity.
- Full protection against rusting
- Excellent demulsibility, foam resistance and tendency to release entrained air.

Typical Properties & Characteristics

	Characteristics	Test Method	DELTA DYNAMO			
			32	46	57	68
1	Appearance	Visual	Bright & Clear	Bright & Clear	Bright & Clear	Bright & Clear
2	Colour, max.	ASTM D 1500	2	2	2	2
3	Flash point, COC, °C min.	ASTM D 92	215	215	215	215
4	Pour Point, °C, max.	ASTM D 97	-15	-12	-12	-6
5	Kinematic viscosity @ 40 °C, cSt min.	ASTM D 445	32	46	57	68
6	Viscosity index, min.	ASTM D 2270	100	100	100	100
7	Rust test, 24 hrs.	ASTM D 665	Complies	Complies	Complies	Complies
8	TAN mg KOH/gm, max.	IS:1448 P:2	0.15	0.15	0.15	0.15
9	Demulsibility at 54 °C (40-40-0)	ASTM D 1401	0.07	0.07	0.08	0.08
10	Foaming tendency /	ASTM D 892				
	Seq I		0 / 0	0 / 0	0 / 0	0 / 0
	Seq II		0 / 0	0 / 0	0 / 0	0 / 0
	Seq IIIL		0 / 0	0 / 0	0 / 0	0 / 0

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DELTA LUBRICANTS®

DELTA PRESS - COMPRESSOR OILS

Description:

Delta Press oils are specially developed compressor oils, formulated with superior hydro treated base stocks, to provide satisfactory lubrication under prolonged high temperature and load conditions.

Application:

Delta Press compressor lubricants designed specifically to meet the requirements of rotary screw compressors including modern, variable speed types. They incorporate the latest additive technology and have proved to be far superior in performance to conventional oils under all conditions.

Performance Level:

- DIN 51352 Part II.
- DIN 51506 VD-L and ISO DIS 6521 specifications.
- SPERRY VICKERS I-286-S,
- AFNOR NFE 48603(HM),
- DIN 51524 Part II (HLP),
- CINCINNATI MILACRON P-68, P-69, P-70 specifications.

Benefits:

- Longer running periods between maintenance intervals
- Improved valve performance
- Lower maintenance costs

Typical Properties & Characteristics

PARAMETERS	TEST METHOD	UNIT	DELTA COMPRESSOR OIL				
GRADE			32	46	68	100	220
Density @15°C	ASTM D1298	kg/m^3	0.87	0.875	0.878	0.881	0.885
Flash point Cleveland	ASTM D 92	°C	220	236	248	250	252
Kinematic viscosity @ 40 °C ,cSt min.	ASTM D 445	cSt	32	46	68	100	220
Kinematic viscosity @ 100 °C ,cSt min.	ASTM D 445	cSt	5.2	7.2	8.6	11,0	Report
Viscosity Index	ASTM D 2270	-	100	117	97	94	90 Above
Pour Point	ASTM D 97	°C	-18	-18	-12	-9	-9

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