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## INTRODUCTION

Cyrus International LLC, a division of Cyrus Group of Companies (ISO 9001-2000), Dubai, manufactures MOXOL branded Automotive & Industrial Lubricants. This brand is being formulated using highly refined virgin mineral base oils, synthetic Olefin Co-Polymer (OCP) and best quality performance improving additives. The grades are generally of dual purpose and can be used for both gasoline and diesel powered vehicles. MOXOL is available in both Multigrades and Monogrades with a series of products to select from that satisfies customer's needs and ensure maximum performance and protection to their engine.

This manual presents the range of MOXOL Lubricants currently available. This manual will guide the end user on the general properties and physical characteristics of MOXOL products which would enable them to select products for the correct applications.

We at Cyrus International envisage building MOXOL brand as 'your car's best friend'.

***MOXOL Cares! Understands! Performs!***



## MOTOR OIL

SAE 10W40, 15W40, 20W50

### PERFORMANCE PROFILE:

API SL/CF	VW 500.00/505.00
CCMC G5 /PD-2	MB 229.1
ACEA A3-96, B3-96	

**APPLICATION:** This is a superior quality multi grade oil with new conception, formulated with highly refined base stocks and state of art additive technology. Recommended for the lubrication of most modern, high-powered cars, vans and light trucks, including multi valve techniques and those vehicles fitted with or without catalytic converters, operating under most severe driving conditions.

### KEY FEATURES:

- Improved fuel economy and filterability
- Enhanced thermal stability at high temperature
- Extremely high control over wear, rust and corrosion to ensure long life of moving parts
- Outstanding lubrication powers in all seasons
- Longer maintenance intervals
- Excellent fluidity at low temperature ensures good starting
- Excellent protection against oxidation, foaming, low temperature sludge and high temperature deposits
- Properly balanced detergency and dispersancy ensures a clean engine
- Lengthens oil changes period

### TECHNICAL DATA:

CHARACTERISTICS	TEST METHOD	TYPICAL VALUE		
		10W40	15W40	20W50
Density at 15°C, Kg/L	ASTM D1298	0.884	0.886	0.89
Viscosity at 40°C, cSt	ASTM D445	105	110	170
Viscosity at 100°C, cSt	ASTM D445	14	14.5	18.5
Viscosity Index	ASTM D2270	124	124	115
Flash Point, COC, °C	ASTM D92	230	230	240
Pour Point, °C	ASTM D97	-27	-24	-21
TBN, mgm KOH/gm	ASTM D2896	11.5	11.5	11.5

## MOTOR OIL

SAE 10W40, 15W40, 20W50

### PERFORMANCE PROFILE:

API SJ/CF	VW 500.00/501.00/505.00
ACEA A3-98, B3-98	BMW Special Oil
MB 229.1, 228.1	Porsche

**APPLICATION:** This is a superior quality multi grade oil with new conception, formulated with highly refined base stocks and state of art additive technology. Recommended for the lubrication of most modern, high-powered cars, vans and light trucks, including multi valve techniques and those vehicles fitted with or without catalytic converters, operating under most severe driving conditions.

### KEY FEATURES:

- Improved fuel economy and filterability
- Enhanced thermal stability at high temperature
- Extremely high control over wear, rust and corrosion to ensure long life of moving parts
- Outstanding lubrication powers in all seasons
- Longer maintenance intervals
- Excellent fluidity at low temperature ensures good starting
- Excellent protection against oxidation, foaming, low temperature sludge and high temperature deposits
- Properly balanced detergency and dispersancy ensures a clean engine
- Lengthens oil changes period

### TECHNICAL DATA:

CHARACTERISTICS	TEST METHOD	TYPICAL VALUE		
		10W40	15W40	20W50
Density at 15°C, Kg/L	ASTM D1298	0.884	0.886	0.89
Viscosity at 40°C, cSt	ASTM D445	105	110	170
Viscosity at 100°C, cSt	ASTM D445	14	14.5	18.5
Viscosity Index	ASTM D2270	124	124	115
Flash Point, COC, °C	ASTM D92	230	230	240
Pour Point, °C	ASTM D97	-27	-24	-21
TBN, mgm KOH/gm	ASTM D2896	9.5	9.5	9.5

## MOTOR OIL

SAE 10W40, 15W40, 20W50

### PERFORMANCE PROFILE:

API SH/CD	VW 500.00/505.00
MIL-L-46152E, 2104C	GM 6085M
CCMC G4/PD-2	Ford ESE-M2C-153D
MB 226.1, 226.5	

**APPLICATION:** This is an excellent quality multi grade oil formulated with highly refined base stocks and an advanced additive package. Recommended for supercharged, turbocharged or atmospheric gasoline and diesel engines used in passenger cars, vans and light trucks including multi valve techniques and those vehicles fitted with or without catalytic converters, operating under most severe driving conditions.

### KEY FEATURES:

- Reinforced thermal stability at high temperature
- Extremely high control over wear, rust and corrosion
- High lubrication powers in all seasons
- Longer maintenance intervals
- Improved fuel economy and filterability
- Excellent fluidity at low temperature ensures good starting
- Excellent protection against oxidation, foaming, low temperature sludge and high temperature deposits
- Properly balanced detergency and dispersancy ensures a clean engine
- Lengthens oil changes period

### TECHNICAL DATA:

CHARACTERISTICS	TEST METHOD	TYPICAL VALUE		
		10W40	15W40	20W50
Density at 15°C, Kg/L	ASTM D1298	0.884	0.886	0.89
Viscosity at 40°C, cSt	ASTM D445	105	110	170
Viscosity at 100°C, cSt	ASTM D445	14	14.5	18.5
Viscosity Index	ASTM D2270	124	124	115
Flash Point, COC, °C	ASTM D92	230	230	240
Pour Point, °C	ASTM D97	-27	-24	-21
TBN, mgm KOH/gm	ASTM D2896	8.5	8.5	8.5

## MOTOR OIL

SAE 15W40, 20W40, 20W50

### PERFORMANCE PROFILE:

API SG/CD	VW 500.00/505.00
MIL-L-46152E, 2104C	GM 6085M
CCMC G4/PD-2	Ford ESE-M2C-153D
MB 226.1, 226.5	

**APPLICATION:** This is an excellent quality multi grade oil formulated with highly refined base stocks and an advanced additive package. Recommended for supercharged, turbocharged or atmospheric gasoline and diesel engines used in passenger cars, vans and light trucks including multi valve techniques and those vehicles fitted with or without catalytic converters, operating under most severe driving conditions.

### KEY FEATURES:

- Reinforced thermal stability at high temperature
- Extremely high control over wear, rust and corrosion
- High lubrication powers in all seasons
- Longer maintenance intervals
- Improved fuel economy and filterability
- Excellent fluidity at low temperature ensures good starting
- Excellent protection against oxidation, foaming, low temperature sludge and high temperature deposits
- Properly balanced detergency and dispersancy ensures a clean engine
- Lengthens oil changes period

### TECHNICAL DATA:

CHARACTERISTICS	TEST METHOD	TYPICAL VALUE		
		15W40	20W40	20W50
Density at 15°C, Kg/L	ASTM D1298	0.886	0.886	0.89
Viscosity at 40°C, cSt	ASTM D445	120	135	170
Viscosity at 100°C, cSt	ASTM D445	15	15	18.5
Viscosity Index	ASTM D2270	120	110	115
Flash Point, COC, °C	ASTM D92	230	230	240
Pour Point, °C	ASTM D97	-21	-18	-18
TBN, mgm KOH/gm	ASTM D2896	7.6	7.6	7.6

## MOTOR OIL

SAE 40, 20W40, 20W50

### PERFORMANCE PROFILE:

API SF/CD

MIL-L-46152C

CCMC G2/PD1

MB 226.1

**APPLICATION:** This is a premium quality motor oil formulated with highly refined base stocks and an advanced additive package. Recommended for supercharged, turbocharged or atmospheric gasoline and diesel engines used in passenger cars, vans and trucks operating under severe driving conditions.

### KEY FEATURES:

- Better fuel economy
- Reinforced thermal behavior
- High lubrication powers in all seasons
- Efficient control over wear, rust and corrosion
- Excellent fluidity at low temperature ensures good starting
- Excellent protection against oxidation, foaming, low temperature sludge and high temperature deposits
- Excellent detergent and dispersant property

### TECHNICAL DATA:

CHARACTERISTICS	TEST METHOD	TYPICAL VALUE		
		40	20W40	20W50
Density at 15°C, Kg/L	ASTM D1298	0.886	0.886	0.89
Viscosity at 40°C, cSt	ASTM D445	140	135	170
Viscosity at 100°C, cSt	ASTM D445	15	15	18.5
Viscosity Index	ASTM D2270	107	110	115
Flash Point, COC, °C	ASTM D92	240	230	240
Pour Point, °C	ASTM D97	-6	-18	-18
TBN, mgm KOH/gm	ASTM D2896	6.5	6.5	6.5

## MOTOR OIL

SAE 40, 20W40, 20W50

### PERFORMANCE PROFILE:

API SF/CC

MIL-L-46152B

CCMC G2/PD1

MB 226.1

**APPLICATION:** This is a premium quality motor oil formulated with highly refined base stocks and an advanced additive package. Recommended for supercharged, turbocharged or atmospheric gasoline and diesel engines used in passenger cars, vans and trucks operating under severe driving conditions.

### KEY FEATURES:

- Better fuel economy
- Reinforced thermal behavior
- High lubrication powers in all seasons
- Efficient control over wear, rust and corrosion
- Excellent fluidity at low temperature ensures good starting
- Excellent protection against oxidation, foaming, low temperature sludge and high temperature deposits
- Excellent detergent and dispersant property

### TECHNICAL DATA:

CHARACTERISTICS	TEST METHOD	TYPICAL VALUE		
		40	20W40	20W50
Density at 15°C, Kg/L	ASTM D1298	0.886	0.886	0.89
Viscosity at 40°C, cSt	ASTM D445	140	135	170
Viscosity at 100°C, cSt	ASTM D445	15	15	18.5
Viscosity Index	ASTM D2270	107	110	115
Flash Point, COC, °C	ASTM D92	240	230	240
Pour Point, °C	ASTM D97	-6	-18	-18
TBN, mgm KOH/gm	ASTM D2896	5.0	5.0	5.0

## MOTOR OIL

SAE 40, 50, 20W50

### PERFORMANCE PROFILE:

API SC/CC

MIL-L-2104A

**APPLICATION:** This is a good quality general purpose engine oil formulated with highly refined base stocks and a balanced additive package. Suitable for the lubrication of naturally aspirated gasoline and diesel engines used in passenger cars and some trucks operating under mild driving conditions.

### KEY FEATURES:

- Natural thermal stability
- Good resistance to foaming and corrosion
- Mild antiwear capability and oil oxidation resistance
- Mild detergent and dispersant property

### TECHNICAL DATA:

CHARACTERISTICS	TEST METHOD	TYPICAL VALUE		
		40	50	20W50
Density at 15°C, Kg/L	ASTM D1298	0.886	0.89	0.89
Viscosity at 40°C, cSt	ASTM D445	140	195	170
Viscosity at 100°C, cSt	ASTM D445	15	19	18.5
Viscosity Index	ASTM D2270	107	108	115
Flash Point, COC, °C	ASTM D92	240	240	240
Pour Point, °C	ASTM D97	-6	-6	-6
TBN, mgm KOH/gm	ASTM D2896	2.6	2.6	2.6

## DIESEL ENGINE OIL

SAE 15W40, 20W50

### PERFORMANCE PROFILE:

API CI4/SJ

ACEA E3-96 Issue 4

MB 228.1/229.1

MAN 3275

VOLVO VDS-3

ZF TE- ML 07C

CATERPILLER ECF-1

ACEA B3-98 Issue 2

ACEA A3-02, E5-02, B4-02

MTU TYPE 2

MACK EO-M plus

RVI RLD

CUMMINS CES 20078/77/76/72

**APPLICATION:** This is an extra high performance diesel engine oil that provides excellent lubrication of today's diesel engine promoting extended engine life. This oil is recommended for use in naturally aspirated and turbo-charged diesel powered equipment from leading Japanese, European and American Manufactures. Specially suited for most modern, high speed, heavy duty, supercharged or turbocharged diesel and gasoline engines used in passenger cars, long haul trucks, and off-highway equipments used in construction, mining, quarrying industries.

### KEY FEATURES:

- Improved fuel economy and filterability
- Exceptional thermal stability at high temperature
- Extremely high control over wear, rust and corrosion to ensure long life of moving parts
- Outstanding lubrication powers in all seasons
- Longer maintenance intervals and oil change period
- Excellent fluidity at low temperature ensures good starting
- Excellent protection against oxidation, foaming, low temperature sludge and high temperature deposits
- Properly balanced detergency and dispersancy ensures a clean engine

### TECHNICAL DATA:

CHARACTERISTICS	TEST METHOD	TYPICAL VALUE	
		15W40	20W50
Density at 15°C, Kg/L	ASTM D1298	0.886	0.89
Viscosity at 40°C, cSt	ASTM D445	110	170
Viscosity at 100°C, cSt	ASTM D445	14.5	18.5
Viscosity Index	ASTM D2270	124	115
Flash Point, COC, °C	ASTM D92	230	240
Pour Point, °C	ASTM D97	-24	-21
TBN, mgm KOH/gm	ASTM D2896	12	12

## DIESEL ENGINE OIL

SAE 15W40, 20W50

### PERFORMANCE PROFILE:

API CH4/SJ

ACEA E3-96 Issue 2

ACEA B3-98

MB 228.3 /229.1

ACEA A3-98

MAN 271

MTU TYPE 2

VOLVO VDS-2

MACK EO-M plus

CUMMINS 20076

RVI RLD

CUMMINS CES 20072/71

DDC Series 2000/4000 Type 2

**APPLICATION:** This is a superior quality, high performance diesel engine oil designed for the most severe performance requirements of highly powered turbocharged engines of leading Japanese, European and American Manufactures. Specially suited for use in mixed fleets, commercial road transport and off the road vehicles and plants.

### KEY FEATURES:

- Exceptional thermal stability at high temperature
- Extremely high control over wear, rust and corrosion to ensure long life of moving parts
- Outstanding lubrication powers in all seasons
- Improved fuel economy and filterability
- Longer maintenance intervals and oil change period
- Excellent fluidity at low temperature ensures good starting
- Excellent protection against oxidation, foaming, low temperature sludge and high temperature deposits
- Properly balanced detergency and dispersancy ensures a clean engine

### TECHNICAL DATA:

CHARACTERISTICS	TEST METHOD	TYPICAL VALUE	
		15W40	20W50
Density at 15°C, Kg/L	ASTM D1298	0.886	0.89
Viscosity at 40°C, cSt	ASTM D445	110	170
Viscosity at 100°C, cSt	ASTM D445	14.5	18.5
Viscosity Index	ASTM D2270	124	115
Flash Point, COC, °C	ASTM D92	230	240
Pour Point, °C	ASTM D97	-24	-21
TBN, mgm KOH/gm	ASTM D2896	11.5	11.5

## DIESEL ENGINE OIL

SAE 10W40, 15W40

### PERFORMANCE PROFILE:

API CH4/SL

ACEA E3-96 Issue 2

ACEA B3-98

MB 228.3 /229.1

ACEA A3-98

MAN 271

MTU TYPE 2

VOLVO VDS-2

MACK EO-M plus

CUMMINS 20076

RVI RLD

CUMMINS CES 20072/71

DDC Series 2000/4000 Type 2

**APPLICATION:** This is a superior quality, high performance diesel engine oil designed for the most severe performance requirements of highly powered turbocharged engines of leading Japanese, European and American Manufactures. Specially suited for use in mixed fleets, commercial road transport and off the road vehicles and plants.

### KEY FEATURES:

- Exceptional thermal stability at high temperature
- Extremely high control over wear, rust and corrosion to ensure long life of moving parts
- Outstanding lubrication powers in all seasons
- Improved fuel economy and filterability
- Longer maintenance intervals and oil change period
- Excellent fluidity at low temperature ensures good starting
- Excellent protection against oxidation, foaming, low temperature sludge and high temperature deposits
- Properly balanced detergency and dispersancy ensures a clean engine

### TECHNICAL DATA:

CHARACTERISTICS	TEST METHOD	TYPICAL VALUE	
		10W40	15W40
Density at 15°C, Kg/L	ASTM D1298	0.884	0.886
Viscosity at 40°C, cSt	ASTM D445	105	110
Viscosity at 100°C, cSt	ASTM D445	14	14.5
Viscosity Index	ASTM D2270	124	124
Flash Point, COC, °C	ASTM D92	230	230
Pour Point, °C	ASTM D97	-27	-24
TBN, mgm KOH/gm	ASTM D2896	11.5	11.5

## DIESEL ENGINE OIL

SAE 15W40, 20W50

### PERFORMANCE PROFILE:

API CG4/SJ

ACEA A3-96, B2-96, E2-96    VW 500.1/505.00

MB 228.1    MAN 271

VOLVO VDS-2    MACK EO-M

CUMMINS CES 20071    ALLISION C-4

**APPLICATION:** This is a superior quality, high performance diesel engine oil designed for the most severe performance requirements of highly powered turbocharged engines of leading Japanese, European and American Manufactures. This oil is suitable for high-speed, four-stroke cycle; diesel engines used on heavy duty applications. Also this oil is an excellent choice for mixed fleet services.

### KEY FEATURES:

- Exceptional thermal stability at high temperature
- Extremely high control over wear, rust and corrosion to ensure long life of moving parts
- Outstanding lubrication powers in all seasons
- Improved fuel economy and filterability
- Longer maintenance intervals and oil change period
- Excellent fluidity at low temperature ensures good starting
- Excellent protection against oxidation, foaming, low temperature sludge and high temperature deposits
- Properly balanced detergency and dispersancy ensures a clean engine

### TECHNICAL DATA:

CHARACTERISTICS	TEST METHOD	TYPICAL VALUE	
		15W40	20W50
Density at 15°C, Kg/L	ASTM D1298	0.886	0.89
Viscosity at 40°C, cSt	ASTM D445	110	170
Viscosity at 100°C, cSt	ASTM D445	14.5	18.5
Viscosity Index	ASTM D2270	124	115
Flash Point, COC, °C	ASTM D92	230	240
Pour Point, °C	ASTM D97	-24	-21
TBN, mgm KOH/gm	ASTM D2896	10.5	10.5

## DIESEL ENGINE OIL

SAE 15W40, 20W50

### PERFORMANCE PROFILE:

API CF4/SJ

CCMC D-4/D5/PD2 VW 501.02/505.00

MIL-L 2104 E, 46152 D CUMMINS NTC –400

MAN 270/271 MACK EO-K/2

VOLVO-VDS ALLISION C-3

**APPLICATION:** This is an excellent quality, high performance diesel engine oil specially formulated for a mixed fleet operation operating under severe service conditions. Recommended for use as single oil in mixed fleets with both light and heavy-duty engines where multigrade is preferred. It may be used in both naturally aspirated and turbo-charged engines in all kinds of service conditions.

### KEY FEATURES:

- Excellent thermal stability at high temperature
- Excellent control over wear, rust and corrosion
- Outstanding lubrication powers in all seasons
- Better fuel economy and filterability
- Longer maintenance intervals and oil change period
- Excellent fluidity at low temperature ensures good starting
- Excellent protection against oxidation, foaming, low temperature sludge and high temperature deposits
- Properly balanced detergency and dispersancy ensures a clean engine

### TECHNICAL DATA:

CHARACTERISTICS	TEST METHOD	TYPICAL VALUE	
		15W40	20W50
Density at 15°C, Kg/L	ASTM D1298	0.886	0.89
Viscosity at 40°C, cSt	ASTM D445	110	170
Viscosity at 100°C, cSt	ASTM D445	14.5	18.5
Viscosity Index	ASTM D2270	124	115
Flash Point, COC, °C	ASTM D92	230	235
Pour Point, °C	ASTM D97	-24	-18
TBN, mgm KOH/gm	ASTM D2896	9	9

## DIESEL ENGINE OIL

SAE 40, 15W40, 50, 20W50

**PERFORMANCE PROFILE:**

API CF/SF  
 CCMC D2/D3/PD1  
 MIL-L-2104D / MIL-L-46152B  
 ACEA E1-96 Issue 2

**APPLICATION:** This is a premium quality, high performance diesel engine oil specially formulated for a mixed fleet operation operating under severe service conditions. Recommended for use as single oil in mixed fleets with both light and heavy-duty engines where multigrade is preferred. It may be used in both naturally aspirated and turbo-charged engines in all kinds of service conditions.

**KEY FEATURES:**

- Exceptional thermal stability at high temperature
- Extremely high control over wear, rust and corrosion to ensure long life of moving parts
- Outstanding lubrication powers in all seasons
- Improved fuel economy and filterability
- Longer maintenance intervals and oil change period
- Excellent fluidity at low temperature ensures good starting
- Excellent protection against oxidation, foaming, low temperature sludge and high temperature deposits
- Properly balanced detergency and dispersancy ensures a clean engine

**TECHNICAL DATA:**

CHARACTERISTICS	TEST METHOD	TYPICAL VALUE			
		40	15W40	20W50	50
Density at 15°C, Kg/L	ASTM D1298	0.886	0.886	0.89	0.89
Viscosity at 40°C, cSt	ASTM D445	140	120	170	195
Viscosity at 100°C, cSt	ASTM D445	15	15	18.5	19
Viscosity Index	ASTM D2270	107	120	115	108
Flash Point, COC, °C	ASTM D92	240	230	240	240
Pour Point, °C	ASTM D97	-6	-18	-15	-6
TBN, mgm KOH/gm	ASTM D2896	8.5	8.5	8.5	8.5

## DIESEL ENGINE OIL

SAE 30, 40, 50, 20W50

### PERFORMANCE PROFILE:

API CD/SF

CCMC D1, D2, PD1

MIL-L 2104 D, 46152 B

**APPLICATION:** This is a premium quality robust performance diesel engine oil with high alkaline reserve, developed to meet the most severe performance requirements of naturally aspirated or turbocharger diesel engines operating on high sulphur distillate fuels. Recommended for a wide range of use in high specific-output, four-cycle diesel engines to provide maximum protection in the most severe service conditions, including maximum oil drain interval operation. Recommended for generator sets, small diesel engines in marine service (e.g. fishing, river transport etc.), off-highway vehicles and Commercial road transport.

### KEY FEATURES:

- Highly effective control of engine deposits
- Good protection against corrosion and rusting
- Maintains excellent control of oil consumption
- High alkaline reserve to protect against corrosion due to oxides of sulfur, which emanates from high sulfur fuels during combustion

### TECHNICAL DATA:

CHARACTERISTICS	TEST METHOD	TYPICAL VALUE			
		30	40	50	20W50
Density at 15°C, Kg/L	ASTM D1298	0.882	0.886	0.89	0.89
Viscosity at 40°C, cSt	ASTM D445	105	140	195	170
Viscosity at 100°C, cSt	ASTM D445	11.5	15	19	18.5
Viscosity Index	ASTM D2270	96	107	108	115
Flash Point, COC, °C	ASTM D92	240	240	240	240
Pour Point, °C	ASTM D97	-6	-6	-6	-15
TBN, mgm KOH/gm	ASTM D2896	8.0	8.0	8.0	8.0

## DIESEL ENGINE OIL

SAE 30, 40, 50, 20W50

### PERFORMANCE PROFILE:

API CC/SC

MIL-L 2104 B

**APPLICATION:** Good quality engine oil formulated with highly refined base oils and stable additives to provide engine cleanliness, wear and corrosion protection and oxidation inhibition while in use in automotive diesel engines of moderate duty service. These oils are especially recommended for normally aspirated diesel engines requiring this quality levels.

### KEY FEATURES:

- Good high temperature stability and oxidation resistance
- Good protection against corrosion and rusting

### TECHNICAL DATA:

CHARACTERISTICS	TEST METHOD	TYPICAL VALUE			
		30	40	50	20W50
Density at 15°C, Kg/L	ASTM D1298	0.882	0.886	0.89	0.89
Viscosity at 40°C, cSt	ASTM D445	105	140	195	170
Viscosity at 100°C, cSt	ASTM D445	11.5	15	19	18.5
Viscosity Index	ASTM D2270	96	107	108	115
Flash Point, COC, °C	ASTM D92	240	240	240	240
Pour Point, °C	ASTM D97	-6	-6	-6	-15
TBN, mgm KOH/gm	ASTM D2896	3.0	3.0	3.0	3.0

## 2-STROKE ENGINE OIL FOR AIRCOOLED GASOLINE ENGINES

### PERFORMANCE PROFILE:

API TC

JASO FC

**APPLICATION:** This is a superior quality low smoke engine oil formulated with highly refined base stocks and well balanced low ash additive technology. Recommended for the lubrication of most modern, high-powered, air cooled, two stroke gasoline engines used in motorcycles, scooters, generators, chainsaws, pumps and other two stroke engines, equipped with or without oil injection system.

### KEY FEATURES:

- Outstanding thermal stability at extremely high temperature
- Perfect lubrication of engine components at all speeds
- Exceptionally high resistance to heat generation and frictional power losses
- Long term protection against oil oxidation to keep the engine free from piston skirt and spark plug deposits
- Extremely high control over wear, rust and corrosion to ensure long life of moving parts
- Trouble free ignition
- Properly balanced detergency ensures a clean engine and exhaust
- Exceptional self mixing capability ensures uniform oil gasoline mixture

### TECHNICAL DATA:

CHARACTERISTICS	TEST METHOD	TYPICAL VALUE
Density at 15°C, Kg/L	ASTM D1298	0.882
Viscosity at 40°C, cSt	ASTM D445	83
Viscosity at 100°C, cSt	ASTM D445	10
Viscosity Index	ASTM D2270	100
Flash Point, COC, °C	ASTM D92	236
Pour Point, °C	ASTM D97	-18
TBN, mgm KOH/gm	ASTM D2896	2.0

## 2-STROKE ENGINE OIL FOR WATERCOOLED GASOLINE ENGINES

### PERFORMANCE PROFILE:

NMMA TC-W3

**APPLICATION:** This is a premium quality ash-less engine oil formulated with highly refined base stocks and state of art additive technology. Recommended for the lubrication of most modern, high-powered, water cooled, two stroke gasoline engines used in marine outboard engines.

### KEY FEATURES:

- Outstanding thermal stability at extremely high temperature
- Perfect lubrication of engine components at all speeds
- Exceptionally high resistance to heat generation and frictional power losses
- Long term protection against oil oxidation to keep the engine free from piston skirt and spark plug deposits
- Extremely high control over wear, rust and corrosion to ensure long life of moving parts
- Trouble free ignition
- Properly balanced detergency ensures a clean engine and exhaust
- Exceptional self mixing capability ensures uniform oil gasoline mixture

### TECHNICAL DATA:

CHARACTERISTICS	TEST METHOD	TYPICAL VALUE
Density at 15°C, Kg/L	ASTM D1298	0.882
Viscosity at 40°C, cSt	ASTM D445	71
Viscosity at 100°C, cSt	ASTM D445	9.0
Viscosity Index	ASTM D2270	100
Flash Point, COC, °C	ASTM D92	236
Pour Point, °C	ASTM D97	-18
TBN, mgm KOH/gm	ASTM D2896	4.0
Sulfated Ash, % wt	ASTM D 874	<0.05

## HYDRAULIC OIL

32, 46, 68, 100, 220

### PERFORMANCE PROFILE:

VICKERS M-2950-S, 1-286-S3

CINCINNATI MILACRON P-68, P-69 & P-70

DENISON HF-O

DIN 51524 Part II

**APPLICATION:** A top quality oil with high degree of wear protection designed with highly refined base stocks and well balanced additive package. Recommended for high pressure hydraulic systems used in all mobile and stationary equipments operating under severe working conditions. Also used for circulation system, compressor pump, bearing and gear lubrication where recommended.

### KEY FEATURES:

- Extended oil life
- Enhanced thermal and hydrolytic stability
- Excellent demulsibility power and air release capability
- Outstanding filterability and good shear stability
- Exceptional resistance to foaming and oxidation
- Good resistance to wear, corrosion and rust
- Good compatibility with seals and soft metals
- Good friction characteristics resulting in lower running temperature

### TECHNICAL DATA:

CHARACTERISTICS	TEST METHOD	TYPICAL VALUE				
		32	46	68	100	220
Density at 15°C, Kg/L	ASTM D1298	0.875	0.88	0.882	0.884	0.89
Viscosity at 40°C, cSt	ASTM D445	32	46	68	100	200
Viscosity at 100°C, cSt	ASTM D445	5.4	6.8	8.8	11.4	19
Viscosity Index	ASTM D2270	102	102	102	100	105
Flash Point, COC, °C	ASTM D92	220	220	230	240	240
Pour Point, °C	ASTM D97	-18	-18	-18	-15	-15

## MULTI FUNCTIONAL OIL

320, 460

**APPLICATION:** A good quality general purpose oil, formulated with highly refined base stocks and antifoam additive package. Suitable for the lubrication of Hydraulic systems, pumps enclosed industrial gears and bearings operating under mild conditions. Also used for industrial applications where oil losses are high and heavy contaminants require frequent oil change.

### KEY FEATURES:

- Good thermal stability
- Fair resistance to rust and corrosion
- Good demulsibility power
- Excellent protection against foaming
- Economical

### TECHNICAL DATA:

CHARACTERISTICS	TEST METHOD	TYPICAL VALUE	
		320	460
Density at 15°C, Kg/L	ASTM D1298	0.90	0.91
Viscosity at 40°C, cSt	ASTM D445	320	460
Viscosity at 100°C, cSt	ASTM D445	25	32
Viscosity Index	ASTM D2270	100	101
Flash Point, COC, °C	ASTM D92	240	240
Pour Point, °C	ASTM D97	-6	-6

## AUTOMATIC TRANSMISSION FLUID

DEXRON III

### PERFORMANCE PROFILE:

GM DEXRON III	CAT TO-2
FORD MERCON	MERCEDES BENZ 236.1
ALLISON C-4	ZF TE- ML 09/11/14

**APPLICATION:** A top quality transmission fluid with new concepts of friction modification formulated with highly refined base stocks and specially selected complete additive system. Expressly recommended for automatic and semi automatic transmissions used in passenger cars and commercial vehicles, operating under severe service conditions.

### KEY FEATURES:

- Good stability and oxidation stability
- Good low temperature fluidity, seal compatibility
- Foam control, corrosion and anti wear properties
- Antirust properties and detergent inhibiting qualities

### TECHNICAL DATA:

CHARACTERISTICS	TEST METHOD	TYPICAL VALUE
		DEXRON III
Density at 15°C, Kg/L	ASTM D1298	0.874
Viscosity at 40°C, cSt	ASTM D445	48
Viscosity at 100°C, cSt	ASTM D445	7.0
Viscosity Index	ASTM D2270	102
Flash Point, COC, °C	ASTM D92	220
Pour Point, °C	ASTM D97	-36
Color	Visual	Red

# AUTOMATIC TRANSMISSION FLUID

DEXRON II D

## PERFORMANCE PROFILE:

GM DEXRON II D	CAT TO-2
MERCEDES BENZ 236.6	DENISON HF-O
ALLISON C-3	VICKERS M 2950 S

**APPLICATION:** A high quality transmission fluid with new concepts of friction modification formulated with highly refined base stocks and specially selected complete additive system. These oils are recommended for automatic and semi automatic transmissions used in passenger cars and commercial vehicles, operating under severe service conditions.

## KEY FEATURES:

- Good stability and oxidation stability
- Good low temperature fluidity, seal compatibility
- Foam control, corrosion and anti wear properties
- Antirust properties and detergent inhibiting qualities

## TECHNICAL DATA:

CHARACTERISTICS	TEST METHOD	TYPICAL VALUE
		DEXRON II D
Density at 15°C, Kg/L	ASTM D1298	0.874
Viscosity at 40°C, cSt	ASTM D445	46
Viscosity at 100°C, cSt	ASTM D445	6.8
Viscosity Index	ASTM D2270	102
Flash Point, COC, °C	ASTM D92	220
Pour Point, °C	ASTM D97	-33
Color	Visual	Red

## AUTOMATIC TRANSMISSION FLUID

TASA

### PERFORMANCE PROFILE:

GM TYPE A SUFFIX A

ALLISON C-3

**APPLICATION:** A good quality transmission fluid, designed for use in automatic gearboxes, where GM Type A are required. This oil may also be used in many power shift transmissions, industrial torque converters and manual transmission where lower viscosity fluids are required.

### KEY FEATURES:

- Good stability and oxidation stability
- Good low temperature fluidity, seal compatibility
- Foam control, corrosion and anti wear properties
- Antirust properties and detergent inhibiting qualities

### TECHNICAL DATA:

CHARACTERISTICS	TEST METHOD	TYPICAL VALUE
		TYPE A SUFFIX A
Density at 15°C, Kg/L	ASTM D1298	0.874
Viscosity at 40°C, cSt	ASTM D445	59
Viscosity at 100°C, cSt	ASTM D445	8.2
Viscosity Index	ASTM D2270	106
Flash Point, COC, °C	ASTM D92	220
Pour Point, °C	ASTM D97	-27
Color	Visual	Red

## GEAR OIL

SAE 90, 140, 85W90, 85W140

### PERFORMANCE PROFILE:

API GL-5

MIL-L-2105D

**APPLICATION:** A superior quality gear oil for automotive use meeting the stringent requirements of hypoid, bevel and spiral gear units, axles and final drives operating under severe conditions and over a wide range of temperatures. These oils are blended from high quality paraffin base oils and fortified with extreme pressure additives. These oils meet the requirements of several automotive manufacturers for cars, vans and commercial vehicles. This oil also finds application in lubricating certain transmission or gearboxes of limited slip differential in some commercial vehicles.

### KEY FEATURES:

- Long storage and thermal stability
- Very good wear protection even under severe load conditions
- Effective anti-corrosion, low foam properties and demulsibility characteristics
- Compatible with all seal materials applied
- Improved frictional characteristics ensures proper torque biasing and anti stick-slip performance

### TECHNICAL DATA:

CHARACTERISTICS	TEST METHOD	TYPICAL VALUE			
		90	140	85W90	85W140
Density at 15°C, Kg/L	ASTM D1298	0.90	0.91	0.90	0.91
Viscosity at 40°C, cSt	ASTM D445	200	300	190	285
Viscosity at 100°C, cSt	ASTM D445	18.5	25	18.0	24
Viscosity Index	ASTM D2270	102	105	103	104
Flash Point, COC, °C	ASTM D92	240	240	230	230
Pour Point, °C	ASTM D97	-6	-6	-12	-12

## GEAR OIL

SAE 90, 140, 85W90, 85W140

### PERFORMANCE PROFILE:

API GL-4

MIL-L-2105A

**APPLICATION:** A premium quality gear oil formulated for use in a wide range of gear units with normal, bevel and helical gear designs, including synchromesh manual gearboxes, transmissions and axles under moderately severe load and pressure conditions. These oils meet the requirements of several automotive manufacturers for cars, vans and commercial vehicles. Lubrication of manual transmissions of vehicles where EP gear oil is recommended. This oil also finds application in lubrication of steering gear boxes, industrial closed gears, agricultural gear sets and oil-lubricated track rollers of crawler tractors.

### KEY FEATURES:

- Long storage and thermal stability
- Very good wear protection even under severe load conditions
- Effective anti-corrosion, low foam properties and demulsibility characteristics
- Compatible with all seal materials applied
- Improved frictional characteristics ensures proper torque biasing and anti stick-slip performance

### TECHNICAL DATA:

CHARACTERISTICS	TEST METHOD	TYPICAL VALUE			
		90	140	85W90	85W140
Density at 15°C, Kg/L	ASTM D1298	0.90	0.91	0.9	0.91
Viscosity at 40°C, cSt	ASTM D445	200	300	190	285
Viscosity at 100°C, cSt	ASTM D445	18.5	25	18.0	24
Viscosity Index	ASTM D2270	102	105	103	104
Flash Point, COC, °C	ASTM D92	240	240	230	230
Pour Point, °C	ASTM D97	-6	-6	-12	-12

**PERFORMANCE PROFILE:**

API GL-1

**APPLICATION:** A good quality gear oil formulated with highly refined base stocks and antifoam additive package. Suitable for manual transmissions, spiral bevel and worm axles and all gearing systems used in automotive and off the road equipments operating under mild service conditions.

**KEY FEATURES:**

- Natural thermal and oxidation stability
- Good protection against wear, foaming, rust and corrosion
- Good demulsibility characteristics
- Good protection of bearing and gear teeth

**TECHNICAL DATA:**

CHARACTERISTICS	TEST METHOD	TYPICAL VALUE	
		90	140
Density at 15°C, Kg/L	ASTM D1298	0.90	0.91
Viscosity at 40°C, cSt	ASTM D445	200	300
Viscosity at 100°C, cSt	ASTM D445	18.5	25
Viscosity Index	ASTM D2270	102	105
Flash Point, COC, °C	ASTM D92	240	240
Pour Point, °C	ASTM D97	-6	-6

## CALCIUM BASE GREASE

NLGI # 1, 2, 3

### PERFORMANCE PROFILE:

DIN 51502 K1C, K2C, K3C, K4C

DIN 51825 K1B, K2B, K3B, K4C

ISO L-XBADA1, L-XBADA2, L-XBADA3, L-XBADA4

**APPLICATION:** This is a good quality, smooth-textured, calcium base general purpose grease, formulated with highly refined base stocks, calcium soap thickener and balanced additive package. Suitable for the lubrication of vehicle chassis, water pump, workshop and construction site machineries.

### KEY FEATURES:

- Fair structural stability
- Better protection against rust, corrosion and water
- Good resistance to oxidation
- Non corrosive to all metals
- Outstanding ability to resist water washout

### TECHNICAL DATA:

CHARACTERISTICS	TEST METHOD	TYPICAL VALUE		
		1	2	3
NLGI Classification	ASTM D 217	1	2	3
Thickener Type		Calcium	Calcium	Calcium
Texture		Smooth	Smooth	Smooth
Drop Point, °C	ASTM D 566	90	90	90
Penetration @25 °C/60 strokes,dmm	ASTM D 217	325	280	235
Working Range, °C		-10 to 50	-10 to 50	-10 to 50

## MP 2 & MP 3 LITHIUM GREASE

### PERFORMANCE PROFILE:

ISO L- XBCDA2 Classification

DIN 51825 K2K-20

GA classification ASTM D 4950

**APPLICATION:** These are Multipurpose Greases based on Lithium soap designed to meet the lubrication requirements of all automotive and selected industrial grease applications. This includes all bearings and wheel hubs of cars, trucks, trailers and earth moving equipment, universal joints and water pump bearings. These greases are recommended for normal loads and for operating temperatures not exceeding 135 deg C. These greases are fortified with antioxidant, antitrust and anticorrosion additives. They resist normal water washing and give excellent performance as a wheel bearing and general bearing grease.

### KEY FEATURES:

- Good wheel bearing performance
- Resistance to normal water-washing
- Protection against rusting
- Good pumpability
- Good resistance to shear under stress

### TECHNICAL DATA:

CHARACTERISTICS	TEST METHOD	TYPICAL VALUE	
		MP2	MP3
Thickener Type	-	Lithium	Lithium
NLGI Classification	ASTM D 217	2	3
Texture	-	Smooth	Smooth
Colour	-	Brown	Brown
Drop point , deg C	ASTM D 566	185	195
Worked penetration @25 degC/60strokes,0.1mm	ASTM D 217	265/295	220/250
Wheel bearing leakage after 6hrs@110 degC,gms	ASTM D 1263	< 2	< 2

## ANTI FREEZE COOLANT

### PERFORMANCE PROFILE:

BMW 1701	BS 3151 Type B
CUNA NC 956-13	FIAT 55523/1
FORD ESE M 97 B 18 C	GM EU L6-368
MAN 324	MERCEDES BENZ 7700.00

**APPLICATION:** A high quality, long-life performance cooling liquid with high level of alkalinity reserve, designed with 40% Mono Ethylene Glycol, highly deionized water and state of art corrosion inhibitor. Recommended for use in cooling systems of all vehicles of all makes and types, operating under severe service at extremely high and low temperature.

### KEY FEATURES:

- Outstanding cooling power in all seasons
- Efficient protection against rust and corrosion
- Compatible with all elastomers
- Excellent antifoam ability
- Non corrosive to cast iron and Aluminum

### TECHNICAL DATA:

CHARACTERISTICS	TEST METHOD	TYPICAL VALUE
Sp. Gravity @ 15 °C	ASTM D1298	1.03
Reflex Boiling Point (Dil 60% Water), °C	ASTM D1120	105
Freezing Point (Dil 60% Water), °C	ASTM D1117	-25
pH Value	ASTM D1121	8.0
Color	Visual	Green

## BRAKE FLUID

DOT 3/DOT 4

### PERFORMANCE PROFILE:

SAE J 1703

Federal Motor Vehicle Safety Standard (FMVSS) 116 DOT3/DOT4

ISO 4925

**APPLICATION:** These are modern synthetic fluids for all conventional drum brake and disc brake systems as well as hydraulic clutch-actuation systems operating under tough operating conditions and where brake fluids of such standard viz. DOT 3 or 4 are recommended. These are specially tailored to achieve the critical viscosity temperature characteristics needed in Brake Systems.

### KEY FEATURES:

- High wet and dry boiling points for greater safety margins
- Extra resistance to reduction in boiling point from moisture absorption
- Good rubber swell characteristics
- Compatible with seal rubbers

### TECHNICAL DATA:

CHARACTERISTICS	TEST METHOD	TYPICAL VALUE	
		DOT 3	DOT 4
Density at 20°C, Kg/m <sup>3</sup>	ASTM D1298	1030	1034
Kinematic Viscosity at -40°C, cSt	ASTM D445	1150 max	1800 max
Kinematic Viscosity at 100°C, cSt	ASTM D445	1.9 min	2.1 min
Equilibrium Reflux Boiling Point,deg C(dry)		245.0	266.0
Equilibrium Reflux Boiling Point,deg C(dry)		145.0	163.0
pH Value		9.0	7.5
Colour		Natural	Natural

