



Automotive Lubricants

Sah Petroleums Limited

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Automotive Lubricants

ECO-FRIENDLY MOTOR OILS

IPOL MGF ECO SUPER OILS

IPOL MGF ECO Super Oils are environment friendly, fuel efficient, multigrade motor oils. These oils contain detergent-dispersant, antioxidant and antiwear additives to provide long engine life. These oils are manufactured to meet API SF/CC; MIL-L-46152B, IS:13656 Type EPL2/EDL1 specification requirements.

IPOL MGF ECO Super Oils are recommended for use in both the new generation passenger cars as well as in older models to provide optimum performance.

Characteristics	Test Methods	15W-40	20W-40	20W-50
Kinematic Viscosity at 100° C cSt	IS-1448 : P-25	13.5 – 14.5	13.5 – 14.5	17 - 18
Viscosity Index, Min.	IS-1448 : P-56	120	110	115
Flash Point °C COC, Min.	IS-1448 : P-69	200	200	200
TBN mg KOH/gm	IS-1448 : P-86	5	5	5

IPOL MSG ECO SUPER OILS

IPOL MSG ECO Super Oils are superior top-of-the-line, all season engine oils with excellent performance characteristics. These advanced multi-grade engine oil have been specially blended from selected base oils and additives to more than meet the API SG/CD classification as also IS 13656 EPL3/EDL2. It is recommended for use in both the new generation passenger vehicles as well as in older models to provide better operating performance.

Characteristics	Test Methods	15W-40	20W-40
Kinematic Viscosity at 100° C cSt	IS-1448 : P-25	13.5 - 15.0	13.5 - 15.0
Viscosity Index, Min.	IS-1448 : P-56	120	110
Flash Point °C COC, Min.	IS-1448 : P-69	200	200
TBN mg KOH/gm	IS-1448 : P-86	6	6

NEW GENERATION DIESEL ENGINE OILS

IPOL MTB HD OILS

IPOL MTB HD Oils are manufactured from high VI, highly refined base oils combined with an additive system containing detergents, ashless dispersants, anti-oxidant and anti-wear inhibitors.

These meet performance requirements of former U.S. MIL-L-2104 B and API CC/SC specification. These also meet BIS 13656-2002 EDL1/EPL1 performance requirements.

Characteristics	Test Methods	SAE 30	SAE 40	SAE 50
Kinematic Viscosity at 100° C cSt	IS-1448 : P-25	10 – 12	13 – 15	17 – 19
Viscosity Index, Min.	IS-1448 : P-56	95	90	90
Flash Point °C COC, Min.	IS-1448 : P-69	215	220	225
TBN mg KOH/gm	IS-1448 : P-86	4.5	4.5	4.5



IPOL MGB HD (MULTIGRADE) OILS

IPOL MGB HD Oils are formulated from high Viscosity Index, solvent extracted base oils, combined with an additive system containing ashless dispersant, metallo-organic detergent, oxidation and wear inhibitors. These meets BIS:13656-2002 Type EDL1/EPL1; API CC/SC; MIL-L-2104B.

Characteristics	Test Methods	SAE 10W-30	SAE 20W-40	SAE 20W-50
Kinematic Viscosity at 100° C cSt	IS-1448 : P-25	10.0 – 11.0	13.5 – 14.5	17.0 – 18.0
Viscosity Index, Min.	IS-1448 : P-56	130	110	115
Flash Point °C COC, Min.	IS-1448 : P-69	190	200	200
TBN mg KOH/gm	IS-1448 : P-86	4.5	4.5	4.5

IPOL MTC DIESEL SUPER OILS

IPOL MTC Diesel Super Oils are high performance heavy duty engine oils manufactured from high quality, solvent extracted, base oils which have been fortified with additives to provide excellent protection against wear, deposits and corrosion.

IPOL MTC Diesel Super Oils are recommended for applications requiring a quality oil equivalent to IS: 13656 EDL3 specification. It also gives good diesel engine performance expected of an API CF/CD / MIL-L-2104C plus MACK T-7 pass level oil. High level of detergency makes them suitable for use in diesel engines even fitted to off-highway equipment.

Characteristics	Test Methods	10 W	20	30	40	50
Kinematic Viscosity at 100° C cSt	IS-1448 : P-25	5 min	6 - 8	10 – 12	13 - 15	17 – 19
Viscosity Index, Min.	IS-1448 : P-56	100	95	95	90	90
Flash Point °C COC, Min.	IS-1448 : P-69	190	200	215	220	225
TBN mg KOH/gm	IS-1448 : P-86	9.0	9.0	9.0	9.0	9.0

IPOL MGC DIESEL SUPER OILS

IPOL MGC Diesel Super Oils are manufactured from high viscosity index base oils and high performance additive packages. These multigrade oils can be used over a wide range of temperatures.

IPOL MGC Diesel Super Oils are heavy duty multigrade engine oils formulated to meet the requirements of U.S.Army Specification MIL-L-2104C/ API CF/CD/SD plus MACK T-7 pass as also IS 13656 Type EDL3.

Characteristics	Test Methods	20W-40	25W-50
Kinematic Viscosity at 100° C cSt	IS-1448 : P-25	13.5 – 14.5	17.0 – 18.0
Viscosity Index, Min.	IS-1448 : P-56	110	115
Flash Point °C COC, Min.	IS-1448 : P-69	200	200
TBN mg KOH/gm	IS-1448 : P-86	9.0	9.0



IPOL MCF DIESEL ULTRA 15W-40

IPOL MCF Diesel Ultra 15W-40 is a top tier multigrade diesel engine crankcase oil manufactured from premium quality virgin base stock. It is fortified with a shear stable viscosity index improver, and high performance engine oil additives. It also contains a special additive to retard soot induced oil thickening, particularly for engines emitting black exhaust smoke. As a result, oil in service does not thicken much while the engine runs over a longer period.

IPOL MCF Diesel Ultra 15W-40 has earned API DONUT logo - a mark of international quality certification, as also Ashok Leyland approval.

IPOL MCF Diesel Ultra 15W-40 meets API CF4/SG and MB 228.1 requirements.

Characteristics	Test Methods	Result
Kinematic Viscosity at 100° C cSt	IS-1448 : P-25	13.5 – 14.5
Viscosity Index, Min.	IS-1448 : P-56	120
Flash Point °C COC, Min.	IS-1448 : P-69	200
TBN mg KOH/gm	IS-1448 : P-86	10.0 min.

IPOL MCG DIESEL PREMIUM 15W-40

IPOL MCG Diesel Premium 15W-40 is a multigrade diesel crankcase engine oil designed for new generation on-road & off-road heavy duty vehicles, both naturally aspirated and/or turbo-charged engines.

IPOL MCG Diesel Premium 15W-40 meets API CG4/SJ and MB 228.3 performance level and is specifically designed to meet Bharat II emission norms. It has approval from Ashok Leyland for their AL/HINO and IVECO diesel engines. It has earned API Donut Logo – a mark of international quality certification.

Characteristics	Test Methods	15W-40
Kinematic Viscosity at 100° C cSt	IS-1448 : P:25	13.5 - 14.5
Viscosity Index, Min.	IS-1448 : P:56	130
Flash Point °C COC, Min.	IS-1448 : P:69	200
TBN mg KOH/gm.	IS-1448 : P:86	10

IPOL MCH DIESEL XL OIL

IPOL MCH Diesel XL 15W-40 is a premium high performance multi grade diesel engine oil meeting the latest API CH-4/CG-4 service classification. This product also conforms to API SJ service classification for 4-stroke petrol engine and MB 228.3 requirements. It is manufactured from imported high quality base stocks. It is fortified with shear stable viscosity index improver and proven performance engine oil additives.

IPOL MCH Diesel XL 15W-40 is recommended for new generation low emission diesel engines operating on low or high sulphur fuels. The superior technology used in the formulation of the product assures its high performance in diesel engines operating even under most severe conditions viz. off-highway equipments, DG sets etc., besides on-highway continuous duty service.

It is recommended specially for Caterpillar, Cummins, Volvo, Mack, MAN, Daimler Chrysler and such other Euro II-III compliant diesel engines.

Characteristics	Test Methods	Result
Kinematic Viscosity at 100 °C cSt	IS-1448 : P-25	14.0 – 15.0
Viscosity Index, Min.	IS-1448 : P-56	130
Flash Point °C COC, Min.	IS-1448 : P-69	200
TBN mg KOH/gm	IS-1448 : P-86	10 min.



LOW EMISSION CNG ENGINE OILS

IPOL CNG SUPER OILS

IPOL CNG Super 15W-40/20W-40/20W-50 are premium, low ash Natural Gas Engine oils specially developed to meet low emission requirement of city service buses, trucks and passenger cars. This product meets API CF requirements. It is compatible with alternate fuel.

Characteristics	Test Methods	15W-40	20W-40	20W-50
Kinematic Viscosity at 100° C cSt	IS-1448 : P-25	13.5 – 15.0	13.5 – 15.0	17.0 – 18.0
Viscosity Index, Min.	IS-1448 : P-56	120	110	115
Flash Point °C COC, Min.	IS-1448 : P-69	200	200	200
TBN mg KOH/gm	IS-1448 : P-86	5.0	5.0	5.0
Sulphated Ash %	IS-1448 : P-4	0.55	0.55	0.55

MARINE TYPE ENGINE OILS

IPOL DG SET OILS

IPOL DG Set Oils are specially formulated from highly refined base stocks and proprietary additives to meet the exacting requirements of marine type engines. Their high TBN, excellent thermal stability, and anti-wear characteristics make them highly effective for use in diesel sets coupled to power generators.

Characteristics	Test Methods	330	340	421	430
SAE GRADE	Visual	30	30	40	40
Kinematic Viscosity at 100° C cSt	IS-1448 : P-25	10.0 – 12.0	10.0 – 12.0	13 – 15	13 – 15
Viscosity Index, Min.	IS-1448 : P-56	95	95	90	90
Flash Point °C COC, Min.	IS-1448 : P-69	220	220	230	230
TBN mg KOH/gm	IS-1448 : P-86	30	40	22	30

TRACTOR OIL

IPOL TRACTOR GOLD

IPOL Tractor Gold meets API CC/SC, US MIL-L-2104B and IS:13656-2002 Type EDL1 / EPL1 for engine oils. It also meets API GL 4 performance levels for gear and transmission lubricants. It is a multigrade universal tractor oil recommended for engine combined transmission and hydraulic systems of tractors.

Characteristics	Test Methods	SAE 20W-40
Kinematic Viscosity at 100° C cSt	IS-1448 : P-25	13.5 - 15.0
Viscosity Index, Min.	IS-1448 : P-56	110
Flash Point °C COC, Min.	IS-1448 : P-69	200
TBN mg KOH/gm	IS-1448 : P-86	5



RUNNING-IN CUM PRESERVATIVE ENGINE OILS

IPOL Running In Oils are formulated from specially selected virgin base oils and contain well balanced dosages of detergent-dispersants and anti-corrosion agents so that the impurities get thrown out at the time of draining these oils. Optimised dosage of additives, not only help in initial bedding-in but also prevent bore polish and glazing. It is not necessary to drain-out IPOL Running In Oil at the Pre Delivery Inspection (PDI) stage.

IPOL ERP 30 has been devised to meet the performance level of API CC and MIL-L-21260 C Type II and DB-6551 corrosion tests.

IPOL ERP 30X meets the performance level of API CD and DB-6551 corrosion tests.

Characteristics	Test Methods	IPOL ERP 30	IPOL ERP 30X
Kinematic Viscosity at 100° C cSt	IS-1448 : P-25	10.0 – 12.0	10.0 – 12.0
Viscosity Index, Min.	IS-1448 : P-56	95	95
Flash Point °C COC, Min.	IS-1448 : P-69	230	230
TBN mg KOH/gm	IS-1448 : P-86	5	8

ECONOMY GRADE ENGINE OILS

IPOL MTA HD OILS

IPOL MTA HD Oils have been developed to reduce friction, prevent wear, carry away heat and seal the piston ring clearances. Their use prevents blow-by and offers effective lubrication to the engines, even during stop-and-go operations. These meet the requirements of MIL-L-2104A & API-CB (Now obsolete) specifications.

Characteristics	Test Methods	HD 20	HD 30	HD 40	HD 50
Kinematic Viscosity at 100° C cSt	IS-1448 : P-25	6.0 - 8.0	10 - 12	13 – 15	17 – 19
Viscosity Index, Min.	IS-1448 : P-56	98	95	90	90
Flash Point °C COC, Min.	IS-1448 : P-69	200	215	220	225
Pour Point °C, Max.	IS-1448 : P-10	(-)9	(-)6	(-)6	(-)6

PUMP SET OIL

IPOL PSO PLUS

IPOL PSO Plus is Heavy Duty Pump-Set Oil manufactured from highly refined base oils. It has special additive to provide anti-corrosion protection to engine internals during ideal periods. This engine oil is designed for both compression-ignition and spark-ignition type engines. It is a proprietary branded product.

Characteristics	Test Methods	Results
Appearance	Visual	Red
Kinematic Viscosity at 100° C cSt	IS-1448 : P-25	12.5 – 16.3
Viscosity Index, Min.	IS-1448 : P-56	95
Flash Point °C COC, Min.	IS-1448 : P-69	220

2 & 3-WHEELER ENGINE OILS

IPOL 2T HI-TECH

IPOL 2T Hi-Tech is a semi-synthetic, low smoke, eco-friendly 2T oil developed for two stroke engines. It is blended using carefully selected base oils and additives. It meets JASO (Japanese Automotive Standard Organisation) FC performance requirements. It also meets API TC requirements.

Characteristics	Test Methods	Results
Colour	Visual	Green Dyed
Kinematic Viscosity at 100° C cSt	IS-1448 : P-25	Min 6.5
Flash Point °C COC, Min.	IS-1448 : P-69	70
Sulphated Ash % wt (Max.)	IS-1448 : P-4	0.25



IPOL 4T OILS

IPOL 4T X'tra & X'cite SAE 20W-40 & 20W-50 are specially formulated 4 stroke engine oils with a well balanced V.I. Improver blend to offer assured performance when used in engines of different designs.

IPOL 4T X'tra 20W-50 meets API SG/CD and IPOL 4T X'cite 20W-40 meets API SJ specification. Both are designed to meet JASO T-903 performance classification MA and are on file with Japan Lubricating Oil Society (JALOS).

Characteristics	Test Methods	20W-40	20W-50
Appearance	Visual	Blue	Blue
Kinematic Viscosity at 100° C cSt	IS-1448 : P-25	13.5 – 15.0	17.5 – 18.5
Viscosity Index, Min.	IS-1448 : P-56	110	120
Flash Point °C COC, Min.	IS-1448 : P-69	230	230
TBN gm KOH/gm	IS-1448 : P-86	5.0	5.0

HIGH PERFORMANCE GEAR OILS

IPOL SYNCRO ST OILS

IPOL Syncro ST Oils are made from selected base oils to give resistance to oxidation thickening and good lubricating properties. These oils meet the performance level of API GL-2 and IS 1277-1975 specification requirements.

Characteristics	Test Methods	SAE 90	SAE 140
Kinematic Viscosity at 100° C cSt	IS-1448 : P25	16 - 18	28 – 30
Viscosity Index, Min.	IS-1448 : P56	85	80
Flash Point °C COC, Min.	IS-1448 : P69	180	190

IPOL SYNCRO HD OILS

IPOL Syncro HD Oils are formulated with mild EP additives and base stocks having excellent resistance to oxidation.

Suitable for manual transmissions in cars and light duty trucks where API GL-1, GL-2 and GL-3 are recommended. These may be used for manual transmissions with spiral bevel or worm gear drives.

These grades meet the performance level envisaged by API GL-3.

Characteristics	Test Methods	SAE 90	SAE 140
Kinematic Viscosity at 100° C cSt	IS-1448 : P-25	16 - 18	28 - 30
Viscosity Index, Min.	IS-1448 : P-56	85	80
Flash Point °C COC, Min	IS-1448 : P-69	180	190

IPOL SYNCRO EP OILS

IPOL Syncro EP Oils are heavy duty type multipurpose gear oils formulated to give good oxidation stability for long service life. They contain EP (Extreme Pressure) additives that withstand high temperature and pour depressants that prevent the lubricant from channeling at low temperatures. These oils can be used where an API GL4 lubricant is recommended.

Characteristics	Test Methods	EP 80W	EP 90	EP 80W-90	EP 140
Kinematic Viscosity at 100° C cSt	IS-1448 : P-25	9 - 11	16 - 18	13 - 15	28 - 30
Viscosity Index, Min.	IS-1448 : P-56	90	90	90	80
Flash Point °C COC, Min.	IS-1448 : P-69	165	180	165	190

IPOL SYNCRO PLUS EP 90

IPOL Syncro Plus EP 90 Oil is formulated using special EP additive having good load carrying capacity, resistance to oxidative thickening and provides excellent rust protection. It is specially recommended for TATA Motors and Ashok Leyland vehicles.

IPOL Syncro Plus EP 90 Oil meet requirements of the API GL-4, MIL-L-2105, CS 3000A and IS 1118 -1992 specifications.

Characteristics	Test Methods	Plus EP 90
Kinematic Viscosity at 100° C cSt	IS-1448 : P-25	16.0 – 18.0
Viscosity Index, Min.	IS-1448 : P-56	90
Flash Point °C COC, Min.	IS-1448 : P-69	180

AUTOMOTIVE OILS



IPOL SYNCRO PREMIUM OILS

IPOL Syncro Premium grades are recommended for gear applications requiring lubricants meeting U.S. MIL-L-2105D, API GL-5 performance level, particularly suitable where loading is severe and maximum gear protection is required.

These oils are recommended for bevel, spiral bevel and hypoid gear differentials, for synchromesh & constant mesh transfer cases, oil lubricated universal joints and manually operated steering gears. Recommended for rear axles of TATA Motors and Ashok Leyland vehicles.

Characteristics	Test Methods	SAE 80W-90	SAE 90	SAE 140
Kinematic Viscosity at 100° C cSt	IS-1448 : P-25	13.0 – 15.0	16.0 – 18.0	28 – 30
Viscosity Index, Min.	IS-1448 : P-56	90	90	80
Flash Point °C COC, Min.	IS-1448 : P-69	165	180	190

IPOL SYNCRO PLUS XP OILS

IPOL Syncro Plus XP 80W-90 Oil is a high performance gear and transmission oil formulated using special EP additive and high quality base oils. Meets API GL-5, U.S. MIL-L-2105D and IS 1118-1992 specifications. It is specially recommended for TATA Motors & Ashok Leyland vehicles for their synchromesh gear boxes and steering gears.

IPOL Syncro Plus XP 85W-140 (Oil) is blended from highly refined base oils, fortified with specially selected extreme pressure additives that withstand thermal degradation at high temperatures. This combination makes it an excellent heavy duty gear lubricant that can provide effective load carrying capacity particularly for hypoids in automotive axles operated under high speed and / or low speed, high torque conditions and severe shock loads. Recommended for TATA Motors & Ashok Leyland vehicles for their spiral bevel gear boxes.

Characteristics	Test Methods	IPOL Syncro Plus	
		XP 80W-90	XP 85W-140
Kinematic Viscosity at 100° C cSt	IS-1448 : P-25	13.0 - 15.0	28 – 30
Viscosity Index, Min.	IS-1448 : P-56	90	85
Flash Point °C COC, Min.	IS-1448 : P-69	165	180

IPOL SYNCRO SUPERIOR 80W-90

IPOL Syncro Superior 80W-90 is a premium grade, long-life gear and transmission lubricant formulated to meet the specific requirements of TATA vehicles having G600 Synchromesh Gear Box.

To meet these high performance requirements the product is blended from superior quality base oils and specially selected additive. The base oils are specifically selected for their superior thermal stability at high operating temperatures and the end-product is tested for action on cupric alloys.

Characteristics	Test Methods	IPOL Syncro Superior 80W-90
Kinematic Viscosity at 100° C cSt	IS-1448 : P-25	13.0 – 15.0
Viscosity Index, Min.	IS-1448 : P-56	90
Flash Point °C COC, Min.	IS-1448 : P-69	165



HIGH PERFORMANCE TRANSMISSION FLUIDS

IPOL TRANSMISSION FLUID

IPOL Transmission Fluids (SAE 10W and SAE 30) are hydraulic transmission fluids formulated to meet General Motors Detroit Diesel ALLISON DIVISION type C-4 specifications. These oils are blended from highly refined virgin base stocks with special additives to impart high oxidation stability, anti-wear, anti-rust, anti-foam and the desired frictional characteristics in service. These oils are compatible with the seal material used in hydraulic transmission systems. These have Allison Approval vide **Approval No.C4-28333699 for SAE 10W, & Approval No. C4-28343699 for SAE 30 grades.**

Characteristics	Test Methods	SAE 10W	SAE 30
Colour	Visual	Red	Red
Kinematic Viscosity at 100° C cSt	IS-1448 : P-25	5.5 min	10-12
Viscosity Index, Min.	IS-1448 : P-56	100	95
Flash Point °C COC, Min.	IS-1448 : P-69	190	215
Pour Point °C, Max.	IS-1448 : P-10	(-)27	(-)18

IPOL SYNCRO TQX

IPOL Syncro TQX is blended from high quality solvent extracted base oils together with multi-functional additives to impart anti-oxidation, anti-wear, dispersancy, defoaming and desired friction characteristics. Due to its high viscosity and low pour point, it assures quiet and smooth operation of hydraulic equipments under all climatic conditions. It is a fluid with low coefficient of friction, thus permitting clutch plates to engage slowly and gradually as the transmission shifts. It is dyed RED to distinguish it from other Crank-case oils, should leakage occur. It meets General Motors Automotive Transmission fluids Type A Suffix A (TASA) requirements.

Characteristics	Test Methods	IPOL Syncro TQX
Colour	Visual	Red
Kinematic Viscosity at 100° C cSt	IS-1448 : P-25	7.4 - 7.9
Viscosity Index, Min.	IS-1448 : P-56	160
Flash Point °C COC, Min.	IS-1448 : P-69	180
Pour Point °C, Max.	IS-1448 : P-10	(-)39



IPOL AUTOMOTIVE GREASES

IPOL Chassis Grease is a calcium base grease containing additives that impart extreme pressure properties. Being tacky it cannot be easily displaced with vibration and shock loads. It is also water resistant.

IPOL Wheel Bearing Grease is sodium base grease with very good structural stability. It gives excellent performance when the bearing is half filled with grease and **not excessively packed**. It withstands high temperatures and can be used in wheel bearings of vehicles with both drum and disc brakes.

IPOL Multi-purpose Grease 2 & 3 are lithium soap, all purpose premium quality greases. These are resistant to water washing and can withstand high temperatures. These have good oxidation and thermal stability and do not soften excessively on working.

IPOL M.P. Grease No. 3 is specially formulated for heavy-duty service e.g. wheel bearings of commercial vehicles and industrial locations with shock loadings. It has improved oxidation stability and antirust properties.

Characteristics	Test Methods	IPOL Chassis Grease	IPOL Wheel Bearing	IPOL Multipurpose Grease		IPOL M.P. Grease No.3
				2	3	
Colour	Visual	Dark	Brown	Light Brown		Light Brown
Structure	Touch	Semi Fluid	Short Fibre	Smooth		Smooth
Penetration at 25° C (60 Strokes)	ASTM D 217	310 - 250	220 - 250	265 - 295	220 - 250	220 - 250
Drop Point °C	ASTMD 566	150	150	180		190

IPOL IPLEX LOW TEMPERATURE GREASE

IPOL Iplex Low Temperature Grease is designed for operation at sub-zero temperatures. It is formulated as a dispersion of calcium complex soap in synthetic base oil. The base oil selected is such that it has a high viscosity index. It is non-reactive to copper and has excellent oxidation stability.

IPOL Iplex Low Temperature Grease can be operated for prolonged durations in operating temperature ranging from (-)50 to 180° C.

Characteristics	Test Methods	Results
Worked Penetration, 60 double stroke at 25° C	ASTM D 217	265 – 295
Change in Penetration at 25° C, difference between 60 & 100000 Strokes	ASTM D 217	17
Drop Point °C Min.	ASTM D 2265	264

IPOL AUTO GREASE HD

IPOL Auto Grease – HD is a premium quality tailor-made grease having high viscosity base oils and synergistic additive package for giving enhanced performance levels.

IPOL Auto Grease – HD has excellent shear stable soap structure which prevents softening and leakage of grease under heavy loads and high temperatures. This grease is highly resistant to water washout, rust corrosion and oxidation.

Characteristics	Test Methods	Results
Colour	Visual	Light Yellow
Texture	Feel	Smooth Buttery
Soap Type	-	Lithium
Drop Point °C	ASTM D 566	180
Worked Penetration 60 double stroke at 25° C	ASTM D 217	240 – 260



IPOL IPLEX GREASE RR 3

IPOL Iplex Grease RR3 is a premium quality multifunctional long life grease, especially formulated for varied applications from normal to severe mechanical operation. This grease is fortified with friction modifiers, rust & corrosion inhibitors in high viscosity index base oil. IPOL IPLEX Grease RR3 has far excellent shear stability, surface adhesion and water repellency properties as compared to normal lithium based multipurpose greases. It has approval from Ashok Leyland.

Characteristics	Test Methods	Results
Colour	Visual	Yellowish Brown
Structure	Feel	Smooth
Soap Type	-	Lithium
Drop Point °C Min.	ASTM D566	180
Worked Penetration 60 double stroke at 25° C	ASTM D217	220 – 250
Roll stability, penetration change, % after 16 hours	ASTM D1831	22 max.

AUTOMOTIVE SPECIALITY OILS

IPOL BRAKE FLUID

IPOL Halt X DOT 3 is a specially formulated Hydraulic Brake Fluid for use in all types of automotive vehicles fitted with either the drum or disc brakes. It is designed to withstand the high operating temperatures created by sudden and repetitive braking. It is recommended at locations where a Heavy Duty Brake Fluid meeting US Dept. of Transportation's requirements, popularly pronounced as DOT 3, and IS:8654-1986 is envisaged.

IPOL Halt X DOT 4 is a superior quality brake fluid. It meets US Dept. of Transportation's stringent specification FNVSS-116-DOT-4. It also meets IS:8654-1986 & SAE J 1703F specifications. It has exceptional thermal stability, chemical stability and good water tolerance.

Characteristics	Test Methods	Dot 3	Dot 4
Appearance	Visual	Red	Red
Kinematic Viscosity at 100° C cSt	D-445	1.5	1.5
Kinematic Viscosity at -40° C cSt	D-445	1500 max	1800 max
Equilibrium Reflux Boiling Point, °C	IS-8654 Appendix A-2	205	230
Effect on Rubber	Swell Test	Passes	Passes



IPOL ANTIFREEZE RADIATOR COOLANT

IPOL Antifreeze Coolant is a long life coolant recommended for use in on-road and off-road vehicles both light and heavy-duty commercial vehicles. It meets BIS 5759–1994 and JIS–K– 2234-1987 and Fiat (Italian) specifications.

IPOL Antifreeze Coolant is specially formulated with additives, which inhibit corrosion of alloys having aluminium, steel, copper and solder. Based on OEM recommendations it is used as a 30% to 50% solution in water.

Characteristics	Test Methods	Results
Appearance	Visual	Clear
Colour	Visual	Greenish Blue
Specific Gravity @ 20° C Min.	JIS K 2234 (IS- 5759)	1.127
Boiling Point °C	-do-	155
Freezing Point Water Sol. 30% °C Max 50% °C Max	-do-	(-) 14.0 (-) 34.0
Foam 30% Sol. ml. Max.	-do-	4 max
Rubber Compatibility	-do-	Passes
Corrosion at 88 + 2° C for 336 ± 2 hrs.	-do-	Passes
pH of 30% solution v / v	-do-	8.0