



INDUSTRY

PRODUCT CATALOGUE



ORLEN OIL is one of the leading manufacturer and distributor of lubricants with almost 15 years of tradition. The company is part of capital group ORLEN S.A.- one of the biggest oil industry players in Central-Eastern Europe.

Constant development of our portfolio of specialized products is dedicated to satisfy our clients from every branch of industrial production. Our own R&D and production departments guarantees the ability to create unique and customized solutions. Our wide offer of products and services enables cost optimization in our plants.

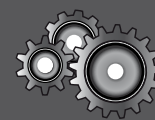
To confirm our high-class products we have approvals of leading industry machines manufacturers (Flender, Denison Hydraulics, Siemens, Cincinnati Machine) as well as OEMs (Mercedes-Benz, MAN, Renault, BMW, Volkswagen, Volvo, Daimler AG). What is more ORLEN OIL products are recommended by our key clients that are using and testing our products on a daily basis.

The cooperation with global additive manufacturers includes fundamental and applied research on new oil and grease industrial technologies. ORLEN OIL also cooperates with leading Polish research institutions, including Gas and Oil Institute of Kraków, the Fuels and Renewable Energy Institute of Warsaw, AGH University of Cracow.

A professional oil service - POWER SERVICE - provides consulting services on the selection of lubricants and effective lubricants management in a program Total Fluid Management.



HYDRAULIC FLUIDS					
HYDROL SYNT PE	02	NP CIRCULATING OILS	34	ANTYKOL TS 120	67
HYDROL EXTRA L-HV	02	CYLINDER OILS	35	AKORINOL ŁT	67
HYDROL ARCTIC L-HV	03	AXLE OILS	35	AKORINOL NQ	68
HYDROL PREMIUM L-HV	03	OILS FOR LUBRICATING CHAINS		AKORINOL L-5Q	68
HYDROL PREMIUM HVLP-D	04	PILAROL EKO	36	AKORINOL THP	69
HYDROL HVLP-D	04	PILAROL (Z)	36	HEATING MEDIA	
HYDROL L-HV	05	PILAROL VG	37	ITERM-4	70
HYDROL EXTRA HLP-D	05	OIL FOR PNEUMATICS		ITERM 6 MB	70
HYDROL PREMIUM HLP-D	06	PNEUMATIC VG	38	ITERM 30 MF	71
HYDROL HLP-D	06	LOCOMOTIVE OILS		ELECTRICAL INSULATING OIL	
HYDROL PREMIUM L-HM	07	LOKOMOTIV PREMIUM CD 40	30	ORLEN OIL TRAFO EN	72
HYDROL L-HM/HLP	07	LOKOMOTIV EXTRA CF 40	39	SPECIAL INDUSTRIAL OILS	
HYDROL L-HL	08	OILS FOR MOULDS		ELASTICOL 3090	73
HYDROL BIO HEES	08	KONKRETON V BIO	40	OIL FOR VARIOUS APPLICATIONS H-1	73
HYDROL BIO HEES EL	09	KONKRETON V	40	KALIBROL LUX	74
HYDROL BIO HETG EL	09	KONKRETON VS	41	AMORTYZOL 15 WL 150	74
HYDROL SPECIAL	10	KONKRETON L	41	CALCIUM SULPHONATE BASED GREASES	
ORLEN OIL H-515	10	KONKRETON N	42	HUTPLEX HVM	75
HYDRAULIC - GEAR OILS		KONKRETON P	42	HUTPLEX HV	76
TRANSOL V	11	KONKRETON S	43	HUTPLEX WR	76
GALKOP	11	KONKRETON T	43	LITHIUM GREASES	
HYDRAULIC FLUIDS FOR MINING INDUSTRY		KONKRETON XS	44	GREASEN SYNTX HT 2	77
HYDROKOP SYNTETIC	12	KONKRETON L (Z)	44	GREASEN COMPLEX 2	77
HYDROKOP SEMISYNTETIC	12	FORMEX Q	45	GREASEN ŁT 4S	78
HYDROKOP MINERALNY	13	B-0 ANTI-ADHESION OIL	45	GREASEN EP-23	78
KONHYDRT	13	BQ OIL FOR CERAMICS	46	LITEN NANO	79
NON-FLAMMABLE HYDRAULIC FLUIDS		CERAMOL Q	46	LITEN PREMIUM ŁT-4EP	79
HYDROFLUID HFC	14	SEPARATION OIL	47	LITEN ŁT-4	80
GEAR OILS		EMULSIFYING METALWORKING OILS		LITEN ŁT-4P	80
TRANSGEAR PAG	15	AQUASYN HD	48	LITEN EPX	81
TRANSGEAR PE	15	UNICOOL MIKRO EP	48	LITEN EP	81
TRANSOL SP	16	UNICOOL MIKRO E	49	SMAROL UNIWERSALNY EKO	82
TRANSOL CLP	16	UNICOOL MIKRO 40 P	49	SMAROL NANO FOR MOWERS AND TRIMMERS	82
TRANSOL	17	UNICOOL MIKRO 40 PS	50	LITHIUM-CALCIUM GREASES	
OILS FOR AIR AND GAS COMPRESSORS		UNICOOL MIKRO 40 PW	50	GREASEN S-EP 00/000	83
CORALIA PAG	18	UNICOOL WO	51	GREASEN N-EP 00/000	83
CORALIA PE	18	MIKROCUT	51	LITEN LC EP	84
CORALIA HC	19	EMULGOL ES 12	52	CALCIUM GREASES	
CORALIA ST	19	EMULGOL DS 30	52	KALTON EP	85
CORALIA T	20	NON-EMULSIFYING METALWORKING OILS		GREASEN GRAFIT	85
CORALIA VDL	20	FREZOL HC 800	53	GREASEN STP	86
CORALIA L-DAB	21	FREZOL WS 8	53	MACHINE GREASE	86
CORALIA L-DAA	21	FREZOL EPX	54	CSW ROLLING MACHINES GREASE	87
CORALIA VACUUM	22	FREZOL EP 32	54	GREASE FOR L, Z BRAKING MECHANISMS	87
OILS FOR REFRIGERATING COMPRESSORS		FREZOL EP	55	BENTONITE GREASES	
FRIGOL POE	23	FREZOL	55	BENTOMOS 23	88
FRIGOL M	23	GRIND HC 315	56	BENTOR 2	88
FRIGOL WZ	24	SULFOFREZOL 1	56	ALUMINIUM GREASES	
FRIGOL TZ	24	ACP-E	57	ALITEN EP	89
TURBINE OILS		ACP-1 NM	57	SPECIAL GREASES	
TURBINEX TG PREMIUM	25	SM MACHINING OIL	58	SMAROL PTFE	90
TURBINEX TG	25	HONOL D	58	KZE GREASE FOR TOOTHED GEARS	90
TURBINEX TU	26	MILTRON AM	59	KZ GREASE FOR TOOTHED GEARS	91
TURBINEX T	26	OILS FOR HARDENING		LR CABLE GREASE	91
OIL FOR STATIONARY GAS ENGINES		HARTEX 70S	60	UNITEX	92
DELGAS PREMIUM L 40	27	HARTEX 70, 120, 160	60	SOLVENTS AND KEROSENE	
DELGAS A 15W-40	27	HARTEX 70 XS	61	BROAD HEXANE FRACTION	93
DELGAS A 40	28	HARTEX 70 XKP	61	PHARMACEUTICAL PETROL	93
DELGAS L 40	28	HARTEX WZ	62	III LOW AROMATIC EXTRACTION	
DELGAS M 40	29	OH-70, OH-120M, OH-160M	62	NAPHTHA	93
MACHINE OILS		OILS FOR PLASTIC WORKING		PAINTER'S NAPHTHA	93
VELOL SHC 220	30	PRESSOL PT 1	63	DENATURATED ALCOHOL	93
VELOL P	30	OP-35	63	LIGHTING KEROSEN	93
VELOL D	31	L STAMPING OIL	64	CLEANING KEROSEN	93
VELOL NP	31	OIL FOR VERY DEEP STAMPING	64		
VELOL RC	32	WHITE OILS			
VELOL	32	VELOL WHITE 15	65		
L-AN	33	MAINTENANCE OILS			
L-AN Z	33	ANTYKOL NQ	66		
MACHINE OILS MN	34	ANTYKOL 100 S	66		



HYDROL SYNT PE

VISCOSITY GRADE:

ISO VG: 46

NORMS, APPROVALS, SPECIFICATIONS:

ISO 11158

DIN 51524 part 3

GENERAL SPECIFICATION:

High quality synthetic, zinc-free, ashless hydraulic oil produced from polyalphaolefins (PAO). The oil is extremely resistant to oxidation, particularly in adverse working conditions and temperatures. Thanks to its unique properties, HYDROL SYNT PE 46 guarantees extended working life in between oil change points, shorter overhauls, lower hydraulic system renovation and maintenance costs, as well as limited number of failures. The oil includes an innovative selection of refining additives protecting the oil installation against corrosion. High viscosity index plus ideal low-temperature properties ensure proper operation in a wide range of temperatures and guarantee unobstructed start-up in very low ambient temperatures.

APPLICATION:

HYDROL SYNT PE 46 is generally intended for high-load powertrain systems as well as hydraulic control systems, i.e. hydraulic transmissions, adjustment and control mechanisms and other similar devices operating in adverse conditions, high ambient temperature and humidity.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 40°C	mm²/s	43.8
viscosity index	-	140
pour point	°C	-51
flash point	°C	221
resistance to foaming - sequence 1 sequence 2 sequence 3	ml	0/0 10/0 0/0
FZG test	degree	>12

HYDROL EXTRA L-HV

VISCOSITY GRADE:

ISO VG: 32, 46, 68

QUALITY CLASS:

ISO 11158 – HV

NORMS, APPROVALS, SPECIFICATIONS:

DIN 51524 part 3

APPROVALS:

Parker Denison HF-0, HF-1, HF-2

Eaton (Vickers) M-2950-S

Eaton (Vickers) I-286-S

GENERAL DESCRIPTION:

The hydraulic oil of high viscosity index and excellent shear stability. With a specifically designed formulation it prevents the formation of fatty acids and sludge in result of oil oxidation, especially in very severe operating conditions and high temperatures. Thanks to the outstanding performance characteristics it provides extended change intervals, it reduces downtime, the cost of repair and maintenance of hydraulic systems, and limits the number of breakdowns. The oil contains innovative enriching additives selected optimally to protect the oil system against corrosion. It has exceptional properties of surface anti-wear protection of the friction components in the hydraulic pump systems. It provides a very good filterability even in systems contaminated with small amounts of water. High viscosity index and excellent low temperature properties ensure operation in a wide range of temperatures and provide a smooth start-up at very low ambient temperatures.

APPLICATIONS:

Hydraulic oil HYDROL EXTRA L-HV is designed primarily for the lubrication of mobile hydraulic construction and mining equipment working in very difficult conditions, variable temperature and humidity. The oil can be successfully used in stationary industrial machinery providing excellent lubrication for power transmission systems, the drive and hydraulic control of regulation and control mechanisms, hydraulic transmission, and other similar devices.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES		
ISO VG viscosity grade		32	46	68
kinematic viscosity at 40°C	mm²/s	32.7	45.3	66.0
viscosity index	-	151	150	150
pour point	°C	-42	-39	-39
resistance to foaming - sequence 1 sequence 2 sequence 3	ml	20/0 30/0 20/0		



HYDROL ARCTIC L-HV

VISCOSITY GRADE:

ISO VG: 15, 22, 32

QUALITY CLASS:

ISO 11158 – HV

DIN 51 502 – HVLP

NORMS, APPROVALS, SPECIFICATIONS:

DIN 51524 part 3

GENERAL DESCRIPTION:

Hydraulic oil with a very high viscosity index >250 and excellent low temperature properties. The oil contains innovative additives matched optimally to protect the oil system from corrosion and to provide very good surface anti-wear protection of the friction components in the hydraulic pump systems. Thanks to the outstanding performance characteristics the oil ensures a very wide range of operating temperatures and provides trouble-free start-up and operation in extremely low ambient temperatures.

APPLICATIONS:

The hydraulic oil HYDROL ARCTIC L-HV is designed for use in heavy duty drive systems, high-pressure constant and variable flow piston pumps and vane pumps, which require a high level of anti-wear properties of the oil, working in extremely low temperatures. The oil can be successfully used in hydraulic control systems and hydraulic systems that require very small changes in viscosity with temperature changes. Oils are used in all types of hydraulic devices that require the use of hydraulic oil with a very high viscosity index under varying operating temperatures from very low to very high.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES		
ISO VG viscosity grade		15	22	32
kinematic viscosity at 40°C	mm²/s	15.9	21.9	33.6
viscosity index	-	334	321	254
pour point	°C	-69	-67	-55
flash point	°C	132	128	154
resistance to foaming - sequence 1 sequence 2 sequence 3	ml	50/0 40/0 60/0	60/0 40/0 80/0	10/0 30/0 10/0

HYDROL PREMIUM L-HV

VISCOSITY GRADE:

ISO VG: 15, 22, 32, 46, 68

QUALITY CLASS:

ISO 11158 – HV

DIN 51524 part 3

GENERAL DESCRIPTION:

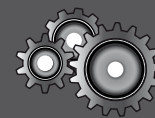
HYDROL PREMIUM L-HV hydraulic oils are manufactured basing on refined mineral oils and zinc free set of enriching additives. Features of the oil: good operating properties, perfect temperature - dependant viscosity grades (viscosity grade of ca. 150) enabling oil application in hydraulic systems operated in variable temperatures, high thermal and hydrolytic stability, high resistance to oxidation, high ability to transfer loads (FZG test, non-destructive load >12) and very good anti-wear properties, very good susceptibility to filtering, very good resistance to foaming, compatibility with sealants.

APPLICATIONS:

High durability of HYDROL PREMIUM L-HV allows their application in heavy-duty power transmission systems as well as hydraulic drive and control systems operating in extremely high pressures and a wide range of temperatures. The new, unique formula used in the manufacturing process guarantees their extended life as compared to standard mineral hydraulic oils.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES				
ISO VG viscosity grade		15	22	32	46	68
kinematic viscosity at 40°C	mm²/s	14.2	23.4	33.9	45.5	66.9
viscosity index	-	153	152	150	148	146
pour point	°C	-39	-37	-36	-34	-30
flash point	°C	191	195	202	210	221
resistance to foaming - sequence 1	ml	30/0	25/0	20/0	20/0	20/0



HYDROL PREMIUM HVLP-D

VISCOSITY GRADE:

ISO VG: 46

QUALITY CLASS:

ISO 6743/4 – HV

NORMS, APPROVALS, SPECIFICATIONS:

ISO 11158 HV, DIN 51524 cz.3 (without water release)

GENERAL DESCRIPTION:

The ashless hydraulic oil, with detergency properties and high viscosity index. Produced based on deeply refined mineral base oils and a set of enriching additives with antiwear, antioxidative and anticorrosive properties. Furthermore the oil contains detergent and dispersant additives, making it able to disperse solids and emulsify liquid contaminants that may occur in the system. High viscosity index and excellent low temperature properties ensure operation in a wide temperature range and ensure trouble-free start at very low ambient temperatures. Features: very good cleaning and dispersing properties, very good anticorrosive and antiwear properties, good resistance to oxidation, high viscosity index, good air release and low susceptibility to foaming.

APPLICATIONS:

HYDROL PREMIUM HVLP-D 46 oil is intended for use in stationary and mobile hydraulic systems of machines and devices working in normal and hard conditions. For use particularly in the continuous operation systems where is a danger of water or condensed steam contamination. It can be used in construction machinery operating at high air pollution, such as loaders, excavators, dump trucks, bulldozers.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 40°C	mm ² /s	47.5
viscosity index	-	155
pour point	°C	-39
flash point	°C	230
resistance to foaming - sequence 1	ml	20/0
copper corrosion, 3h/100°C	level	1

HYDROL HVLP-D

VISCOSITY GRADE:

ISO VG: 46

QUALITY CLASS:

ISO 6743/4 – HV

NORMS, APPROVALS, SPECIFICATIONS:

ISO 11158 HV, DIN 51524 cz.3 (without water release)

GENERAL DESCRIPTION:

The hydraulic oil with detergency properties and high viscosity index. Produced based on deeply refined mineral base oils and a set of enriching additives with antiwear, antioxidative and anticorrosive properties. Furthermore the oil contains detergent and dispersant additives, making it able to disperse solids and emulsify liquid contaminants that may occur in the system. High viscosity index and excellent low temperature properties ensure operation in a wide temperature range and ensure trouble-free start at very low ambient temperatures. Features: very good cleaning and dispersing properties, very good anticorrosive and antiwear properties, good resistance to oxidation, high viscosity index, good air release and low susceptibility to foaming.

APPLICATIONS:

HYDROL HVLP-D 46 oil is intended for use in stationary and mobile hydraulic systems of machines and devices working in normal and hard conditions. For use particularly in the continuous operation systems where is a danger of water or condensed steam contamination. It can be used in construction machinery operating at high air pollution, such as loaders, excavators, dump trucks, bulldozers.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 40°C	mm ² /s	49.2
viscosity index	-	153
pour point	°C	-39
flash point	°C	216
resistance to foaming - sequence 1	ml	90/0
copper corrosion, 3h/100°C	level	1

HYDROL L-HV

VISCOSITY GRADE:

ISO VG: 15, 22, 32, 46, 68, 100

QUALITY CLASS:

ISO 11158 – HV, DIN 51524 part 3

REKOMENDATIONS:

HYDROL L-HV 22, 32 - HYVA

HYDROL L-HV 46 - LENA WILKÓW

HYDROL L-HV 46 - MISTA Sp. z o.o.

GENERAL DESCRIPTION:

HYDROL L-HV hydraulic oils are manufactured basing on high quality mineral base oils and additives. These oils are characterized by high anti-wear properties and additionally improved viscosity-heat properties, with respect to hydraulic oil-type L-HM. They provide extended service life, reduced friction wear of surface elements in the hydraulic pump systems, working in a wide temperature range while maintaining optimum viscosity properties (high viscosity index WL> 140).

APPLICATIONS:

Hydraulic oils HYDROL L-HV are intended to use in heavy duty drive systems, constant and variable displacement high pressure piston pumps and vane pumps, which require a high level of anti-wear properties of the oil, and the precision hydraulic control systems and hydraulic systems that require small viscosity changes with varying temperatures.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES						
ISO VG viscosity grade		15	22	32	46	68	100	
kinematic viscosity at 40°C	mm ² /s	14.5	22.6	31.6	47.2	68.8	98.9	
viscosity index	-	150	150	150	145	145	142	
pour point	°C	-40	-39	-32	-34	-30	-30	
flash point	°C	178	192	205	210	226	232	
resistance to foaming - sequence 1	ml	30/0	25/0	20/0	20/0	20/0	20/0	

Oils with viscosity grade of VG 32, 46, 68, 100 have been approved for application in mining and are granted a certificate issued by the Central Mining Institute, which allows to mark the product with the safety sign.

HYDROL EXTRA HLP-D

VISCOSITY GRADE:

ISO VG: 32, 46, 68

QUALITY CLASS:

ISO 6743/4 – HM

NORMS, APPROVALS, SPECIFICATIONS:

ISO 11158 HM, DIN 51524 p.2 HLP

(without water release)

GENERAL DESCRIPTION:

HYDROL EXTRA HLP-D is a high quality zinc-free hydraulic oil with detergent properties. The product was made on a basis of deeply refined base oils and quality package with anti-wear, antioxidative, and anticorrosive characteristics. Moreover, the oil contains cleaning and dispersing additives enabling to disperse solid contamination and emulsify liquid contamination which can be present in the system. HYDROL EXTRA HLP-D has raised anti-wear AW and extreme pressure EP properties, Burgger test result > 45 N/mm².

Characteristic features:

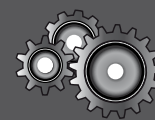
- very good detergent and dispersing properties – enables to maintain system purity
- very good anti-corrosive and anti-wear characteristics
- good resistance to oxidation
- good air release and low foaming
- very good filterability even in presence of water
- does not contain zinc and silicon.

APPLICATIONS:

HYDROL EXTRA HLP-D is a high quality zinc-free hydraulic oil with detergent properties. The product is designed for use in stationary and mobile hydraulic systems operating in variable exploitation conditions under high pressure and high thermal load. The oil is dedicated particularly for continuous operation and in case of risk of system contamination with water or vapor (e.g. hydraulic systems in machine tools where machining emulsion may contaminate the system).

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES		
ISO VG viscosity grade		32	46	68
kinematic viscosity at 40°C	mm ² /s	32.3	48.6	72.6
pour point	°C	-30	-30	-27
flash point	°C	218	214	218
resistance to foaming - sequence 1	ml	20/0	20/0	20/0
copper corrosion, 3 h/100°C	level	1	1	1
FZG (A/8.3/90)	grade	>12	>12	>12



HYDROL PREMIUM HLP-D

GENERAL DESCRIPTION:

HYDROL PREMIUM HLP-D hydraulic oils are manufactured on a basis of refined mineral oils and zinc free set of enriching additives. Features: excellent cleaning and dispersing properties, excellent anticorrosive and antiwear properties, very good oxidation stability, very good filterability – including presence of water.

VISCOSITY GRADE:

ISO VG: 32, 46

STANDARDS, APPROVALS. SPECIFICATION:

DIN 51524 part II – HLPD requirements

APPLICATIONS:

HYDROL PREMIUM HLP-D oils are intended to be applied in any kind stationary or mobile hydraulic systems of machines and devices working in normal and hard conditions especially on continuous basis and where the system may get polluted with water or condensed steam (e.g. in machine tool hydraulic systems where emulsion may penetrate to the system).

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES	
ISO VG viscosity grade		32	46
kinematic viscosity at 40°C	mm ² /s	33.5	45.5
viscosity index	-	98	98
pour point	°C	-34	-31
flash point	°C	215	225
resistance to foaming - sequence I	ml	10/0	10/0

HYDROL HLP-D

VISCOSITY GRADE:

ISO VG: 15, 22, 32, 46, 68

MEETS REQUIREMENTS:

DIN 51524 part 2 – HLP (without testing of resistance to emulsification)

HYDROL HLP-D 46, 68 – Schuller-Muller-Weingarten list DT 55 055

GENERAL DESCRIPTION:

HYDROL HLP-D cleaning hydraulic oils are manufactured basing on deep refined mineral base oil and a set of enriching additives with anti-wear, anti-oxidant and rust protection. Furthermore, the oils contain cleaning and dispersing additives which enable them to diffuse solid pollutants and to emulsify fluid pollutants which may appear in the system.

APPLICATIONS:

HYDROL HLP-D oils are intended for use in any kind of stationary or mobile hydraulic systems of machines and devices operating in normal and harsh conditions, especially on a continuous basis, and where there is the risk of polluting the system with water or condensed steam (e.g. in machine tool hydraulic systems where emulsion may penetrate into the system).

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES					
ISO VG viscosity grade		15	22	32	46	68	
kinematic viscosity at 40°C	mm ² /s	15.2	23	33.5	45.3	66.8	
viscosity index	-	-	110	102	102	99	
pour point	°C	-33	-30	-30	-27	-25	
flash point	°C	132	217	217	225	232	
resistance to foaming - sequence I	ml	50/0	25/0	25/0	20/0	20/0	

HYDROL PREMIUM L-HM

VISCOSITY GRADE:

ISO VG: 15, 32, 46, 68, 100

QUALITY CLASS:

ISO 11158 – HV

DIN 51524 part 2

APPROVED BY:

L-HM 100 allowed in military technology of the Polish Armed Forces

32, 46, 68 - Eaton Vickers Brochure 03-401-2010 (M-2950-S, I-286-S)

GENERAL DESCRIPTION:

HYDROL PREMIUM L-HM hydraulic oils are manufactured basing on refined mineral oils and zinc free set of enriching additives. Features of the oil: good operating properties, high thermal and hydrolytic stability, high resistance to oxidation, high ability to transfer loads (FZG test, non-destructive load >12) and very good anti-wear properties, very good susceptibility to filtering, very good resistance to foaming, compatibility with sealants.

APPLICATIONS:

High durability of HYDROL PREMIUM L-HM allows their application in heavy-duty power transmission systems as well as hydraulic drive and control systems operating in extremely high pressures and a wide range of temperatures. The new, unique formula used in the manufacturing process guarantees their extended life as compared to standard mineral hydraulic oils.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES				
ISO VG viscosity grade		15	32	46	68	100
kinematic viscosity at 40°C	mm ² /s	14.7	32.4	44.5	67.2	97.5
viscosity index	-	102	102	102	102	96
pour point	°C	-34	-28	-27	-26	-21
flash point	°C	180	210	212	224	230
resistance to foaming - sequence 1	ml	40/0	25/0	25/0	25/0	20/0

HYDROL L-HM/HLP

VISCOSITY GRADE:

ISO VG: 10, 15, 22, 32, 46, 68, 100, 150

QUALITY CLASS:

ISO 11158 – HM, DIN 51524 part 2

APPROVALS:

HYDROL L-HM/HLP 32, 46, 68 - Denison Hydraulics HF0, HF1, HF2, MAG/Cincinnati Machine P-68, P-70, P-69, Bosch Rexroth RE 90220-01;

HYDROL L-HM/HLP 32, 46 - ZETOR (Proxima, Proxima Plus, Proxima Power, Forterra), FUM Pořeba;

HYDROL L-HM/HLP 22, 32 - HYVA;

HYDROL L-HM/HLP 32 - EKOCEL;

HYDROL L-HM/HLP 68 - FAMUR, L-HM/HLP 46 i 68 - BUMECH SA;

L-HM/HLP 22 - STALCO Industries Sp. z o.o.

GENERAL DESCRIPTION:

HYDROL L-HM/HLP oils for hydrostatic hydraulic systems are manufactured basing on high quality mineral base oils and a set of enriching additives improving the anti-wear, anti-corrosion and anti-oxidation properties. It ensures extended life and reduces the wear of friction parts in hydraulic pumps.

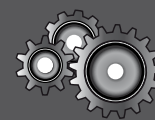
APPLICATIONS:

HYDROL L-HM/HLP hydraulic oils are intended mainly for heavy-duty power transferring systems and for hydraulic drive and control systems, i.e. hydraulic gears, control mechanisms and similar devices operating in harsh conditions or increased ambient temperature and humidity.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES							
ISO VG viscosity grade		10	15	22	32	46	68	100	150
kinematic viscosity at 40°C	mm ² /s	10.3	14.8	20.8	33.5	44.2	66.2	95.8	148.7
viscosity index	-	101	102	102	103	103	99	93	93
pour point	°C	-36	-35	-35	-34	-30	-30	-25	-22
flash point	°C	162	180	195	215	227	228	245	248
resistance to foaming - sequence 1	ml	50/0	50/0	50/0	30/0	30/0	30/0	20/0	20/0

Oils with viscosity grade of VG 32, 46, 68, 100, 150 have been approved for application in mining and are granted a certificate issued by the Central Mining Institute, which allows to mark the product with the safety sign.



HYDROL L-HL

VISCOSITY GRADE:

ISO VG: 15, 22, 32, 46, 68, 100, 150

QUALITY CLASS:

ISO 11158 – HL

DIN 51524 part 1

NO-91-A231: 1998 – for oil HYDROL L-HL

VISCOSITY GRADE: 15, 32, 46

APPROVALS:

CHOFUM - HYDROL L-HL 46

NATO NSN 9150430014374 - HYDROL L-HL 15

GENERAL DESCRIPTION:

HYDROL L-HL oils for hydrostatic hydraulic systems are manufactured basing on high quality mineral base oils and a set of enriching additives improving the anti-wear, anti-corrosion and anti-oxidation properties.

APPLICATIONS:

HYDROL L-HL hydraulic oils are intended for application in low-duty and medium-duty power transferring systems and in hydraulic drive and control systems of hydrostatic drive devices, operating in moderate temperatures.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES							
ISO VG viscosity grade		15	22	32	46	68	100	150	
kinematic viscosity at 40°C	mm ² /s	15.2	21.6	32.3	44.3	65.6	103.7	150	
viscosity index	-	102	103	103	101	98	93	93	
pour point	°C	-35	-33	-30	-30	-27	-26	-24	
flash point	°C	180	197	218	224	230	241	247	
resistance to foaming - sequence I	ml	50/0	50/0	30/0	30/0	30/0	20/0	20/0	

Oils with viscosity grade of VG 32 ,46, 68, 100, 150 have been approved for application in mining and are granted a certificate issued by the Central Mining Institute, which entitles to mark the product with the safety sign.

HYDROL BIO HEES

VISCOSITY GRADE:

ISO VG: 32

QUALITY CLASS:

ISO 15380

VDMA 24568

MEETS REQUIREMENTS:

Bosch Rexroth RE 90221-01

GENERAL DESCRIPTION:

High quality, biodegradable synthetic hydraulic fluid, featuring very high oxidation resistance. Thanks to specifically selected ester base, the oil has very good viscosity and temperature properties, shear resistance and exceptional oxidation resistance with temperature. The oil is environment friendly, comprised almost in 90% of renewable raw materials, low toxicity. The fluid contains innovative, optimally selected refining additives, protecting the oil system against corrosion. Provides exceptional wear protection for frictional elements in hydraulic pump systems.

APPLICATIONS:

HYDROL BIO HEES 32 hydraulic fluid is intended for lubrication of force, drive and hydraulic control transmission systems for adjusting and control mechanisms, hydraulic transmissions and other similar equipment, where hazard of the fluid penetration into ground water, soil and sewages exists. The fluid created for utilisation in any equipment operated for treatment of water, sewages, waste management, as well as canal locks. It is also designed for use in hydraulic systems of machines and systems operated in agriculture and mining.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 40°C	mm ² /s	33.5
viscosity index	-	201
pour point	°C	-39
flash point	°C	>200
FZG test – A/8.3/90	-	12

HYDROL BIO HEES EL

VISCOSITY GRADE:

ISO VG: 46

QUALITY CLASS:

ISO 15380

STANDARDS, APPROVALS, SPECIFICATION:

Classification: ISO 67344 HEES

EEL – European Ecolabel

EKO Polish Ecological Mark

GENERAL DESCRIPTION:

HYDROL BIO HEES EL 46 is a well biodegradable hydraulic oil based on special selected synthetic esters and additive improvers, which guarantee low toxicity minimizing environmental impacts in the case of spillage or leakage. The product is characterised by good resistance to oxidation, wide range of operating temperatures and extended lifetime. It is compatible with elastomers such as HNBR, NBR 1, FMP AC 6 and AU. HYDROL BIO HEES EL 46 has very good rheological properties during the operation. Due to its innovative technology the HYDROL BIO HEES EL 46 was awarded with an European Ecolabel certificate and EKO Polish Ecological Mark gaining a confirmation of its highly ecological properties.

APPLICATIONS:

HYDROL BIO HEES EL 46 is recommended for industrial and mobile hydrostatic hydraulic systems, where there is a potential risk of oil getting into the environment. The product was designed mainly for effective and safe operation of:

- hydraulic systems of machines and devices operating in agricultural and forestry sectors;
- hydraulic systems of machines and devices operating in building industry (excavation work);
- constructions and devices in water power industry;
- constructions and devices in shipbuilding industry;
- industrial machinery and devices.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 40°C	mm ² /s	48.2
kinematic viscosity at 100°C	mm ² /s	9.61
viscosity index	-	189
pour point	°C	-42
flash point	°C	>290
FZG test – A/8.3/90	-	10
biodegradability ISO 14593	%	>80



HYDROL BIO HETG EL

VISCOSITY GRADE:

ISO VG: 46

QUALITY CLASS:

ISO 15380

STANDARDS, APPROVALS, SPECIFICATION:

Classification: ISO 6734-4 HETG

EEL – European Ecolabel

EKO Polish Ecological Mark

GENERAL DESCRIPTION:

HYDROL BIO HETG EL 46 is a well biodegradable hydraulic oil based on special selected vegetable oil and environmentally friendly additives, which guarantee low toxicity minimizing environmental impacts in the case of spillage or leakage. The product is characterised by high viscosity index, good resistance to oxidation and deemulsifying properties. It provides maximal protection of components in the hydraulic system eliminating their premature wear. It is compatible with elastomers such as HNBR, NBR 1, FMP AC 6 and AU. HYDROL BIO HETG EL 46 has very good rheological properties during the operation. Due to its innovative technology the HYDROL BIO HETG EL 46 was awarded with an European Ecolabel certificate and EKO Polish Ecological Mark gaining a confirmation of its highly ecological properties.

APPLICATIONS:

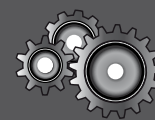
HYDROL BIO HETG EL 46 is recommended for industrial and mobile hydrostatic hydraulic systems, where there is a potential risk of oil getting into the environment. The product was designed mainly for effective and safe operation of:

- hydraulic systems of machines and devices operating in agricultural and forestry sectors;
- hydraulic systems of machines and devices operating in building industry (excavation work);
- constructions and devices in water power industry;
- constructions and devices in shipbuilding industry;
- industrial machinery and devices.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 40°C	mm ² /s	48.2
kinematic viscosity at 100°C	mm ² /s	10.3
viscosity index	-	209
pour point	°C	-24
flash point	°C	>290
FZG test – A/8.3/90	-	12
biodegradability ISO 14593	%	>90





HYDROL SPECIAL

VISCOSITY GRADE:

ISO VG: 46, 68

QUALITY CLASS:

ISO 11158 – HM

NORMS, APPROVALS, SPECIFICATIONS:

DIN 51524 part 2

GENERAL DESCRIPTION:

High quality hydraulic oil with improved resistance to oxidation. With a specifically designed formulation it prevents the formation of fatty acids and sludge in result of oil oxidation, especially in very severe operating conditions and high temperatures. Thanks to the outstanding performance characteristics it provides extended change intervals, it reduces downtime, the cost of repair and maintenance of hydraulic systems, and limits the number of breakdowns. The oil contains innovative enriching additives selected optimally to protect the oil system against corrosion. It has exceptional properties of surface anti-wear protection of the friction components in the hydraulic pump systems. It provides a very good filterability even in systems contaminated with small amounts of water. In addition, the oil has a raised viscosity index and very good low temperature properties and can therefore be used in a relatively wide temperature range and facilitates start-up at low temperatures.

APPLICATIONS:

The Hydraulic oil HYDROL SPECIAL is designed for the lubrication of power transmission systems, drive and hydraulic control regulation and control mechanisms, hydraulic transmission, and other similar devices. The oil designed to work in very difficult conditions, high temperatures and high humidity stationary and mobile machinery and industrial equipment as well as vehicles, construction and mining machinery. For use in systems where the manufacturer recommends hydraulic oil in the class according to ISO L-HM or DIN HLP, raised viscosity index ensures better work in a variable temperature range. Thanks to the exceptional properties it can be used in hydraulic systems for the manufacture of ceramic tiles.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES	
ISO VG viscosity grade		46	68
kinematic viscosity at 40°C	mm ² /s	44.8	67.3
viscosity index	-	115	115
pour point	°C	-33	-30
resistance to foaming - sequence 1 sequence 2 sequence 3	ml	20/0 30/0 20/0	

ORLEN OIL H-515

APPROVALS:

Product has been granted a certificate of Air Force Institute of Technology in Warsaw, Poland, approving its application in aircrafts of Air Force of the Republic of Poland

MEETS REQUIREMENTS:

NO-91-A202; STANAG 3748 F&L (Edition 2) – Hydraulic Fluids, Petroleum (H-515 and H-520), MAS (AIR) 43-F&L/3748, 28 February 1985; MIL H-5606G; DEF STAN 91-48/1; PZL MIELEC; A.SIKORSKI COMPANY, SAMOLOT PZL M28

GENERAL DESCRIPTION:

Mineral hydraulic oil of high quality and purity, intended for aviation and ground-based industry. It is manufactured basing on specially selected mineral oil base and a set of enriching additives providing optimal viscosity, anti-wear, anti-corrosive, anti-oxidant and anti-foaming properties, and is manufactured through a special process ensuring the highest purity class.

APPLICATIONS:

It is intended for hydraulic systems, shock absorber units and hydraulic suppressors of aircrafts, and in hydraulic systems of ground-based devices (lifts, ultrasound cleaners, ground-based monitoring installations of hydraulic systems) in the following temperature range:

- no pressure systems: from -54°C to 90°C
- pressurised systems: from -54°C to 135°C.

It is also suitable for industrial and mobile hydraulic systems of machines and devices where excellent protective properties at low temperatures are crucial.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
colour		red
kinematic viscosity at 100°C at 40°C at -40°C at -54°C	mm ² /s	5.50 14.40 517 2490
pour point	°C	-67
flash point	°C	103
resistance to foaming - sequence 1, 2, 3	cm ³	40/0
cooper strip corrosion, 135°C, 72h	rating	1
base number	mg KOH/g	0.02

TRANSOL V

VISCOSITY GRADE:

ISO VG: 32

QUALITY CLASS:

DIN 51524 part 2 HLP; DIN 51517 part 3 CLP

APPROVALS:

VOITH TURBO 3625-006058 – HYDRODYNAMIC ADJUSTABLE TRANSMISSIONS WITH SKEW BEVEL GEAR AND SIZES FROM 1 TO 4, R B1-B4 TYPES,

VOITH TURBO 3625-006072 – HYDRODYNAMIC ADJUSTABLE CLUTCHES S TYPE AND HYDRODYNAMIC E TYPE TORQUE CONVERTERS,

VOITH TURBO 3625-006073 – HYDRODYNAMIC R TYPE ADJUSTABLE TRANSMISSIONS AND HYDRODYNAMIC EA / EH TYPE TORQUE CONVERTERS,

VOITH TURBO 3625-008426 – HYDRODYNAMIC R TYPE ADJUSTABLE TRANSMISSIONS – INCREASED LOAD CARRYING CAPACITIES

GENERAL DESCRIPTION:

High quality hydraulic-gear oil for industrial stationary clutches and hydraulic torque converters, produced of high quality, hydro refined mineral oils. Contains optimally selected improving additives, such as antioxidants, corrosion inhibitors, passivators for non-ferrous metals and EP additives. Its exceptional oxidation resistance provides elongated oil change intervals, lowers downtime and repair costs. It features very high oxidation resistance, high air expelling capacity, very high anti-corrosive and rust-resistance properties, very good anti-wear properties and good emulsification and foaming resistance.

APPLICATIONS:

TRANSOL V 32 oil is intended for use in hydrodynamic clutches and transmissions of machines operating in harsh conditions, among others in power generation and construction industries.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 40°C	mm²/s	31.1
viscosity index	-	105
pour point	°C	-36
flash point	°C	218
FZG test – A/8.3/90	-	>12

GALKOP

VISCOSITY GRADE:

ISO VG: 46, 68, 100, 150

QUALITY CLASS:

DIN 51 524 part 2-HLP

DIN 51 517 part 3-CL

APPROVALS:

GALKOP 46 HACO GROUP

GENERAL DESCRIPTION:

GALKOP hydraulic gear oils are manufactured basing on highly refined mineral oil and a set of additives with anti-corrosive, anti-oxidant and anti-wear properties.

APPLICATIONS:

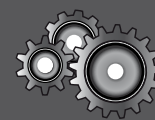
GALKOP hydraulic gear oils are applied for lubrication of hydraulic systems and mechanic gears. They are intended for use in mining industry, and in machines for lubricating of the following:

- hydraulic systems of machines and mechanical devices,
- power transmission and drive units as well as hydraulic control units,
- in spur cylindrical gears, helical cylindrical gears and in bevel gears operated both on ground and underground in mining pits,
- and for all those applications where the manufacturer recommends application of HLP hydraulic oils or CLP gear oils.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES			
ISO VG viscosity grade		46	68	100	150
kinematic viscosity at 40°C	mm²/s	45.5	68.5	96.5	145.4
viscosity index	-	100	100	97	94
pour point	°C	-26	-25	-24	-18
flash point	°C	215	220	225	240
resistance to foaming - sequence 1	ml	20/0	10/0	10/0	10/0

Oils with viscosity grade of VG 46, 68, 100, 150 have been approved for application in mining and are granted a certificate issued by the Central Mining Institute, which allows to mark the product with the safety sign.



HYDROKOP SYNTETIC

CONFORMS TO:

PN-EN ISO 12922/2003 (U)

7th Luxemburg Report (1994)

APPROVALS:

FAZOS, TAGOR, ZMG GLINIK

GENERAL DESCRIPTION:

HYDROKOP SYNTETIC concentrate, intended to produce oil and water emulsion, is manufactured with synthetic hydrocarbons, water and enriching additives including corrosion inhibitors, emulsifiers and an anti-foaming additives.

HYDROKOP SYNTETIC concentrate produces micro emulsion offering good operational parameters, i.e.: high biodegradability (which is important in case of leakage and contamination of underground water), high emulsifying ability, high concentrate and micro emulsion stability, micro emulsion resistance to microbiological contamination, good anti-corrosive properties and low concentration of operating emulsion, compatibility with sealants. HYDROKOP SYNTETIC concentrate is non-combustible.

APPLICATIONS:

HYDROKOP SYNTETIC emulsifying concentrate in the form of water micro emulsion is mainly used as HFAE non-flammable hydraulic fluid in mining industry, in remotely or electro-hydraulically controlled roof supports and centrally or individually powered props. Recommended emulsion concentration is between 0.5 % to 2.0 %.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
Hydrokop Synthetic emulsifying concentrate		
kinematic viscosity at 40°C	mm ² /s	50
water content	% (m/m)	50
0.5% oil and water emulsion with V water		
emulsion pH	–	9
stability test at 50°C/24h	–	pass

HYDROKOP SEMISYNTETIC

CONFORMS TO:

PN-EN ISO 12922/2003 (U)

7th Luxemburg Report (1994)

APPROVALS:

FAZOS, TAGOR, ZMG GLINIK

GENERAL DESCRIPTION:

HYDROKOP SEMISYNTETIC concentrate, intended to produce oil and water emulsion, is manufactured with highly refined mineral oils, water and enriching additives including corrosion inhibitors, emulsifiers and anti-foaming additive. The concentrate produces micro emulsion offering good operational parameters, i.e.: high biodegradability (which is important in the case of leakage and contamination of underground water), high emulsifying ability, high concentrate and micro emulsion stability, micro emulsion resistance to microbiological contamination, good anti-corrosive properties and low concentration of operating emulsion, compatibility with sealants. HYDROKOP SYNTETIC concentrate is non-combustible.

APPLICATIONS:

HYDROKOP SEMISYNTETIC emulsifying concentrate in the form of water based micro emulsion is used as HFAE non-flammable hydraulic fluid in mining industry, in remotely or electro-hydraulically controlled roof supports and centrally or individually powered props. Recommended emulsion concentration is between 0.4 % to 1.0 % with water of hardness of 28°N (up to 500 mg CaCO₃/l).

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
HYDROKOP semi-synthetic emulsifying concentrate		
kinematic viscosity at 20°C	mm ² /s	12
kinematic viscosity at 40°C	mm ² /s	80
water content	% (m/m)	60
Requirements for 0.5% water-oil emulsion prepared on the reference water type V		
emulsion pH	–	8.5
stability at 70°C in 24h	–	pass

HYDROKOP MINERALNY

CONFORMS TO:

PN-EN ISO 12922/2003 (U)
7th Luxemburg Report (1994)

APPROVALS:

FAZOS, TAGOR, ZMG GLINIK

GENERAL DESCRIPTION:

HYDROKOP MINERALNY emulsifying concentrate for the production of mineral water-oil emulsion is manufactured using highly refined mineral oils, water and additives including corrosion inhibitors, emulsifiers and the addition of antifoam. HYDROKOP MINERALNY concentrate contains no sodium nitrite, is a non-flammable liquid to allow quick and easy preparation of the emulsion, is a product with a high dispersion of the oil phase of the emulsion – this allows the use of remote or electro-hydraulic controlled enclosure. Oil-water emulsion prepared on the basis of HYDROKOP MINERALNY is characterized by good rust protection, as well as low working concentration of working emulsion, very good stability and resistance to microbiological contamination, a high degree of biodegradability (> 60% TEST MITI).

APPLICATIONS:

HYDROKOP MINERALNY emulsifying concentrate in the form of water based micro emulsion is used as HFAC non-flammable hydraulic fluid in mining industry, in remotely or electro-hydraulically controlled roof supports and centrally or individually powered props. Recommended emulsion concentration is between 0.5 % to 2.0 % with water of hardness of 30°N.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
Hydrokop Mineralny emulsifying concentrate		
kinematic viscosity at 40°C	mm ² /s	50
pour point	°C	-3
0,5% water and oil emulsion made of Hydrokop Mineralny concentrate with V type reference water		
emulsion pH	–	8
stability at 60°C for 24h	–	pass

KONHYDR T

APPROVALS:

DOZUT-TAGOR

MEETS REQUIREMENTS:

as low-solidifying point liquid for transport and storage in low temperatures and protection of hydraulic components from corrosion, as per PN-EN ISO 12922:2003 and VII Luxemburg Report 1994.

GENERAL DESCRIPTION:

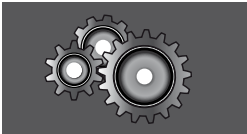
KONHYDR T is a low solidifying point, all-season liquid based on ethylene glycol. It contains enriching additives such as corrosion inhibitors, alkaline reserve stabilizers, foaming reducing agents and dye. The use of these additives makes KONHYDR T a perfect corrosion inhibitor in system elements. Low crystallisation prevents freezing of liquid and damage of equipment. The fluid should not be diluted with water because even a small addition will increase its crystallisation point and cause the loss of low temperature properties. The product contains no harmful substances such as nitrites, phosphates, amines and borates. Fluid components are biodegradable.

APPLICATIONS:

KONHYDR T fluid is designed for transport and temporary protection against corrosion of power hydraulic equipment components which are made of steel, copper, brass and aluminium. Due to compatibility with metals and elastomers used in hydraulic systems, the fluid is suitable and recommended for use in testing, transport and corrosion-protection of hydraulics in mining roof supports. It can be used as the operating medium in cooling systems as well as a liquid for spraying floors and wagons sides during winter in order to prevent freezing and lumping of the coal.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
density at 20°C	g/ml	1.076
kinematic viscosity at 20°C	mm ² /s	3.5
boiling point	°C	107
freezing	°C	-35
emulsion pH	–	7.0 - 9.0
colour	–	blue, clear



HYDROFLUID HFC 46

MEETS REQUIREMENTS:
Requirements of 7th Luxemburg Report,
Opinion issued by the Centre of Testing
and Supervision of Underground Mining

GENERAL DESCRIPTION:
HYDRO FLUID HFC 46 is a slow-burning hydraulic fluid used for powering hydraulic systems of machines and devices using Vickers pumps, developed basing on glycol, a special set of enriching additives and demineralised water. HYDRO FLUID HFC 46 is non-toxic and biodegradable.

APPLICATIONS:
HYDRO FLUID HFC 46 is intended to be applied in hydraulic systems of machines and devices working in extremely dangerous conditions i.e. in mining, coke industry, metallurgy e.g. in die-casting machines, hydraulic presses, heading machines, long-wall coal cutting machines, loaders, face conveyors, etc. and in other industries e.g. automobile industry. Maximum working temperature of the fluid is ca. 60°C, which results from vaporization of water which is one of its main ingredients. This is why viscosity and water content audits are recommended. In case of too low water content, it should be refilled to the desired value.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 40°C	mm²/s	46.5
pour point	°C	-40
viscosity index	-	250
resistance to foaming at 25°C at 50°C	ml	20/0 20/0
pH	-	9.4
water content	% (m/m)	48



TRANSGEAR PAG

VISCOSITY GRADE:

ISO VG: 150, 220, 320, 460

QUALITY CLASS:

DIN 51517 part 3 - CLP

GENERAL DESCRIPTION:

TRANSGEAR PAG synthetic oils for industrial gears are manufactured basing on polyalkylene glycols. They have been developed for use in extremely high loads and high temperatures. The product has the ability to transfer extremely high loads, it is highly resistant to aging and it provides perfect anti-corrosive protection (withstands ASTM D665 B procedure). It offers very good demulsifying characteristics, compatibility with commonly used leak stoppers, and contains no chlorine, sulphur and lead compounds.

APPLICATIONS:

TRANSGEAR PAG oils are intended to lubricate various devices and mechanisms working at the temperature over 200°C including: heavy-duty mechanical gears of industrial equipment, such as: spur cylindrical gears, helical bevel gears, spiral bevel gears and worm gears exposed to heavy thermal loads as well as rolling bearings and sliding bearings and reciprocating compressors.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES			
ISO VG viscosity grade	–	150	220	320	460
kinematic viscosity at 40°C	mm ² /s	150	237	325	433
viscosity index	–	195	177	196	220
pour point	°C	-30	-30	-30	-28
flash point	°C	191	231	225	225
copper strip corrosion plate 100°C/3h	rating	1b	1a	1b	1a
FZG test	failure load stage	>12			

TRANSGEAR PE

VISCOSITY GRADE:

ISO VG: 150, 220, 320, 460

QUALITY CLASS:

DIN 51517 part 3 – CLP

Cincinnati Machine P-74

APPROVALS:

SIEMENS MD FLENDER v.13;

TRANSGEAR PE 220 – GLIMAG, BUMECH SA,

TRANSGEAR PE 320 – GLIMAG, FAMUR,

RYFAMA, BUMECH SA

GENERAL DESCRIPTION:

TRANSGEAR PE industrial gear synthetic oils are produced basing on poly-alpha-olefins (PAO) and esters as well as specially selected enriching additives. They have been developed for use in extremely high loads and high temperatures. The product has the following characteristics: the ability to transfer extremely high loads and perfectly protect gear elements from micro pitting, high resistance to aging and high anti-corrosive protection, perfect filterability, a wide range of operating temperatures, extended change period.

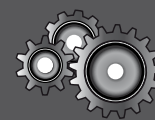
APPLICATIONS:

TRANSGEAR PE oils are intended to lubricate all kinds of heavy-duty toothed gears of industrial machines and devices at risk of micro pitting, operating in temperatures up to 180°C, including: spur cylindrical gears, helical bevel gears, spiral bevel gears and worm gears calenders exposed to heavy thermal loads as well as rolling bearings and sliding bearings. Due to their unique lubricating and anti-oxidation properties they are also recommended for lubricating wind turbine gears operating in harsh conditions.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES			
ISO VG viscosity grade	–	150	220	320	460
kinematic viscosity at 40°C	mm ² /s	152	220	330	450
viscosity index	–	147	149	153	150
pour point	°C	-38	-38	-36	-33
flash point	°C	240	255	270	285
copper strip corrosion plate 100°C/3h	rating	1b	1b	1b	1b
foaming resistance: sequence I sequence II sequence III	ml	- - -	50/0 60/0 10/0	30/0 60/0 0/0	30/0 40/0 0/0
FZG test	non-destructive loading stand	>12			

Oils with viscosity grade of VG 220, 320, 460 have been approved for application in mining and are granted a certificate issued by the Central Mining Institute, which allows to mark the product with the safety sign.



TRANSOL SP

VISCOSITY GRADE:

ISO VG: 68, 100, 150, 220, 320, 460, 680, 1000

QUALITY CLASS:

ISO 12925-1 CKC/CKD

APPROVALS:

TRANSOL SP 68 – CHOFUM-OBRABIARKI

TRANSOL SP 220 – GLIMAG, FMG PIOMA SA

TRANSOL SP 320 – GLIMAG, FMG PIOMA SA, REMAG, RYFAMA

MEETS REQUIREMENTS:

PN-90/C-96056, DIN 51517 p. 3, US Steel 224,

AGMA/ANSI 9005-E02; ISO 12925-1 CKC/CKD

GENERAL DESCRIPTION:

TRANSOL SP industrial gear oils are made from selectively refined mineral oils; they contain lead free additives improving lubricating properties (sulphur-phosphorus type) and a set of anticorrosive, antifoaming, anti-emulsifying additives as well as additives increasing resistance to oxidation. The oils ensure protection from excessive operational wear to gear elements, i.e. toothed wheels, as well as rolling and sliding bearings in normal operation and in the case of impact loads, protection of gear elements made from steel and non-ferrous elements from corrosion and the chemical impact of active ingredients of oil and its oxidation products; due to high thermo-oxidant stability they ensure prolonged operation at increased temperatures with no compromise to properties.

APPLICATIONS:

TRANSOL SP oils are intended to lubricate heavy-duty mechanical gears of industrial equipment, often transferring impact loads e.g. rolling equipment in metallurgical machines, construction machinery, cement mill machines, lifts and transport equipment in shipbuilding industry, machine tools, steam and gas turbine gears, paper industry machines, and other equipment.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES							
ISO VG viscosity grade		68	100	150	220	320	460	680	1000
kinematic viscosity at 40°C	mm ² /s	66	98	152	223	320	446	650	980
viscosity index	-	102	100	99	98	98	95	94	94
pour point	°C	-28	-24	-23	-23	-20	-18	-15	-12
flash point	°C	223	230	232	240	240	245	250	250
resistance to foaming - sequence I sequence II sequence III	ml	10/0 30/0 10/0	10/0 30/0 10/0	5/0 5/0 5/0	0/0 0/0 0/0	10/0 10/0 10/0	10/0 10/0 10/0	10/0 10/0 10/0	0/0 0/0 0/0
ability to transfer loads at the FZG stand	failure load stage	>12							

TRANSOL CLP

VISCOSITY GRADE:

ISO VG: 68, 100, 150, 220, 320, 460, 680

QUALITY CLASS:

ISO 12925-1 CKC/CKD, ISO – L – CKD

APPROVALS:

TRANSOL CLP 150, 220, 320 -

Schuller - Müller Weingarten - DT 55 055

TRANSOL CLP 220 - BUMECH SA, GLIMAG

TRANSOL CLP 320 - BUMECH SA, GLIMAG

MEETS REQUIREMENTS:

DIN 51517 p. 3, US Steel 224, AGMA/ANSI

9005-E02, ISO 12925-1 CKC/CKD

US Steel 224, AGMA/ANSI 9005-E02

ISO 12925-1 CKC/CKD

GENERAL DESCRIPTION:

TRANSOL CLP industrial gear oils are made from selectively refined mineral oils. They ensure protection from excessive operational wear to gear elements, i.e. toothed wheels as well as rolling and sliding bearings in normal operation and in the case of impact loads, protection of gear elements made from steel and non-ferrous elements from corrosion and the chemical impact of active ingredients of oil and its oxidation products; due to high thermo-oxidant stability they ensure prolonged operation at increased temperatures with no compromise to properties.

APPLICATIONS:

TRANSOL CLP oils are intended to lubricate heavy-duty mechanical gears of industrial devices often transferring impact loads e.g. rolling devices in metallurgical machines, construction machines, cement mill machines, lifts and transport devices in shipbuilding industry, machine tools, steam and gas turbine gears, paper industry machines, and other equipment operating at temperatures up to 120°C, requiring oils with increased resistance of the lubricating film (they contain Extreme Pressure (EP) additives), good thermo-oxidant stability at higher temperatures and good demulsifying and rust protection (to iron and non-ferrous metals).

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES							
ISO VG viscosity grade		68	100	150	220	320	460	680	
kinematic viscosity at 40°C	mm ² /s	74	103	152	223	299	446	695	
viscosity index	-	102	98	99	98	94	94	95	
pour point	°C	-28	-28	-27	-27	-22	-17	-16	
flash point	°C	230	233	236	238	242	246	250	
ability to transfer loads at the FZG stand	of non-destructive load	>12							

TRANSOL

VISCOSITY GRADE:

ISO VG: 68, 100, 150, 220, 320, 460, 680

QUALITY CLASS:

ISO 12925-1 CKC/CKD

MEETS REQUIREMENTS:

DIN 51517 part 3, US Steel 224,

AGMA/ANSI 9005-E02

ISO 12925-1 CKC/CKD

GENERAL DESCRIPTION:

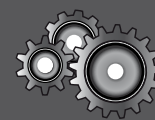
TRANSOL industrial gear oils are made from selectively refined mineral oils; they contain lead free additives improving lubricating properties (sulphur type) and a set of anticorrosive, antifoaming, anti-emulsifying additives as well as additives increasing resistance to oxidation. They ensure protection from excessive operational wear to gear elements, i.e. toothed wheels, as well as rolling and sliding bearings in operation, protection of gear elements made from steel and non-ferrous elements from corrosion and the chemical impact of active ingredients of oil and its oxidation products; due to high thermo-oxidant stability they ensure prolonged operation at increased temperatures with no compromise to properties.

APPLICATIONS:

TRANSOL oils are intended to lubricate medium-duty mechanical gears of industrial equipment often transferring impact loads e.g. rolling devices in metallurgical machines, construction machines, cement mill machines, lifts and transport equipment in shipbuilding industry, machine tools, steam and gas turbine gears, paper industry machines, and other equipment operating at temperatures up to 100°C, requiring oils with increased resistance of the lubricating film (they contain Extreme Pressure (EP) additives), good thermo-oxidant stability at higher temperatures and good demulsifying and anti-corrosive properties (to iron and non-ferrous metals).

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES						
ISO VG viscosity grade		68	100	150	220	320	460	680
kinematic viscosity at 40°C	mm ² /s	74.4	102	142	212	299	458	690
viscosity index	-	197	96	96	94	93	91	90
pour point	°C	-28	-26	-25	-25	-22	-20	-18
flash point	°C	223	235	240	245	248	250	253
resistance to foaming - sequence 1 sequence 2 sequence 3	ml	10/0 30/0 10/0	10/0 30/0 10/0	10/0 20/0 10/0	10/0 10/0 10/0	10/0 10/0 10/0	10/0 10/0 10/0	0/0 0/0 0/0
ability to transfer loads at the FZG stand	of non-destructive load	11						



CORALIA PAG

VISCOSITY GRADE:

ISO VG 46

APPROVED BY:

Allowed to use in aerospace technology of the Polish Armed Forces
WUCH DĘBICA; PZL - Dębica SA - Allowed to use in motor screw compressor units, for pumping LPG and CNG

GENERAL DESCRIPTION:

CORALIA PAG is a fully synthetic compressor oil made basing on poly-alkylene-glycols (PAG), intended for lubrication of compressors for hydrocarbon gases. The oil features: low mixability with hydrocarbon gases, reduction of the risk of oil film degradation, exceptional lubricating properties as compared to alternative synthetic solutions and mineral oils, high viscosity index extending compressor life by ensuring effective operation in a broad range of temperatures, very high thermal stability and unique lubricating properties, which add to the system cost-efficiency, reduction of equipment downtime and reduction of maintenance cost.

APPLICATIONS:

CORALIA PAG oil is intended for use with screw compressors, for compressing natural gas, LPG and other hydrocarbon gases. Low dissolving ability of CORALIA PAG to those gases reduces the risk of loss of viscosity, as a result of dissolving with the gas being compressed, maintaining high level of operating properties.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
density at 20°C	g/cm ³	0.983
kinematic viscosity at 40°C	mm ² /s	42.0
at 100°C		8.3
pour point	°C	-50
flash point	°C	242
acid number	mg KOH/g	0.10
water content	ppm	<0.03

CORALIA PE

VISCOSITY GRADE:

ISO VG 32, 46, 68

NORMS, APPROVALS, SPECIFICATIONS:

ISO 6743-3 DAJ

GENERAL DESCRIPTION:

CORALIA PE are high quality compressor oil produced on the basis of a modern fully synthetic, ashless technology. Its composition contains the innovative, optimally selected additives that ensure extended change intervals. It has been designed for the lubrication of compressors working in difficult conditions. The use of a synthetic PAO base (polyal-phaoefin) allows to provide exceptional thermal stability and resistance to oxidation, so that the oil can work at high temperatures and under a considerable load. Characterized by low sediment formation while preserving the clean working elements, a high thermo-oxidative stability, outstanding lubricating properties, excellent capacity to extract water from the system, a very good anti-corrosion and antifoam properties.

APPLICATIONS:

The synthetic CORALIA PE are designed for the lubrication of:

- rotary vane air compressors
- various types of screw air compressors (e.g., portable compressors that are used in construction, railways industry, etc.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES		
ISO VG viscosity grade		32	46	68
kinematic viscosity at 40°C	mm ² /s	33.06	44.3	63
viscosity index	-	140	140	136
pour point	°C	-54	-52	-51
flash point	°C	252	260	256
air release	min.	< 2	< 1	< 3

CORALIA HC

VISCOSITY GRADE:

ISO VG: 100, 150

ISO 6743-3 DAA, DAB, DAG

DIN 51506 VDL

GENERAL DESCRIPTION:

CORALIA HC is a line of compressor oils based on highly refined base oils with low content of paraffinic hydrocarbons and optimally matched, ash-free package of additives. Products from this line are designed for reciprocating and rotary air compressors, which operate in both normal and severe conditions. CORALIA HC oils ensure optimal cooperation of the moving parts due to very high resistance to oxidation and very good anti-wear properties.

The line of products CORALIA HC guarantees:

- very good surface protection of metal parts against corrosion
- lubrication of compressors in a continuous or periodic cycle
- protection of components subjected to excessive wear, such as a cylinder, a piston or a vane
- cooling of the compressed gas

APPLICATIONS:

Reciprocating and rotary air compressors, lubricated by splash or spray designed to operate in normal and severe conditions.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES	
ISO VG viscosity grade		100	150
kinematic viscosity at 40°C	mm ² /s	97.3	142.4
kinematic viscosity at 100°C	mm ² /s	8.803	12.48
viscosity index	-	43	72
flash point t.o.	°C	224	264
welding load	kG	126	160
oxidation stability RBOT	min.	158	139

CORALIA ST

VISCOSITY GRADE:

ISO VG: 32, 46

GENERAL DESCRIPTION:

CORALIA ST is a family of compressor oils developed on the basis of top-class hydro-refined base oils and optimally selected set of enhancement additives, which assures efficient protection from oxidizing, ageing and corrosion. The products are featured by high resistance to oxidizing and assure extended intervals between oil replacements.

The CORALIA ST product family offers:

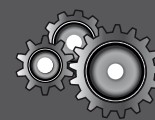
- excellent resistance to oxidizing;
- very good air separation capacity;
- very good corrosion and rust protection;
- very good resistance to ageing;
- excellent resistance to emulsifying and foaming.

APPLICATIONS:

- rotary air compressors used mainly in power engineering industry and operating under medium loads;
- circulating oil lubrication circuits integrated with toothed gear lubrication system;
- oil supply systems integrated with turbines or compressors.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES	
ISO VG viscosity grade		32	46
kinematic viscosity at 40°C	mm ² /s	33.5	46.5
viscosity index	-	105	105
pour point	°C	-30	-33
de-emulsifying at 54°C	min.	10	10
oxidation stability RBOT	min.	1450	1750



CORALIA T

VISCOSITY GRADE:

ISO VG: 32, 46

QUALITY CLASS:

ISO L-DAH, L-TSE, L-TGE, L-HL,

DIN 51524 part 1

GENERAL DESCRIPTION:

The compressor oil CORALIA T is manufactured from high quality, hydrotreated mineral oils. It contains innovative optimally selected enriching additives such as antioxidants, corrosion inhibitors, non-ferrous metals passivators and EP additives. Thanks to unique feature of oxidation resistance it ensures extended oil change intervals, reduces down-time and repair costs. It has very high resistance to oxidation, high capacity for air release, very good anticorrosive and antirust properties, very good antiwear properties, excellent resistance to emulsification and foaming.

APPLICATIONS:

The oil is intended for the lubrication of rotary air compressors used primarily in the energy sector operating under moderate conditions. It can also be used as a hydraulic fluid in the turbine control systems and for lubricating circulation systems of steam, gas and water turbines.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES	
ISO VG viscosity grade		32	46
kinematic viscosity at 40°C	mm²/s	32.8	43.1
pour point	°C	-15	-12
de-emulsifying at 54°C	min.	5	10
oxidation stability RBOT	min.	> 750	> 500

CORALIA VDL

VISCOSITY GRADE:

ISO VG: 32, 46, 68, 100

QUALITY CLASS:

DIN 51506 – VB-L, VC-L, VD-L,

ISO 6743 – DAA, DAB, DAG

GENERAL DESCRIPTION:

CORALIA VDL air compressor oil is manufactured basing on deep refined mineral base oil and a set of enriching additives improving operating features of the ready-to-use product. Features of the product: very good anticorrosive and anti-wear properties, good resistance to oxidation, good air releasing and low susceptibility to foaming.

APPLICATIONS:

CORALIA VDL oils are intended to lubricate in standard and difficult conditions of the following:

- piston compressors where temperature of compressing end ranges from 160 to 220°C,
- screw compressors with or without oil injection,
- vane compressors with oil injection.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES			
ISO VG viscosity grade		32	46	68	100
kinematic viscosity at 40°C kinematic viscosity at 100°C	mm²/s	31.1 5.2	44.8 6.5	66.1 8.3	94.9 10.4
pour point	°C	-10	-9	-9	-9
flash point	°C	214	225	230	246
acid number	mg KOH/g	0.23	0.22	0.22	0.22
resistance to oxidation, carbon residue	% (m/m)	0.011	0.012	0.018	0.021

CORALIA L-DAB

VISCOSITY GRADE:

ISO VG: 32, 46, 68, 100, 150

MEETS REQUIREMENTS:

PN-91/C-96073

GENERAL DESCRIPTION:

CORALIA L-DAB oils for piston air compressors are made by petroleum processing, and contain ash-free or low-ash additives of anti-oxidant and rust protection action.

APPLICATIONS:

CORALIA L-DAB air compressor oils are intended for lubrication of piston and vane air compressors with drop lubrication in medium-duty operation mode. While assessing the compressor operating conditions (light, medium, heavy-duty), the following factors should be considered:

- compressor design (number of stages, cooling mode),
- ambient conditions (coolant and intake air temperature),
- operating conditions (continuous or intermittent operation).

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES				
ISO VG viscosity grade		32	46	68	100	150
kinematic viscosity at 40°C	mm ² /s	30.6	42.9	65.2	96	147
viscosity index	-	97	97	95	95	91
pour point	°C	-18	-18	-14	-14	-11
flash point	°C	220	224	240	246	250
ash residue	% (m/m)	0.01	0.01	0.01	0.01	0.013

CORALIA L-DAA

VISCOSITY GRADE:

ISO VG: 46, 68, 100, 150

MEETS REQUIREMENTS:

PN-91/C-96073

GENERAL DESCRIPTION:

CORALIA L-DAA oils for piston air compressors are made by petroleum processing, and may contain ash-free or low-ash additives of anti-oxidant and rust protection action.

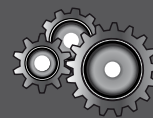
APPLICATIONS:

CORALIA L-DAA air compressor oils are intended for lubrication of piston and vane air compressors with drop lubrication in light-duty operation mode. While assessing the compressor operating conditions (light, medium, heavy-duty), the following factors should be considered:

- compressor design (number of stages, cooling type),
- ambient conditions (coolant and intake air temperature),
- operating conditions (continuous or intermittent operation).

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES			
ISO VG viscosity grade		46	68	100	150
kinematic viscosity at 40°C	mm ² /s	42.3	70.5	94.9	155
viscosity index	-	95	92	90	90
pour point	°C	-14	-12	-12	-10
flash point	°C	223	230	238	240
ash residue	% (m/m)	0.005	0.01	0.015	0.018



CORALIA VACUUM

VISCOSITY GRADE:

ISO VG: 100

GENERAL DESCRIPTION:

Vacuum pump CORALIA VACUUM oil is made from high quality mineral oil through the process of high vacuum distillation. Features: good lubricating properties, chemical and thermal stability, low evaporative tendency and resistance to forming of sludge and residues.

APPLICATIONS:

Vacuum pump CORALIA VACUUM oil is intended for rotary vacuum pumps.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
ISO VG viscosity grade		100
kinematic viscosity at 40°C	mm ² /s	99.0
solidification point	°C	-11
flash point	°C	266
ash residue	% (m/m)	0.010



FRIGOL POE

VISCOSITY GRADE:

ISO VG: 68

GENERAL DESCRIPTION:

FRIGOL POE oils are fully synthetic, polyester (POE) oils, intended for use in refrigeration compressors and air conditioners with such liquids as HFC, CFC or HCFC as refrigerants.

APPLICATIONS:

Thanks to their accurately selected synthetic oil basis and an adequate package of additives, FRIGOL POE oils guarantee:

- high thermal stability,
- high chemical stability,
- high adaptability to all refrigerating systems,
- ideal protection of lubricated elements against wear,
- ideal protection of steel and aluminum elements,
- extended efficiency and durability of refrigerating systems,
- ideal for devices with HFC – R134a, CFC – R11, R12, HCFC – R142, R407C and R410 as refrigerants.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 20°C	mm ² /s	68
kinematic viscosity at 40°C	mm ² /s	9.1
density at 20°C	kg/m ³	0.964
flash point	°C	260
pour point	°C	-42
water content	mg/kg	<50
acid value	mg KOH/g	<0.05

FRIGOL M

VISCOSITY GRADE:

ISO VG: 68

GENERAL DESCRIPTION:

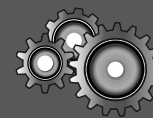
FRIGOL M 68 Refrigeration Compressor Oils are obtained from a selection of highly refined mineral base oils. They are characterized by a low flow temperature, good thermal stability and antiwear protection.

APPLICATIONS:

FRIGOL M Oils are intended for lubricating all refrigeration compressors operating with CFC coolants (e.g. R12), HCFC coolants (e.g. R22) and ammonia.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 50°C	mm ² /s	66.4
flash point	°C	200
pour point	°C	-34
corrosive action on copper plates at 100°C/3h	corrosion level	1
acid value	mg KOH/g	<0.01



FRIGOL WZ

MEETS REQUIREMENTS:

PN-74/C-96072

GENERAL DESCRIPTION:

Oils for refrigerating compressors are made through the process of refining oil fractions from no-paraffin conservative processing of petroleum.

APPLICATIONS:

FRIGOL WZ oil is intended for lubrication of ammonia and acid-carbon refrigerating compressors with the evaporator temperature reaching - 45°C, e.g. one-step, low-speed lying compressors. FRIGOL WZ oil is also suitable for filling of shock absorbers.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 20°C	mm²/s	31.9
kinematic viscosity at 40°C	mm²/s	13.4
flash point	°C	164
solidification point	°C	-45
ash residue	% (m/m)	0.004

FRIGOL TZ

MEETS REQUIREMENTS:

PN-74/C-96072

GENERAL DESCRIPTION:

Oils for refrigerating compressors are made through the process of refining oil fractions from no-paraffin conservative processing of petroleum.

APPLICATIONS:

FRIGOL TZ 13 oil is intended for lubrication of ammonia refrigerating compressors with the evaporator temperature reaching - 50°C, e.g. two-step units with circulatory lubrication.

FRIGOL TZ 19 oil is intended for lubrication of ammonia refrigerating compressors with the evaporator temperature reaching - 30°C, e.g. two-way units with circulatory lubrication.

FRIGOL TZ-28 oil is used similarly to TZ-19, but only when there is a risk of oil dilution with coolant, e.g. methyl chloride.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES		
		TZ-13	TZ-19	TZ-28
kinematic viscosity at 50°C	mm²/s	14.8	21.8	30.4
flash point	°C	162	212	230
solidification point	°C	-50	-32	-30
ash residue	% (m/m)	0.003	0.004	0.003

TURBINEX TG PREMIUM

VISCOSITY GRADE:

ISO VG: 32, 46

QUALITY CLASS:

ISO L-TSB, L-TGSB, L-TGF, L-TGSE

NORMS, APPROVALS, SPECIFICATIONS:

DIN 51515 p.1; DIN 51515 p.2, ISO 8068

APPROVALS:

Recommended for use in applications requiring:

Siemens

Alstom (VG 46)

Skoda Power

GENERAL DESCRIPTION:

High quality turbine oils TURBINEX TG PREMIUM with superior thermooxidative stability are made with high quality hydrocracked base oils group III. Oils contain a carefully balanced innovative additives such as antioxidants, corrosion inhibitors, non-ferrous metals deactivators and extreme pressure additives. With the unique properties oils provide extended drain intervals, reduce downtime, maintenance costs and preservations of turbine systems, and reduce failures. Unique designed oils formulation also provides lubrication of combined cycle system turbines. They provide very good filterability even in systems contaminated with small amounts of water. Oils meet the requirements of the world's leading turbine manufacturers. Characterized by high air release properties, very high resistance to oxidation, high resistance to sludge and deposit formation, very good filterability, very good corrosion properties, very good antiwear properties, very good resistance to emulsification and foaming.

APPLICATIONS:

Turbine oils TURBINEX TG PREMIUM are used primarily for the lubrication and cooling of bearings of gas and steam turbines, gas-steam combined cycle turbines CCGT, also equipped with gears. Oils designed for turbine systems where are elevated work temperatures and pressures. They can also be used as hydraulic fluids in the turbine control systems and for lubricating marine turbochargers of main and auxiliary engines powered by exhaust gases. In machine circulating systems requiring turbine oils quality oils, such as turbochargers, turbine pumps.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES	
		32	46
kinematic viscosity at 40°C	mm ² /s	31.6	43.6
viscosity index	-	133	132
pour point	°C	-18	-12
de-emulsifying at 54°C	min	5	10
test RPVOT	min	> 2000	

TURBINEX TG

VISCOSITY GRADE:

ISO VG: 32, 46

QUALITY CLASS:

ISO L-TSB, L-TGSB, L-TGF, L-TGSE

NORMS, APPROVALS, SPECIFICATIONS:

DIN 51515 part 1, DIN 51515 part 2, ISO 8068,

Recommended for use in applications requiring:

Siemens

Alstom (VG 32)

Skoda Power

GENERAL DESCRIPTION:

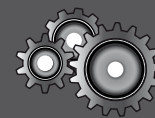
The high quality turbine oil TG TURBINEX with higher thermo-oxidative stability is made from high-quality, selected, specially hydro-treated mineral base oils. It contains innovative optimally selected enriching additives such as antioxidants, corrosion inhibitors, non-ferrous metals passivators and EP (extreme pressure) additives. Thanks to the outstanding performance characteristics it provides extended change intervals, it reduces downtime, the cost of repair and maintenance of hydraulic systems, and limits the number of breakdowns. The oil has the approval of the world's leading turbine manufacturers. Characterized by good ability of air release, very high resistance to oxidation, high resistance to sludge and sediment formation, a very good filterability, very good anti-corrosion and anti-rust properties, very good antiwear properties, excellent resistance to emulsification and foaming.

APPLICATIONS:

The TG TURBINEX turbine oils are primarily used to lubricate and cool the bearings in gas and steam turbines, gas-steam combined cycle CCGT, also fitted with toothed gears. The oils have been designed for turbine systems where there is increased temperature and pressure. They can also be used as hydraulic fluids in the turbine control systems and for lubricating, among others, turbochargers in marine main and auxiliary engines, driven by exhaust gas. In the machine circulating systems requiring oils of quality turbine oils, such as turbochargers, turbine pumps.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES	
		32	46
kinematic viscosity at 40°C	mm ² /s	31.8	44.2
viscosity index	-	97	96
pour point	°C	-15	-12
de-emulsifying at 54°C	min	5	10
test RPVOT	min	> 750	> 750



TURBINEX TU

VISCOSITY GRADE:

ISO VG: 32, 46, 68

QUALITY CLASS:

ISO L-TSA, L-TGA, L-TSE, L-TGE

NORMS, APPROVALS, SPECIFICATIONS:

DIN 51515 part 1,

ISO 8068

Recommended for use in applications requiring:

Siemens (VG 32, 46)

Alstom (VG 32)

Skoda Power (VG 32, 46)

GENERAL DESCRIPTION:

The turbine oil TU TURBINEX is made from high-quality, selected, hydro-treated base oils. It contains innovative optimally selected enriching additives such as antioxidants, corrosion inhibitors, non-ferrous metals passivators and EP additives. Thanks to the outstanding performance characteristics it provides extended change intervals, it reduces downtime, the cost of repair and maintenance of hydraulic systems, and limits the number of breakdowns. It provides very good filterability even in systems contaminated with small amounts of water. The oil has the approval of the world's leading turbine manufacturers. Characterized by good ability of air release, very high resistance to oxidation, a very good filterability, very good anti-corrosion and anti-rust properties, very good antiwear properties, excellent resistance to emulsification and foaming.

APPLICATIONS:

The TU TURBINEX turbine oils are primarily used to lubricate and cool the bearings in gas and steam turbines, also fitted with toothed gears. The oils can be used in normally used gas turbines under normal operating conditions. They can also be used as hydraulic fluids in the turbine control systems and for lubricating, among others, turbochargers in marine main and auxiliary engines, driven by exhaust gas. In the machine circulating systems requiring oils of quality turbine oils, such as turbochargers, turbine pumps.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES		
		32	46	68
kinematic viscosity at 40°C	mm²/s	32.6	44.6	65.3
viscosity index	-	96	96	95
pour point	°C	-14	-11	-9
de-emulsifying at 54°C	min	5	10	15

TURBINEX T-30

NORMS, APPROVALS, SPECIFICATIONS:

ZN-66/MPCh/NF-104

GENERAL DESCRIPTION:

TURBINEX T-30 turbine oil is manufactured out of high-quality, selected hydro-refined base oils. They are characterized by good resistance to emulsification and oxidation.

APPLICATIONS:

TURBINEX T-30 is used mainly for:

- circulating lubrication of steam turbine bearings
- lubrication of turbine sets with pinion transmissions in the case of common oil circulation,
- lubrication of water turbines.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 50°C	mm²/s	32.5
flash point	°C	235
pour point	°C	-11
demulsibility	s	120
carbon residue (ashing)	%	0.003

DELGAS PREMIUM L 40

VISCOSITY GRADE:
SAE: 40

STANDARDS, APPROVALS. SPECIFICATION:
GE Jenbacher TA 1000-1109, type 2, 3, 4 (version A, B) and 6 (version C, E), gas class B and C

GENERAL DESCRIPTION:

DELGAS PREMIUM L 40 is a very high quality low ash oil for stationary gas engines produced by specially refined base oils and carefully selected quality package. Dispersants additives control the formation of sludge and deposits resulting in cleaner engines. With the unique properties oil provides extended oil change intervals, reduces the cost of maintenance and repairs of gas engines. Oil's benefits: excellent thermal stability, excellent resistance to oxidation and nitration, excellent protection against wear, excellent protection against deposits, excellent anticorrosion properties.

APPLICATIONS:

Olej DELGAS PREMIUM L 40 is intended for use in various types of fourstroke stationary gas engines (including Jenbacher) operated mainly on methanerich gases such as landfill gas, biogas, mine gas as well. The oil controls contaminants that may appear in biogases with a high content of halogens and hydrogen sulfide. It can be used in threeway catalyst systems and selective without causing problems. DELGAS PREMIUM L 40 can be used in:

- sewage treatment plants,
- landfills,
- controlled fermentation biogas plants: agricultural waste, manure, septic tanks,
- gas mines.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 100°C	mm ² /s	13.3
viscosity index	-	110
pour point	°C	-30
flash point	°C	270
sulfated ash	% (m/m)	0.54

DELGAS A 15W-40

VISCOSITY GRADE:
SAE: 15W-40

GENERAL DESCRIPTION:

High-quality, multi-grade, ash-free oil for stationary gas engines, developed based on highly refined base oils with a selection of enhancement additives. Owing to its properties, it helps to keep the engine clean at all times and reduce contamination on spark plugs. The oil does not contain Bright Stock and, therefore, prevents the formation of carbon deposits and channel clogging in two-stroke engines.

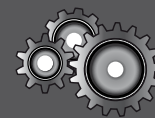
Advantages: excellent thermal stability, resistance to oxidation and nitration, excellent wear protection, excellent protection against deposit formation, excellent anti-corrosion properties, good low-temperature properties.

APPLICATIONS:

Olej DELGAS A 15W-40 is an ash-free oil intended for use in two-stroke natural gas-propelled engines, such as: Ajax, Cooper-Bessemer, Clark and Fairbanks-Morse, operating in gas transfer and compression stations.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 40°C	mm ² /s	104.4
kinematic viscosity at 100°C	mm ² /s	14.1
viscosity index	-	137
pour point	°C	-30
sulfated ash	% (m/m)	0.006



DELGAS A 40

VISCOSITY GRADE:
SAE: 40

GENERAL DESCRIPTION:

High quality ash-free oil for stationary gas engines based on deep-refined base oils and carefully selected blend of enriching additives. With its unique properties, the oil keeps the engine clean and reduces formation of deposits on spark plugs. The oil is free from brightstock and thus prevents formation of carbon deposits and clogging of two-stroke engine ports. Advantages of the oil: excellent thermal stability; resistance to oxidation and nitration; highly efficient anti-wear protection; highly efficient protection from deposits; excellent anti-corrosion properties.

APPLICATIONS:

Olej DELGAS A 40 ash-free oil for two-stroke engines powered with natural gas, such as: Ajax, Cooper-Bessemer, Clark and Fairbanks-Morse operated in gas transfer and compression stations.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 40°C	mm ² /s	142.2
kinematic viscosity at 100°C	mm ² /s	14.0
viscosity index	-	95
pour point	°C	-21
sulfated ash	% (m/m)	0.006

DELGAS L 40

VISCOSITY GRADE:
SAE: 40

STANDARDS, APPROVALS. SPECIFICATION:
MWM TR-0199-99-2105; GE Jenbacher TA 1000-1109, type 2, 3, 4 (version A, B) and 6 (version C, E), gas class A and B

GENERAL DESCRIPTION:

DELGAS L 40 is a high quality low ash oil for stationary gas engines produced by specially refined base oils and carefully selected quality package. Dispersants additives control the formation of sludge and deposits resulting in cleaner engines. With the unique properties oil provides extended oil change intervals, reduces the cost of maintenance and repairs of gas engines. Oil's benefits: excellent thermal stability, resistance to oxidation and nitration, very good protection against wear, very good protection against deposits, excellent anti-corrosion properties.

APPLICATIONS:

DELGAS L 40 is intended for use in various types of four-stroke stationary gas engines (including Jenbacher, MWM) operated mainly on natural gas and other gaseous fuels. It can be used in three-way catalysts and selective systems without causing problems.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 100°C	mm ² /s	13.5
viscosity index	-	95
flash point acc. to open cup method	°C	270
pour point	°C	-27
sulfated ash	% (m/m)	0.5
TBN number	mg KOH/g	5.2

DELGAS M 40

VISCOSITY GRADE:
SAE: 40

GENERAL DESCRIPTION:

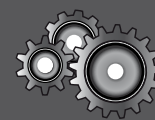
DELGAS M 40 is high quality, medium-ash oil for stationary gas engines, made based on specially refined base oils and carefully selected blend of enriching additive. Dispersing and cleaning agents contained in oil control the formation of sludge and deposits to keep the engine clean. The unique properties ensure longer oil change intervals and reduce cost of repair and maintenance of gas engines. Advantages of the oil: excellent thermal stability; resistance to oxidation and nitration; highly efficient anti-wear protection; highly efficient protection from deposits; very good foaming resistance; excellent anti-corrosion properties.

APPLICATIONS:

DELGAS M 40 oil is designed for use with different types of stationary four-stroke gas naturally aspirated and turbo-charged engines (such as Jenbacher, MAN, Deutz) propelled with gases rich in methane, such as landfill, mine gas or biogas. The oil allows control of impurities which may be present in biogas containing large amount of halogens and hydrogen sulphide. It is suitable for trouble-free use with three-way and selective catalytic converter systems. DELGAS M 40 can be used in: sewage treatment plants; landfills; biogas facilities with controlled fermentation of: agricultural waste, manure, contents of septic tanks; gas mines.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 40°C	mm ² /s	117.2
kinematic viscosity at 100°C	mm ² /s	13.2
viscosity index	-	108
pour point	°C	-36
sulfated ash	% (m/m)	0.89
total base number TBN	mg KOH/g	10.4



VELOL SHC

VISCOSITY GRADE:
ISO VG: 220

GENERAL DESCRIPTION:

Synthetic machine oil with improved anti-wear and anti-seizure properties. Developed specifically for use with extremely high loads and high temperatures. Thank to its outstanding properties, the oil can be used in systems contaminated with a slight amount of water. Very high viscosity index ensures trouble-free use in a wide range of temperatures. Features of the product:

- capability to transfer extremely high loads;
- exceptional ageing resistance;
- compatibility with commonly used sealants.

APPLICATIONS:

VELOL SHC 220 is intended for lubrication of various kinds of devices and mechanisms operating in increased temperatures and requiring oils with improved AW and EP properties, including:

- slide and rolling bearings;
- mechanical gears;
- spindles;
- auxiliary friction centres.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 40°C	mm ² /s	225
viscosity index	-	241
pour point	°C	-39
test FZG A/8,3/90	-	>12
flash point in open crucible	°C	270

VELOL P

VISCOSITY GRADE:
ISO VG: 150, 220
Standards, approvals and specifications:
DIN 51517-2 – C type
DIN 51517-2 – CL type

GENERAL DESCRIPTION:

VELOL P is a family of top quality circulating oils made of deeply refined mineral oil and innovative and specially selected additives. The products are featured by excellent oxidation stability, which results in extended drain intervals without compromising the equipment protection over the whole operating time. The oils have very good oil-water separation properties and guarantee continuity of oil film between lubricated surfaces. VELOL P circulating oils are compatible with the sealings of SRE-NBR 28/SX type, and provide additional protection from corrosion and emulsion forming.

APPLICATIONS:

- Machine's circulating systems;
- Closed transmissions operating under low and medium loads;
- Piston, rotary and vane air compressors operating under low loads;

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES	
ISO viscosity grade		150	220
kinematic viscosity at 40°C	mm ² /s	155	232
kinematic viscosity at 100°C	mm ² /s	15.59	20.02
viscosity index	-	103	99
pour point	°C	-36	-27
density at 15°C	g/cm ³	0.88	0.88
flash point - Cleveland open cup method	°C	272	278

VELOL D

GENERAL DESCRIPTION:

VELOL D 100 is an inhibited oil for lubrication of moving components of rolling mills, dedicated to Danieli bearings. VELOL D 100 is based on quality mineral base oils and contains enhancing additives for increased strength of lubricating film, and is free from EP additives.

APPLICATIONS:

VELOL D 100 is used for hydrodynamic lubrication of bearings in rolling mills in non-ferrous metals and steel industries. VELOL D 100 guarantees:

- Excellent corrosion protection;
- Very high oxidation stability;
- Excellent lubricating properties;
- Excellent anti-emulsifying properties.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 100°C	mm ² /s	10
kinematic viscosity at 40°C	mm ² /s	100
flash point in open crucible	°C	260
corrosion on cooper	-	-
weld load	kG	150
acid number	mg KOH/g	0.49

VELOL NP

GENERAL DESCRIPTION:

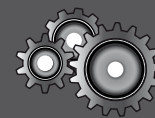
VELOL NP 68 is made from specially selected base oils and triglycerides, and enriched with a set of functional additives.

APPLICATIONS:

VELOL NP 68 is designed for application on ceramic surfaces.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 40°C	mm ² /s	72
viscosity index	-	126
pour point	°C	-12
corrosion on cooper Cu /100°C/3h	corrosion grade	1



VELOL RC

VISCOSITY GRADE:

ISO VG: 32, 68, 220

KLASA JAKOŚCI:

DIN 51502 – class CG, ISO/T.R3498:1996 – cl. G,

APROBATY:

VELOL RC 32 – Cincinnati Milacron P-53,

VELOL RC 68 – Cincinnati Milacron P-47,

HACO GROUP, FUM PORĘBA, TOP PORĘBA,

MAG

VELOL RC 220 – Cincinnati Milacron P-50,

CHOFUM - OBRABIARKI

GENERAL DESCRIPTION:

VELOL RC guide oils are manufactured from deeply refined mineral oil and a modern blend of oil conditioners, ensuring proper friction characteristics necessary to meet the requirements of the Cincinnati – Milacron and General Motors LS2 (LW06104) specifications.

Allows to: maintain hydrodynamic lubrication within the guide, position the tool properly against the element, eliminate "stickslip", extend the running time of cutting systems and tools, achieve the proper surface treatment effect, ensure ideal separation from processing oils.

APPLICATIONS:

VELOL RC guide oils are used to lubricate all types of sliding guides, including for lubricating horizontal sliding guides operating in moderate temperatures under moderate and average loads. They ensure proper guide operation with extra emphasis on proper friction characteristics and eliminating "stickslip".

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES		
ISO VG viscosity grade		32	68	220
kinematic viscosity at 40°C	mm ² /s	31.4	69.5	227.0
viscosity index	–	92	92	90
pour point	°C	-18	-15	-12
flash point	°C	210	230	280

VELOL

STANDARDS, APPROVALS, SPECIFICATIONS:

ISO 3448

GENERAL DESCRIPTION:

VELOL are low-solidification machine oils manufactured from refined oil distillates. They contain additives improving their lubricating properties and temperature depending viscosity, additives improving resistance to foaming as well as corrosion and oxidation inhibitors. There are available VELOL 9 and VELOL 19 as two types of the machine oils. Numbers defining the oil type mean the lower limit of their kinematic viscosity at 20°C.

APPLICATIONS:

VELOL machine oils are applied for total loss lubrication and oil level lubrication of high-speed elements of textile machines, machine tools and other precise machine elements as defined in the device lubricating instructions.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES	
		VELOL 9Q	VELOL 19
kinematic viscosity at 20°C	mm ² /s	10.7	19.5
kinematic viscosity at 40°C	mm ² /s	5.98	10.8
viscosity index	–	–	90
solidification point	°C	-43	-35
ignition temperature	°C	130	146

L-AN

VISCOSITY GRADE:

ISO VG: 10, 15, 22, 32, 46, 68, 100

APPROVALS:

L-AN 46 – TOP PORĘBA

L-AN 68 – FUM PORĘBA

GENERAL DESCRIPTION:

L-AN machine oils are produced from selectively refined oil distillates sourced from petroleum processing. Due to their high solidification point, in winter L-AN machine oils should be used for lubrication of devices operating in heated areas.

APPLICATIONS:

L-AN machine oils are intended to lubricate light-duty and medium-duty machine elements and industrial equipment:

- rolling and slide bearings,
- guides,
- mechanical gears,
- spindles, etc. and auxiliary friction nodes. Some L-AN machine oils are also applied for other purposes, e.g. hydraulic systems filling.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES						
ISO VG viscosity grade		10	15	22	32	46	68	100
kinematic viscosity at 40°C	mm ² /s	10.2	15.2	22.4	33.6	43.9	69.3	98.9
viscosity index	-	98	97	97	96	94	94	93
pour point	°C	-10	-7	-7	-6	-6	-1	-1
flash point	°C	152	172	205	208	232	240	251

L-AN Z

VISCOSITY GRADE:

ISO VG: 15, 46, 68

MEETS REQUIREMENTS:

PN-88/C-96071

GENERAL DESCRIPTION:

Low-solidifying L-AN Z machine oils are produced from refined oil distillates sourced from petroleum processing and additives reducing the solidification point.

APPLICATIONS:

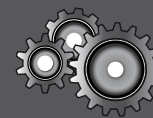
Low-solidifying L-AN Z machine oils are intended for lubricating light and medium loaded machine elements and industrial devices:

- rolling and slide bearings,
- guides,
- mechanical gears,
- and supplementary friction centres which are exposed to low temperatures, i.e. operating in unheated areas in winter.

Some L-AN Z low-solidifying machine oils can also be used for other purposes, e.g. hydraulic systems.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES		
ISO VG viscosity grade		15	46	68
kinematic viscosity at 40°C	mm ² /s	14.8	45.0	67.1
viscosity index	-	97	95	94
pour point	°C	-33	-24	-21
flash point	°C	168	230	243



MN GREASED MACHINE OILS

MEETS REQUIREMENTS:
PN-56/C-96074

GENERAL DESCRIPTION:

MN greased machine oils are a mixture of mineral oils and oxidized vegetable oil. Depending on the composition, there are two types of greased machine oils available: MN-11 and MN-15.

APPLICATIONS:

Greased machine oils are applied for lubrication of the following:

- steam engine bearings of vessels,
- bearings exposed to contact with water with which greased machine oils form stable lubricating emulsions,
- bearings of machines exposed to high unit loads.

MN-11 greased machine oil is applied for lubrication of external parts of steam engines, and the MN-15 oil for lubrication of vessels propeller bearings.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES	
		MN-11	MN-15
kinematic viscosity at 50°C	mm ² /s	81.5	109.3
solidification point	°C	-8	-8
flash point	°C	218	240
saponification number	mg KOH/g	20	13

NP CIRCULATING OILS

APPROVALS:
Approved by the National Institute of Hygiene

GENERAL DESCRIPTION:

The NP circulating oils are made from specially selected base oils and higher fatty acids, and enriched with a set of additives.

APPLICATIONS:

The NP circulating oil is intended to lubricate low-temperature friction centres (up to 90 degrees); it is used in machining devices as a cooling and lubricating agent, in low-duty hydraulic systems requiring L-HH oils. It can also be used for cleaning of industrial installations.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES		
		32	68	100
kinematic viscosity at 40°C	mm ² /s	32	65	93
viscosity index	-	138	126	121
pour point	°C	-16	-22	-15
weld load	daN	200	200	200

CYLINDER OILS

MEETS REQUIREMENTS:
PN-61/C-96095

GENERAL DESCRIPTION:

Cylinder oils are made through conservative processing of petroleum. Due to their operation conditions (high temperatures, action of steam) and performance requirements (protection from ring and cylinder wear and sealing of operation spaces) the cylinder oils are characterised by high ignition temperature, high viscosity, high chemical stability, low susceptibility to coking in thermal decomposition, which results in producing hard residues on operating part of machines, high resistance to steam washing.

APPLICATIONS:

Cylinder oils are intended to lubricate cylinders, timing gear elements, steam engine glands, however:

CI-17/100-0-10 cylinder oil is applied for intake saturated steam temperature up to 250°C,

CI-30 cylinder oil is applied for operation of machines with intake overheated steam temperature up to 290°C,

CI-40/100-0-10 cylinder oil is applied for operation of machines with intake highly overheated steam temperature up to 310°C.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES		
		CI-17	CI-30	CI-40
kinematic viscosity at 40°C	mm ² /s	340	610	1000
kinematic viscosity at 100°C	mm ² /s	30.8	40.6	46.0
flash point	°C	285	304	310
solidification point	°C	-8	-10	-14
carbon residue	%	0.076	0.09	1.04

AXLE OILS

GENERAL DESCRIPTION:

Axle oils are made through processing of petroleum. Depending on kinematic viscosity and freezing temperature, there are two types of industrial (axial) oils available, marked as:

Pm-50/50-0-0 (former L-type axle oil)

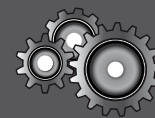
Pm-30/50-0-020 (former U-type axle oil).

APPLICATIONS:

Industrial (axle) oils are mainly intended to lubricate slide bearings of steam locomotives as well as rail and tram cars.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES	
		Pm-50/50	Pm-30/50
kinematic viscosity at 50°C	mm ² /s	58.7	41.5
flash point	°C	180	170
solidification point	°C	-5	-28



PILAROL EKO

GENERAL DESCRIPTION:

PILAROL EKO is an ecological oil with perfect operation properties intended to lubricate chain saws, its base is refined vegetable oil and it contains a special combination of enriching additives. Application of vegetable oil as a base allows to qualify PILAROL EKO to very good biodegradable oils – in OECD 301 F test it obtained 81,6% of biodegradability. Properly selected combination of enriching additives guarantees advantageous operation properties e.g.

- very good adherence to the device movable parts (saw cutting elements),
- perfect lubricating conditions even in low temperatures (protects quick cutting edge blunting),
- good thermal characteristic which allows its application in wide range of temperatures,
- anticorrosive and anti friction wear abilities.

APPLICATIONS:

PILAROL EKO is a multiseasonal, environment friendly, high quality oil intended to lubricate cutting systems (chain) and mechanical saw guides used in forestry, horticulture, etc. It also may be used for lubrication of other machines used in felling trees.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 40°C	mm ² /s	63.1
viscosity index	–	182
flash point	°C	244
pour point	°C	-26

PILAROL (Z)

GENERAL DESCRIPTION:

All-season special oil with perfect operating properties for lubrication of chain saws, made with deep-refined mineral oil as the base and a special combination of enriching additives including: viscosity and depressing additive as well as the additive enhancing oil-metal adherence. Properly selected combination of enriching additives guarantees best performance: very good adherence to the device movable parts (saw cutting system), excellent lubricating properties also in low temperatures, proper thermal characteristics which allows its application in a wide range of temperatures, anti-corrosive and friction wear protection.

APPLICATIONS:

PILAROL (Z) is used for lubricating cutting systems (chain) and mechanical saw guides used in forestry, horticulture, etc. It also may be used for lubrication of other machines used in felling trees.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 40°C	mm ² /s	84.9
viscosity index	–	95
flash point	°C	238
pour point	°C	-31

PILAROL VG

GENERAL DESCRIPTION:

PILAROL VG is a lubricant for chain saws with excellent functional properties. It is manufactured from highly-refined mineral oils, and contains viscosity reducing and anti-corrosion additives.

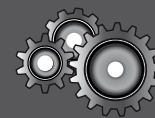
APPLICATIONS:

PILAROL VG is intended for lubrication of chain saws and guide bars for chain saws. Thanks to its mineral oil base and special composition of enriching additives, PILAROL VG is characterized by:

- very good adhesion
- correct temperature characteristics
- very good lubrication, even at low temperatures
- protection against corrosion and wear.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES	
viscosity grad	–	140	150
kinematic viscosity at 40°C	mm ² /s	140	145-165
viscosity index	–	91	93
flash point	°C	268	240
pour point	°C	-28	-21
density at 15°C	g/cm ³	-	define



PNEUMATIC VG

VISCOSITY GRADE:

ISO VG: 32, 100

GENERAL DESCRIPTION:

PNEUMATIC VG 32, 100 oil for pneumatic equipment is made with high quality oil base and a set of specially selected enriching additives. PNEUMATIC VG 32, 100 have the following properties: good adhesion to materials, no impact on construction material (aluminium, steel, rubber and plastic gaskets), good resistance to aging (no clogging of moving parts within long use time).

APPLICATIONS:

PNEUMATIC VG 32, 100 is intended to lubricate pneumatic drives e.g. upholstery staplers, drills, wrenches, etc. which require lubrication of internal movable parts.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES	
kinematic viscosity at 40°C	mm ² /s	31.2	101
viscosity index	–	101	105
flash point	°C	184	240
pour point	°C	-18	-30



LOKOMOTIV PREMIUM CD 40

VISCOSITY GRADE:

SAE: 40

QUALITY CLASS:

API: CD

GENERAL DESCRIPTION:

LOKOMOTIV PREMIUM CD 40 is made basing on deeply refined mineral base oils and suitably selected package of enriching additives.

APPLICATIONS:

LOKOMOTIV PREMIUM CD 40 is used mainly in heavy-duty, diesel railway engines operating in thermally and mechanically difficult conditions.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 100°C	mm ² /s	14.7
viscosity index	-	103
flash point	°C	242
pour point	°C	-24
total base number	mgKOH/g	13

LOKOMOTIV EXTRA CF 40

VISCOSITY GRADE:

SAE: 40

QUALITY CLASS:

API: CF

GENERAL DESCRIPTION:

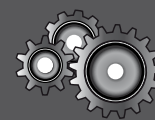
LOKOMOTIV EXTRA CF SAE 40 is manufactured basing on deeply refined mineral base oils and package of enriching additives which improve anti-wear, anti-corrosion, anti-oxidation properties and prevent deposits formation.

APPLICATIONS:

LOKOMOTIV EXTRA CF SAE 40 is an engine oil intended mainly to lubricate heavy-duty, diesel railway engines operating in difficult conditions. It can also be applied to lubrication of similar type of diesel engines working in other technical equipment.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 100°C	mm ² /s	14.5
viscosity index	-	100
flash point	°C	242
pour point	°C	-24
total base number	mgKOH/g	14



KONKRETON V BIO

GENERAL DESCRIPTION:

KONKRETON V BIO is a low viscosity biodegradable mold release oil. It contains an active agent in order to ensure easy separation of material from the mold. The product does not cause discoloration on the surface of concrete and the released products are characterized by low porosity and high smoothness. KONKRETON V BIO does not emit unpleasant odors.

APPLICATIONS:

KONKRETON V BIO is designed to easily separate the stream of concrete from the mold. The product can be used with molds made of steel, aluminum, plastic and wooden molds used in the production of precast concrete and other concrete elements. It also serves as a temporary protection of steel forms against corrosion. One liter of oil is enough for 70-80m² surface, with the use of manual and automatic pressure sprayers. BIO KONKRETON V can also be applied manually with rollers.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 20°C	mm ² /s	12.7
kinematic viscosity at 40°C	mm ² /s	7.1
flash-point	°C	120
flow temperature	°C	-30
density at 15°C	°C	880

KONKRETON V

GENERAL DESCRIPTION:

KONKRETON V is an anti-adhesive oil produced on the basis of deeply refined mineral oil with enriching – primarily anti-adhesive and anti-corrosive – additives.

APPLICATIONS:

KONKRETON V is intended for moulds used in the manufacture of precast concrete products and other concrete elements. The product may be sprayed on cold metal and plastic moulds.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 20°C	mm ² /s	9.3
kinematic viscosity at 40°C	mm ² /s	5.1
flash point	°C	130
flow temperature	°C	-20
saponification number	[KOH/g]	6.9

KONKRETON VS

GENERAL DESCRIPTION:

KONKRETON VS is an anti-adhesive oil produced on the basis of deeply-refined mineral oil with enriching – primarily anti-adhesive and anti-corrosive –additives.

APPLICATIONS:

KONKRETON VS is intended for moulds used in the manufacture of precast concrete products and other concrete elements. The product may be sprayed on cold metal moulds.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 20°C	mm ² /s	11.4
kinematic viscosity at 40°C	mm ² /s	6.2
flash point	°C	90
saponification number	mg KOH/g	6.5
flow temperature	°C	-6

KONKRETON L

GENERAL DESCRIPTION:

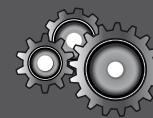
KONKRETON L is an anti-adhesive oil produced on the basis of deeply-refined mineral oil with enriching – primarily anti-adhesive and anti-corrosive –additives.

APPLICATIONS:

KONKRETON L is intended for moulds used in the manufacture of precast concrete products and other concrete elements. The product may be sprayed on cold metal moulds.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 20°C	mm ² /s	55.0
kinematic viscosity at 40°C	mm ² /s	22.1
flash-point	°C	210
saponification number	mg KOH/g	3.7
density at 15°C	°C	-17



KONKRETON N

STANDARDS, APPROVALS, SPECIFICATIONS:
WIRBET S.A. APPROVA

GENERAL DESCRIPTION:

KONKRETON N is an anti-adhesive oil produced on the basis of deeply-refined mineral oil with enriching – primarily anti-adhesive and anti-corrosive – additives.

APPLICATIONS:

KONKRETON N is intended for moulds used in the production of concrete elements and light autoclaved aerated concrete (AAC) blocks. The product may be sprayed on cold metal moulds in the AAC production.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 20°C	mm ² /s	99.2
kinematic viscosity at 40°C	mm ² /s	35.8
flash point	°C	190
saponification number	mg KOH/g	3.1
flow temperature	°C	-14

KONKRETON P

GENERAL DESCRIPTION:

KONKRETON P is an anti-adhesive oil produced on the basis of deeply-refined mineral oil with enriching – primarily anti-adhesive and anti-corrosive – additives.

APPLICATIONS:

KONKRETON P is intended for moulds used in the manufacture of concrete elements and light autoclaved aerated concrete blocks. To be applied with a paintbrush.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 20°C	mm ² /s	263.6
kinematic viscosity at 40°C	mm ² /s	79.9
flash point	°C	210
saponification number	mg KOH/g	3.0
flow temperature	°C	-12

KONKRETON S

GENERAL DESCRIPTION:

KONKRETON S is produced from deeply-refined mineral oil with predominantly anti-adhesive and anti-corrosive enriching additives. Its optimal composition guarantees continuity of the oil film and protects concrete elements against adhesion to the mould surface. With its mild smell KONKRETON S may be used both in production halls and in open air.

APPLICATIONS:

KONKRETON S is used to cover moulds for the manufacture of cellular concrete blocks where increased thickness of the separation layer is required. Such parameter is particularly important for rapid filling of moulds with large quantities of concrete mix, where the risk of breaking the oil film exists. Product composition and additives protect the surface against adhesion of concrete to the mould, thus shortening the production process and minimising losses caused by damages to concrete blocks. Exceptional purity of the oil protects surfaces against stains and dyeing. Thanks to carefully selected properties, KONKRETON S can be used in the production process all year round. The product may be applied automatically or with a roller.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 20°C	mm ² /s	343.5
kinematic viscosity at 40°C	mm ² /s	102.3
flash point	°C	215
spontification number	mg KOH/g	4.1
flow temperature	°C	-12

KONKRETON T

GENERAL DESCRIPTION:

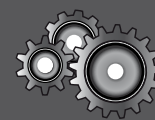
KONKRETON T anti-adhesive oil is made of deep refined mineral oil and enriching additives, improving the anti-adhesive and corrosion protection performance. Carefully designed oil formula, based on adequate proportion of components allowing adequate freeing of concrete from the mould improves production economy.

APPLICATIONS:

KONKRETON T anti-adhesive oil is intended for lubricating moulds in manufacturing of concrete elements and cellular concrete blocks, and can be used on steel and wooden moulds. Product can be applied by spraying, with a roller or brush.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 20°C	mm ² /s	-
kinematic viscosity at 40°C	mm ² /s	136.0
flash point	°C	220
spontification number	mg KOH/g	3.2
flow temperature	°C	-12



KONKRETON XS

GENERAL DESCRIPTION:

KONKRETON XS is produced from a deeply-refined mineral oil with predominantly anti-adhesive and anti-corrosive enriching additives. Its optimal composition guarantees continuity of the oil film and protects concrete elements against adhesion to the mould surface.

APPLICATIONS:

KONKRETON XS is used to cover moulds for the manufacture of cellular concrete blocks or other concrete elements, where increased thickness of the separation layer is required. Such parameter is particularly important for rapid filling of moulds with large quantities of concrete mix, where the risk of breaking the oil film exists. Due to its right composition and additives, KONKRETON XS exceptionally well adheres to treated surfaces. It protects against adhesion of concrete to the mould thus shortening the manufacture process and minimising losses caused by damages to concrete elements. Thanks to its parameters, KONKRETON XS can be used in the production process all year round. In very low temperatures, KONKRETON S oil is recommended. The product may be applied automatically or manually with a roller.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 20°C	mm ² /s	583.5
kinematic viscosity at 40°C	mm ² /s	157.1
flash point	°C	215
saponification number	mg KOH/g	4.5
flow temperature	°C	-8

KONKRETON L (Z)

GENERAL DESCRIPTION:

KONKRETON L(Z) anti-adhesive oil is made of deep refined mineral oil and enriching additives, improving the anti-adhesive and anti-corrosive properties. Carefully designed oil formula, based on adequate proportion of components allowing adequate freeing of concrete from the mould, adds to production economy and environmental protection.

APPLICATIONS:

KONKRETON L(Z) anti-adhesive oil is intended for lubricating moulds in manufacturing of concrete elements and cellular concrete blocks, where the mould is lubricated with cold spraying method.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 20°C	mm ² /s	55.8
kinematic viscosity at 40°C	mm ² /s	23.9
flash-point	°C	175
saponification number	mg KOH/g	62.5
density at 15°C	°C	-6

FORMEX Q

GENERAL DESCRIPTION:

FORMEX Q oil is made of deeply refined mineral oils with an additive inhibiting concrete adhesion to moulds and corrosion inhibitors.

APPLICATIONS:

FORMEX Q is intended to lubricate steel moulds in manufacturing of concrete and ferroconcrete precast units, and for steel and wooden shuttering in civil engineering.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 20°C	mm ² /s	24
saponification number	mg KOH/g	7.3
flash point	°C	92
solidification point	°C	-12

B-0 ANTI-ADHESION OIL

GENERAL DESCRIPTION:

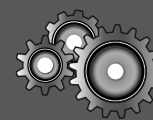
B-0 anti-adhesion oil is made of deeply refined mineral oil and oleic acid.

APPLICATIONS:

B-0 anti-adhesion oil is used for lubrication of large area steel moulds and for high unit pressures.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 40°C	mm ² /s	18
solidification point	°C	-8
flash point	°C	178



BQ OIL FOR CERAMICS

GENERAL DESCRIPTION:

BQ anti-adhesion oil for ceramics is made of light petroleum distillates (fractions) and vegetable or animal fat acids.

APPLICATIONS:

BQ anti-adhesion oil for ceramics is used in ceramic industry. It is used for manufacturing of stoneware and semi-vitreous products and for manufacturing of electro-technical porcelain as an ingredient of kaolin mix. It can also be used for lubrication of moulds in production of concrete parts.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 20°C	mm ² /s	4.6
kinematic viscosity at 40°C	mm ² /s	3
flash point	°C	69
saponification number	mg KOH/g	8.1
acid number	mg KOH/g	7.3

CERAMOL Q

GENERAL DESCRIPTION:

CERAMOL Q oil is made of light mineral oil distillates and typical anti-adhesive additives.

APPLICATIONS:

CERAMOL Q is used for manufacturing of stoneware and semi-vitreous products and for manufacturing of electro-technical porcelain. It can also be used for lubrication of moulds in the production of concrete parts.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 20°C	mm ² /s	5.2
kinematic viscosity at 40°C	mm ² /s	2.64
flash point	°C	82
saponification number	mg KOH/g	8
acid number	mg KOH/g	6

SEPARATION OIL

GENERAL DESCRIPTION:

Separation oil is made of highly refined mineral oil and a specially selected set of emulsifiers which make it easily mix with water, producing strong emulsion with good anti-adhesive and anti-corrosive properties.

APPLICATIONS:

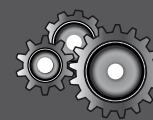
Separation oil is used to produce separation emulsion for preventing adherence of asphalt-mass to metallic surfaces of asphalt transporting trucks and asphalt laying machines, e.g. to lubricate dump truck carrying body, asphalt laying machines, road rollers, etc. Recommended concentration of water based emulsion, water hardness up to 15°N, is 10-15%. Spreading by spraying or with a brush.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 40°C	mm ² /s	25.0
pour point	°C	-12
flash point	°C	174
stability of 10% emulsion based on water hardness 15°N after 48h	-	pass



EMULSIFYING METALWORKING OILS



AQUASYN HD

STANDARDS, SPECIFICATIONS:

Approved by the National Institute of Hygiene

GENERAL DESCRIPTION:

AQUASYN HD is a synthetic emulsifying concentrate for multipurpose application in machining of metals or grinding.

APPLICATIONS:

AQUASYN concentrates are intended for use in the operations of moderate machining and grinding of ferrous and non-ferrous metals. They are designed for machining steel, cast iron, non-ferrous metals and their alloys.

PHYSICAL AND CHEMICAL PROPERTIES:

	PARAMETERS	UNITS	TYPICAL VALUES
CONCENTRATE	appearance	-	homogeneous, clear brown liquid
	kinematic viscosity at 20°C	mm ² /s	5.0
	kinematic viscosity at 40°C	mm ² /s	2.6
3% SOLUTION IN WATER HARDNESS 15°N	appearance	-	colourless, transparent liquid
	pH	-	9.5
	emulsion stability in time 24h/20°C	-	pass
	rust protection: • Herbert test • Ford test	-	H0 F0
	refractive index at 20°C	-	2.8

UNICOOL MIKRO EP

STANDARDS, SPECIFICATIONS:

Certified by the National Hygienic Institute.

Recommended operating concentrations:

- grinding – 3÷5%,
- normal machining – 3÷5%,
- heavy-duty machining – 5÷8%.

APPROVALS:

HACO GROUP

GENERAL DESCRIPTION:

UNICOOL MIKRO EP is a semi-synthetic emulsifying concentrate with EP content and universal application in machining of various metals.

APPLICATIONS:

UNICOOL MIKRO EP is intended primarily for use in heavy-duty machining processes and grinding of steel, cast-iron, non-ferrous metals or for machining of very hard materials e.g. alloy steels, nimonic. It may also be used for machining aluminium alloys. High load resistance of emulsion film, strengthened by EP additives, allows excellent performance in heavy-duty machining. Good emulsion dispersion and its moistening properties allow easy reduction of friction and removal of heat from the machining area, providing cleanliness in the working environment.

PHYSICAL AND CHEMICAL PROPERTIES:

	PARAMETERS	UNITS	TYPICAL VALUES
CONCENTRATE	appearance	-	homogeneous, clear brown to yellow liquid
	mineral oil content	%	approximately 35
	kinematic viscosity at 40°C	mm ² /s	65.0
	lubricating properties on a four ball pressure tester, weld load	kG	160
3% SOLUTION IN WATER HARDNESS 15°N	appearance	-	transparent to opalescent fluid
	pH	-	9.2
	emulsion stability in time 24h/20°C	-	pass
	rust protection - Herbert test	-	H0
	lubricating properties on a four ball pressure tester, weld load • 3% emulsion • 5% emulsion	kG	126 126
	refractive index at 20°C	-	1.41

UNICOOL MIKRO E

STANDARDS, SPECIFICATIONS:

Certified by the National Hygienic Institute.

Recommended working concentration:

machining	light	medium-duty
normal machining		
(turning, milling)	3%	5-6%
grinding	1.5-2%	3-5 %
heavy chip machining		
(threading, drilling deep holes)	3-4%	6-8%
stamping, moulding	3-4 %	5-6%
drilling	4-5%	8-10%

GENERAL DESCRIPTION:

UNICOOL MIKRO E - is a semi-synthetic coolant forming microemulsions with water. It does not contain any harmful substances.

APPLICATIONS:

UNICOOL MIKRO E - has been designed for use in conventional machining processes such as turning and milling, in the process of drilling, reaming, deep hole drilling as well as drilling, grinding and polishing. It is suitable for low and high pressure systems, CNC. It can be used in the central systems as well as individually working machinery. Compatibility with the workpiece material: cast iron, iron alloys and stainless steel, aluminium alloys, plastic materials.

PHYSICAL AND CHEMICAL PROPERTIES:

	PARAMETERS	UNITS	TYPICAL VALUES
CONCENTRATE	density at 20°C	%	1.01
	kinematic viscosity at 40°C	mm ² /s	1.002
5% SOLUTION IN WATER HARDNESS 15°N	appearance at 20°C	-	transparent to opalescent fluid
	pH	-	9.3
	emulsion stability in time 24h/50°C	-	1A/1R/pass
	rust protection: Herbert test	-	H0

UNICOOL MIKRO 40 P

STANDARDS, SPECIFICATIONS:

Certified by the National Hygienic Institute.

Recommended working concentration:

machining	light	medium-duty
normal machining	3%	5-6%
(turning, milling)		
grinding	1,5-2%	3-5 %
stamping, forming	3-4%	5-6%
boring	4-5%	8-10%

GENERAL DESCRIPTION:

UNICOOL MIKRO 40 P is a semi-synthetic cooling agent that forms microemulsion with water. It contains anionic and nonionic surfactants, innovative corrosion inhibitors, anti-foaming agents and forms stable microemulsions.

APPLICATIONS:

UNICOOL MIKRO 40 P is intended for use in typical machining processes, such as turning or milling, as well as forming and grinding. It is suitable for low- and high-pressure CNC systems. It can be used in both central systems and individual machines.

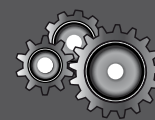
Suitable for use with:

- Cast iron
- Iron alloys and stainless steel
- Aluminium alloys
- Plastics.

PHYSICAL AND CHEMICAL PROPERTIES:

	PARAMETERS	UNITS	TYPICAL VALUES
CONCENTRATE	density at 20°C	%	1.015
	kinematic viscosity at 40°C	mm ² /s	15.8
5% SOLUTION IN WATER HARDNESS 15°N	appearance at 20°C	-	transparent to opalescent fluid
	pH	-	9.4
	emulsion stability in time 24h/50°C	-	1A/1R/pass
	rust protection: Herbert test	-	H0/F0

EMULSIFYING METALWORKING OILS



UNICOOL MIKRO 40 PS

GENERAL DESCRIPTION:

UNICOOL MIKRO 40 PS - is a semi-synthetic refrigerant that forms microemulsion with water. It contains anionic and nonionic surfactants, innovative corrosion inhibitors, anti-foaming agents and forms stable microemulsions.

APPLICATIONS:

UNICOOL MIKRO 40 PS - is intended for use in typical machining processes, such as turning or milling, as well as forming and grinding. It is suitable for low- and high-pressure CNC systems. It can be used in both central systems and individual machines.

Suitable for use with:

- Cast iron
- Iron alloys and stainless steel
- Aluminum alloys
- Plastics

UNICOOL MIKRO 40 PS ensures good anti-corrosive protection of steel elements.

Recommended working concentration:

machining	light	medium-duty
normal machining (turning, milling)	3%	5-6%
grinding	1,5-2%	3-5%
stamping, forming	3-4 %	5-6%
drilling	4-5%	8-10%

PHYSICAL AND CHEMICAL PROPERTIES:

	PARAMETERS	UNITS	TYPICAL VALUES
CONCENTRATION	density at 20°C	g/cm ³	1.013
	kinematic viscosity at 40°C	mm ² /s	5.55
5% SOLUTION IN WATER HARDNESS 15°N	appearance at 20°C	-	transparent to opalescent fluid
	pH	-	9.4
	emulsion stability in time 24h/50°C	-	1A/1R/pass
	corrosion protection on steel plates by Herbert's and Ford's method	-	H0/F0

UNICOOL MIKRO 40 PW

GENERAL DESCRIPTION:

UNICOOL MIKRO 40 PW is a semi-synthetic cooling agent that forms microemulsion with water. It contains anionic and nonionic surfactants, innovative corrosion inhibitors, lubrication enhancers, anti-foaming additives and forms stable microemulsions.

APPLICATIONS:

UNICOOL MIKRO 40 PW is intended for use in typical machining processes, such as turning or milling, as well as drilling, boring, deep hole drilling, threading, forming and grinding processes as well as in heavy-duty machining operations. It is suitable for low- and high-pressure CNC systems. It can be used in both central systems and individual machines.

Suitable for use with:

- Cast iron
- Iron alloys and stainless steel
- Aluminium alloys
- Plastics.

STANDARDS, SPECIFICATIONS:

Certified by the National Hygienic Institute.

Recommended working concentration:

machining	light	medium-duty	duty
normal machining (turning, milling)	3%	5-6%	7-8%
grinding	1,5-2%	3-5%	3-5%
stamping, forming	3-4 %	5-6%	6-8%
boring	4-5%	8-10%	10-12%

PHYSICAL AND CHEMICAL PROPERTIES:

	PARAMETERS	UNITS	TYPICAL VALUES
CONCENTRATION	density at 20°C	%	15.8
	kinematic viscosity at 40°C	mm ² /s	1.015
5% SOLUTION IN WATER HARDNESS 15°N	appearance at 20°C	-	transparent to opalescent fluid
	pH	-	9.4
	emulsion stability in time 24h/50°C	-	1A/1R/pass
	corrosion protection on steel plates by Herbert's and Ford's method	-	H0/F0

UNICOOL WO

APPROVALS:

Certified by the National Hygienic Institute

Recommended operating concentrations:

- grinding – 3÷4%,
- normal machining – 4÷8%,
- heavy-duty machining – 8÷10%.

GENERAL DESCRIPTION:

UNICOOL WO is a concentrated high-oil coolant, which makes stable, milky emulsions with water. It is produced with mineral oil base and a set of additives to improve, among others, lubricating, anti-corrosive and anti-foaming properties of ready product.

APPLICATIONS:

UNICOOL WO in the form of water cooling and lubricating emulsion is used for various machining operations on steel, cast iron, non-ferrous metals and their alloys.

PHYSICAL AND CHEMICAL PROPERTIES:

	PARAMETERS	UNITS	TYPICAL VALUES
CONCENTRATE	appearance at temp. 20±5°C	-	homogeneous, clear light brown liquid
	mineral oil content	%	approximately 69
	kinematic viscosity at 40°C	mm ² /s	29.0
5% SOLUTION IN WATER HARDNESS 15°N	appearance at 20±5°C	-	milky emulsion
	pH	-	9.2
	emulsion stability in time 24h/20°C	-	pass
	rust protection: Herbert test	-	H0
	resistance to water at 25/95/25°C after a test at 50°C	cm ³	0/00/00/0 0/00/00/0
	refractive index at 20°C	-	1.47

MIKROCUT

STANDARDS, SPECIFICATIONS:

Recommended working concentrations:

- grinding – 3÷4%,
- normal machining – 3÷5%,
- heavy-duty machining – 5÷8%.

APPROVALS:

HACO GROUP

GENERAL DESCRIPTION:

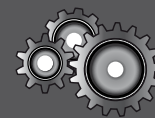
MIKROCUT is a semi-synthetic oil concentrate including mineral oil, emulsifiers, corrosion inhibitors and water condensate. It easily mixes with water producing biostable, at least 3% (v/v) micro-emulsions with pH of 9.1 – 9.3 offering extended lifetime, very good anti-corrosive properties and low susceptibility to foaming.

APPLICATIONS:

MIKROCUT oil concentrate in the form of water cooling and lubricating micro emulsion is applied in machining (turning, milling, drilling, grinding) of steel, alloy steel and grey cast iron.

PHYSICAL AND CHEMICAL PROPERTIES:

	PARAMETERS	UNITS	TYPICAL VALUES
CONCENTRATE	appearance	-	homogeneous, clear brown to light brown liquid
	kinematic viscosity at 40°C	mm ² /s	42
	solidification point	°C	-7
3% SOLUTION IN WATER HARDNESS 15°N	corrosive action on alloys Herbert test	-	H0 R0
	pH	-	9.2
	emulsion stability in time 24h/20°C	visual	pass



EMULGOL ES-12

APPROVALS:

Certified by the National Hygienic Institute

Certified by the National Hygienic Institute

Recommended operating concentrations:

- grinding – 3÷5%,
- turning, milling, drilling, reaming – 5÷10%,
- threading – 10÷15%

GENERAL DESCRIPTION:

EMULGOL ES-12 machining oil is produced of highly refined mineral oil, ionic and non-ionic emulsifiers, corrosion inhibitors and enriching additives. Emulgol ES-12 contains no nitrites, chlorine, heavy metals and phenols.

APPLICATIONS:

EMULGOL ES-12 emulsifying oil in the form of water based cooling and lubricating emulsion is applied in machining of steel, cast iron and non-ferrous metals and their alloys.

PHYSICAL AND CHEMICAL PROPERTIES:

	PARAMETERS	UNITS	TYPICAL VALUES
CONCENTRATE	appearance at temp. 20±5°C	-	homogeneous, clear light brown liquid
	pour point	°C	-12
	kinematic viscosity at 40°C	mm²/s	30.5
5% SOLUTION IN WATER HARDNESS 15°N	appearance at 20±5°C	-	milky emulsion
	pH	-	9.1
	emulsion stability in time 24h/20°C	-	pass
	rust protection: Herbert test	-	H0
	refractive index at 20°C	-	1.44

EMULGOL DS 30

APPROVALS:

Certified by the National Hygienic Institute

Recommended operating concentrations:

- grinding – 3÷5%,
- turning, milling, drilling, reaming – 5÷10%,
- threading – 10÷15%.

GENERAL DESCRIPTION:

EMULGOL DS 30 emulsifying oil is made of highly refined mineral oil, non-ionic emulsifiers, anionic emulsifiers and corrosion inhibitors. Concentrated EMULGOL DS 30 contains no nitrites, chlorine, heavy metals and phenols. EMULGOL DS 30 emulsion should be prepared using water hardness up to 15°N.

APPLICATIONS:

EMULGOL DS 30 emulsifying oil in the form of water based cooling and lubricating emulsion is applied in machining of steel, cast iron and non-ferrous metals.

PHYSICAL AND CHEMICAL PROPERTIES:

	PARAMETERS	UNITS	TYPICAL VALUES
CONCENTRATE	appearance at temp. 20±5°C	-	homogeneous, clear light brown liquid
	pour point	°C	-15
	kinematic viscosity at 40°C	mm²/s	28.5
5% SOLUTION IN WATER HARDNESS 15°N	appearance at 20±5°C	-	milky emulsion
	pH	-	9.2
	emulsion stability in time 24h/20°C	-	pass
	rust protection: Herbert test	-	H0
	refractive index at 20°C	-	1.45

FREZOL HC 800

VISCOSITY GRADE:

ISO VG: 22

APPROVALS:

The oil received positive "Toxicity and harmfulness assessment" issued by the Medical University of Silesia in Zabrze.

GENERAL DESCRIPTION:

FREZOL HC 800 is a new generation non-emulsifying oil for metal machining. It is made with hydrocracked mineral oil and a properly selected pack of chlorine-free enriching additives.

APPLICATIONS:

FREZOL HC 800, as a ready to use cutting oil, is used for heavy-duty machining processes, among others milling (also toothed gears), turning, threading, reaming, drawing, chiselling and in machining processes requiring coolant with durable lubricant film and good anti-wear properties.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 40°C	mm ² /s	22.8
pour point	°C	-21
flash point	°C	172
weld load	kG	620

FREZOL WS 8

VISCOSITY GRADE:

ISO VG: 8

GENERAL DESCRIPTION:

Cutting oil FREZOL WS 8 is manufactured using high quality base oil with reduced content of paraffinic and aromatic hydrocarbons and specially selected individual additives. Their function is the following:

- improving of the lubricating properties of the oil;
- facilitating of the processing of metals;
- improving of heat dissipation occurring during the treatment proces;
- reduction of the tendency to foaming.

Characteristic features of FREZOL WS 8:

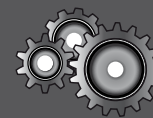
- exceptional resistance to thermal decomposition and "smoking", which can occur at high speeds and high loads;
- very good anti-wear properties;
- improvement of the quality of the processed surface;
- protection of the processed surface against corrosion;
- high resistance to foaming;
- does not contain chlorine compounds;
- compatibility with the material CTS 22D, AF K40 UF.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 40°C	mm ² /s	7.9
the diameter of the spot	mm	0.75
flash point	°C	130
weld load	kG	250

APPLICATIONS:

FREZOL WS 8 is recommended for the processing of steel, non-ferrous metals and carbides, during heavy and medium operations related to processing by cutting. It is recommended, inter alia, for honing, grinding and lapping. FREZOL WS 8 is designed for processes where metal is not compatible with cutting oils on mineral bases.



FREZOL EPX

VISCOSITY GRADE:
ISO VG: 22, 32, 46

GENERAL DESCRIPTION:

FREZOL EPX oils available in two viscosity degrees ISO VG: 32 and 46, are modern products for heavy-duty machining, developed with prime quality base mineral oils and enriching additives improving the anti-corrosive, anti-oxidation and anti-wear properties (EP additives) of the ready to use oil. FREZOL EPX contains no chlorine, phosphorus or heavy metal compounds.

APPLICATIONS:

FREZOL EPX oils, as ready to use cutting oil, are used for: turning, drawing, milling, chiselling, threading, reaming, cutting, in machining processes requiring coolant with durable lubricant film. They are recommended especially for working tough stainless and acid resistant steel grades.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES		
		22	32	46
kinematic viscosity at 40°C	mm ² /s	23	31.5	44.5
pour point	°C	-15	-12	-12
flash point	°C	170	230	240
weld load	kG	450	500	500

FREZOL EP 32

VISCOSITY GRADE:
ISO VG: 32

GENERAL DESCRIPTION:

FREZOL EP 32 oils are modern oils for heavy machining of metals and they are composed basing on high quality mineral base oils and enriching additives improving anticorrosive, antioxidative and antiwear properties of the product. FREZOL Oil are free of chlorine, phosphorus and heavy metals compounds.

APPLICATIONS:

FREZOL Oil is a ready-to-use coolant and lubricating fluids intended for the following operations: turning, pull broaching, milling, chiselling in those processes which require application of coolants with high durability of lubricating properties. They are especially recommended for processing of stainless and acid resistant steels.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 40°C	mm ² /s	33.2
ignition temperature, (t.o.)	°C	205
Total Base Number	mg KOH/g	0.12
corrosion on steel 20°C/24h	-	pass

FREZOL EP

VISCOSITY GRADE:
ISO VG: 5

GENERAL DESCRIPTION:

FREZOL EP is the next generation non-emulsifying oil for grinding. It is made of oil subjected to hydrogen treatment and carefully selected pack of chlorine-free enriching additives.

APPLICATIONS:

As a ready to use coolant and lubricant, FREZOL EP 5 is designed for use in high-speed grinding and shape grinding of components of quenched and tempered alloy steels.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 40°C	mm ² /s	5.2
acidic number	mg KOH/g	0.15
ignition point, t.o.	°C	140
base number TBN	mg KOH/g	13.2
corrosion on steel plates	-	withstands

FREZOL

VISCOSITY GRADE:
ISO VG: 22, 32

GENERAL DESCRIPTION:

FREZOL 22, 32 oils are non-emulsifying oils for metal machining. They are obtained on the basis of the mineral oil and a properly selected pack of additives and corrosion inhibitors.

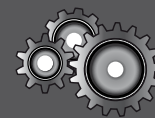
APPLICATIONS:

FREZOL oil as a ready cutting oil is intended to use in light to medium operations of metal machining, including milling of toothed gears, turning, threading. FREZOL 32 oils are dedicated to the processing of copper and its alloys, they are also suitable for the processing of ferrous and non-ferrous metals.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES	
		22	32
kinematic viscosity at 40°C	mm ² /s	22	46
anti-corrosive properties Cu 100°C/3h	-	1	1
weld load	kG	200	200

NON-EMULSIFYING METALWORKING OILS



GRIND HC 315

VISCOSITY GRADE:

ISO VG: 10

APPROVALS:

The oil received positive "Toxicity and harmfulness assessment" issued by the Medical University of Silesia in Zabrze.

GENERAL DESCRIPTION:

GRIND HC 315 is a new generation non-emulsifying oil for grinding. It is made with hydrocracked mineral oil and a properly selected pack of chlorine-free enriching additives. The oil does not form oil mist, has high resistance to foaming, increases the life of a grinding wheel and contains no chlorine compounds.

APPLICATIONS:

GRIND HC 315 as a ready to use cutting oil is suitable for high-speed grinding operations and shape grinding of components of heat treated alloy steels, e.g. cogwheels, sprockets.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 40°C	mm ² /s	11.1
pour point	°C	-30
flash point (o.c.)	°C	184
weld load	kG	500
foaming resistance: • sequence I • sequence II • sequence III	cm ³	20/0 40/0 20/0

SULFOFREZOL 1

STANDARDS, APPROVALS. SPECIFICATION:

The oils were successfully tested in the Institute of Advanced Manufacturing and Technology in Krakow.

GENERAL DESCRIPTION:

SULFOFREZOL 1 machining oil is manufactured basing on mineral oils, mainly paraffinbase crude oil distillates with the viscosity of 3÷5°E at 20°C with the additive of deseparator and sulphurised mineral oils.

APPLICATIONS:

SULFOFREZOL 1 sulfurised oil is mainly applied as offtheshelf cooling and lubricating fluid in highspeed machining of steel and cast iron at high temperatures of the cutting edge and in machining of high strength steel and heatresistant steel. SULFOFREZOL 1 is not recommended for machining of nonferrous metals where high surface quality is required. Application period depends on the range of mechanical impurity and sulphur content which should not be lower than 0.4% (m/m).

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 50°C	mm ² /s	15.7
solidification point	°C	-16
ignition temperature	°C	162
corrosiveness to steel at 100°C/3h	-	tough

ACP-E

STANDARDS, SPECIFICATIONS:

Certified by the National Hygienic Institute

GENERAL DESCRIPTION:

ACP-1E, 2E, 3E non-emulsifying machining oils have been developed in response to environmental concerns. Those oils contain no chlorine compounds.

APPLICATIONS:

ACP-1E, 2E, 3E non-emulsifying machining oils are intended primarily for machining of steel, cast iron, copper and aluminium alloys at high unit pressures and high machining speed. The choice of oil depends on the type of working:

ACP-1E is used for contour of steel, cast iron, copper and aluminium alloys, for machining teeth by chiselling, for reaming and cutting threads,

ACP-2E is used for circumferential milling, reaming of steel, cutting threads, rolling, chipping, drawing and pressing,

ACP-3E is used for deep drilling and automatic machining.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES		
		ACP-1E	ACP-2E	ACP-3E
kinematic viscosity at 20°C	mm ² /s	36	48	52
solidification point	°C	-18	-15	-12
flash point	°C	148	153	159
corrosion on copper and steel, 100°C/3h, rating	rating	pass	pass	pass

ACP-1NM

GENERAL DESCRIPTION:

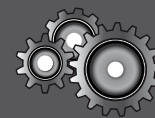
The non-emulsifying oil for machining ACP-1NM contains in its composition high quality base mineral oils, specially selected supplements compatible with the base oil which improve lubrication, heat reception, preventing the creation of oil fog and corrosion of steel components.

APPLICATIONS:

The non-emulsifying oil for machining ACP-1NM is mainly designed for machining of steel and cast iron for large unit presses and fast machining. ACP-1NM is used in forming of components made of steel and cast iron as well as in working on automatic metal lathes.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 40°C	mm ² /s	38
flow temperature	°C	-10
ignition temperature	°C	140
corroding effects on steel plates 100°C/24h	corrosion level	sustained



SM MACHINING OIL

GENERAL DESCRIPTION:

Metal machining SM oil is made of mineral oils, fat derivatives increasing oil lubricating properties and anti-corrosive additives, as well as additives improving foaming inhibiting properties.

APPLICATIONS:

SM greased oil is applied as a ready to use cutting oil in machining of alloys of: iron, non ferrous metals, at low machining speed and cutting tool temperature up to 120°C. The SM oil can also be used for pull broaching and threading of non-ferrous metals and their alloys.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 50°C	mm ² /s	12.8
solidification point	°C	-6
flash point	°C	180
corrosive action on copper plates 100°C/3h	-	pass

HONOL D

GENERAL DESCRIPTION:

HONOL D oil is made of deeply refined mineral oil with anti-corrosive and anti-foaming additives, and those improving lubricating properties.

APPLICATIONS:

HONOL D oil is used for smoothening and honing parts of steel, cast iron and non-ferrous metals. It allows to achieve high smoothness of honed surfaces.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 20°C	mm ² /s	9
kinematic viscosity at 40°C	mm ² /s	4.93
pour point	°C	-10
flash point open cup	°C	120
weld load	kG	300

MILTRON AM

VISCOSITY GRADE:

ISO VG: 46

NORMS, APPROVALS, SPECIFICATIONS:

DIN 51524 p. 2 HLP

DIN 51517 p. 3 CLP

GENERAL DESCRIPTION:

MILTRON AM is a high-quality ash-free multi-purpose machining and recycling oil, developed based on high-quality, hydrofined mineral base oils. It contains optimally matched innovative ash-free enhancement additives, such as anti-oxidants, corrosion inhibitors, non-ferrous metal passivators as well as EP and AW additives.

It is characterized by: excellent resistance to oxidation, excellent anti-corrosion properties, excellent anti-wear and anti-seizure properties, excellent resistance to emulsification and foaming, weak tendency to oil mist formation, contains no zinc, boron and chlorine compounds, provides tools with ultimate protection against wear, provides excellent lubrication for gears.

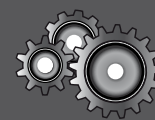
APPLICATIONS:

MILTRON AM multi-purpose machining and recycling oil is intended for lubricating and cooling tools used in machining processes (drilling, threading, turning). It is also suitable for use as a recycle oil. With its innovative technology, the oil can be safely used in hydraulic systems and gears in machining equipment.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 40°C	mm ² /s	43.4
viscosity index	-	100
pour point	°C	-18
flash point	°C	220
lubrication properties: weld load	kG	250
FZG test A/8,3/90	-	>12





HARTEX 70 S

Recommended temperatures of oil bath:

- HARTEX 70S: 40-80°C

GENERAL DESCRIPTION:

HARTEX oils are made of highly refined petroleum oil bases and a set of additives facilitating oil cooling and protecting from formation of deposits on quenched cast-iron and steel elements. HARTEX 70 oils offer very high durability and stability of parameters in longer periods, sustaining appropriate heat load. According to the in-field experience, the oil can be used for up to 10 years in systems where optimum cooling is provided and the work piece size is kept optimum.

APPLICATIONS:

HARTEX hardening oils are intended for heat treatment of cast iron and steel, especially in closed, atmosphere controlled furnaces for which high surface cleanness of hardened material is required. HARTEX oils are also suitable for two-way tubes.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 40°C	mm ² /s	24
pour point	°C	-
flash point, open cup/closed cup	°C	195/180
acid number	mg KOH/g	-
max. hardening speed	-	100

HARTEX 70, 120, 160

Recommended temperatures of oil bath:

- HARTEX 70: 40-80°C,
- HARTEX 120: 110-130°C,
- HARTEX 160: 160-180°C.

GENERAL DESCRIPTION:

HARTEX oils are made of highly refined petroleum oil bases and a set of additives facilitating oil cooling and protecting from formation of deposits on quenched cast-iron and steel elements. HARTEX 70 oils offer very high durability and stability of parameters in longer periods, sustaining appropriate heat load. According to the in-field experience, the oil can be used for up to 10 years in systems where optimum cooling is provided and the work piece size is kept optimum.

APPLICATIONS:

HARTEX hardening oils are intended for heat treatment of cast iron and steel, especially in closed, atmosphere controlled furnaces for which high surface cleanness of hardened material is required. HARTEX oils are also suitable for two-way tubes.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES		
		HARTEX 70	HARTEX 120	HARTEX 160
kinematic viscosity at 40°C	mm ² /s	20.1	48.5	226
pour point	°C	-18	-15	-12
flash point, open cup/closed cup	°C	208/190	230/215	248/230
acid number	mg KOH/g	0.06	-	-
max. hardening speed	-	96	89	80

HARTEX 70 XS

Recommended temperatures of oil bath:

- HARTEX 70 XS: 40-80°C

GENERAL DESCRIPTION:

HARTEX 70 XS oil has been developed based on carefully matched, highly refined, petroleum-derived base stock and a selection of ultimately innovative additives that ensure shortened cooling time to prevent the formation of deposits on cast iron and steel pieces being hardened. The new-generation additives offer good thermo-oxidative stability.

APPLICATIONS:

HARTEX 70 XS hardening oil is intended for cast iron and steel heat treatment applications, especially in closed controlled-atmosphere furnaces that require high purity of surfaces being hardened.

HARTEX 70 XS provides:

- High cooling efficiency
- Long-term cooling time reduction
- Good resistance to wear.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 40°C	mm ² /s	26
cooling time	°C/s	99
flash point	°C	185
ash content	%	0.1

HARTEX 70 XKP

Recommended oil bath temperatures:

- HARTEX 70 XKP: 40-80°C

GENERAL DESCRIPTION:

HARTEX 70 XKP oil is made of carefully selected highly refined petroleum oil base and the latest pack of additives ensuring faster cooling of the oil, preventing deposit formation on quenched surfaces of steel and cast iron components. New generation of additives ensures high thermo-oxidative stability of the oil.

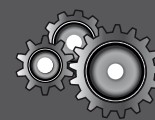
APPLICATIONS:

HARTEX 70 XKP quenching oils is designed for use in heat treatment of cast iron and steel components, particularly in closed furnaces with controlled atmosphere, requiring high cleanliness of the heat-treated component surface. HARTEX 70XKP guarantees:

- High cooling performance;
- Sustained cooling rate;
- High wear resistance.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 40°C	mm ² /s	41
cooling rate	°C/s	100
ignition point, t.o./t.z	°C	195
ash residue	%	0.1



HARTEX WZ

GENERAL DESCRIPTION:

HARTEX WZ oil is manufactured from highly refined petroleum base oils and set of additives that provide optimal cooling rate and prevent varnish and sludge formation on the surfaces of quenched cast iron or steel elements.

APPLICATIONS:

HARTEX WZ quenching oil is intended for facilitating heat treatment of steel and cast iron in furnaces with controlled atmosphere, where high purity of surfaces of quenched elements is required.

Recommended bath temperatures:

· HARTEX WZ: 40-80°C.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 40°C	mm ² /s	30
acid number	mg KOH/g	0.02
flash point	°C	165
ash content	%	0.004

OH-70, OH-120 M, OH-160 M

GENERAL DESCRIPTION:

OH-70 hardening oil and OH-120 M and OH-160 M oils are made of refined mineral oils and a set of additives: anti-oxidation, surface active, increasing the cooling rate, inhibiting formation of residue on the treated surface.

APPLICATIONS:

Hardening oils are intended for heat treatment of cast iron and steel, for which minor geometrical deformations are acceptable and proper cooling rate is required.

Recommended temperatures of oil bath:

- OH-70: 40-80°C,
- OH-120 M: 110-130°C,
- OH-160 M: 160-180°C.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES		
		OH-70	OH-120 M	OH-160 M
kinematic viscosity at 40°C	mm ² /s	22.1	47.3	228
pour point	°C	-10	-10	-7
flash point, open cup/closed cup	°C	170/150	215/196	268/246
carbon residue	% (m/m)	0.15	0.40	0.48

PRESSOL PT 1

GENERAL DESCRIPTION:

PRESSOL PT 1 is a fast evaporating fluid for easy and moderate stamping of steel sheets. It is made of light oil fractions and adequately selected enriching additives. It is characterised by perfect evaporating power – average evaporating time from the sheet surface is ca. 40 minutes (depending on ambient temperature and humidity), very good moistening and penetration properties providing suitable surface covering, very good lubricating properties – applied additives protect from paint damages due to stamping, no discolouring of the paint.

APPLICATIONS:

PRESSOL PT 1 is mainly recommended for application in stamping lacquered roofing steel sheets. The processed sheet surface does not require degreasing or applying of other cleaning processes. It may also be used in other branches of industry for stamping thin sheets and lacquered or zinc coated steel items, in all these applications where very high cleanness of the processed surface is necessary. PRESSOL PT 1 may be applied on the sheet surface with a brush, roller or by spraying.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 20°C	mm ² /s	1.22
kinematic viscosity at 40°C	mm ² /s	1.16
flash point in crucible: • open • closed	°C	46 43
rust prevention, 24h/60°C	-	pass

OP-35

GENERAL DESCRIPTION:

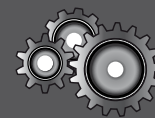
OP-35 oil for plastic working is made of sulphured mineral oil and anti-oxidation and anti-corrosive additives as well as additives improving lubricating properties.

APPLICATIONS:

OP-35 is used as a cutting oil in cold forging.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 50°C	mm ² /s	56
flash point	°C	184
saponification number	mg KOH/g	10.0
weld load	daN	400



L STAMPING OIL

GENERAL DESCRIPTION:

L stamping oil is made of mineral base oil. It contains enriching additives increasing the strength of the lubricating film, additives improving adhesion and additives facilitating cleaning of the elements following stamping.

APPLICATIONS:

L stamping oil is used for stamping parts of complex geometry and for blanking.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 50°C	mm ² /s	43
saponification number	mg KOH/g	96
weld load	daN	315

OIL FOR VERY DEEP STAMPING

GENERAL DESCRIPTION:

The oil for very deep stamping is made of deeply refined mineral base oil. The base oils are enriched with substances improving lubricating properties, reducing solidification temperature and significantly reducing oil foaming.

APPLICATIONS:

Oil for very deep stamping is used for stamping items of complex geometry and sharp curvatures, which require very high pressure, e.g. in stamping of baths and sinks of highly alloyed and stainless, cold rolled steel sheets.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 40°C	mm ² /s	330
kinematic viscosity at 50°C	mm ² /s	143
solidification point	°C	-29
flash point	°C	238
weld load	daN	500

VELOL WHITE 15

GENERAL DESCRIPTION:

VELOL WHITE is developed on the basis of deeplyrefined white oil. VELOL WHITE exhibits very high physical and chemical stability during operation.

It features:

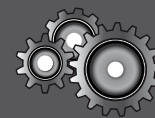
- No odour,
- Very high purity,
- Transparency.

APPLICATIONS:

VELOL WHITE is designed for all applications which require high oil purity and stability during the technological process. VELOL WHITE can be used in the chemical, cosmetics, pharmaceutical, agricultural and food industry.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
		15
kinematic viscosity at 20°C	mm ² /s	-
kinematic viscosity at 40°C	mm ² /s	15.0
flash point	°C	170
pour point	°C	-15
density at 15°C	kg/l	-



ANTYKOL NQ

GENERAL DESCRIPTION:

ANTYKOL NQ is a low viscosity protection oil made of highly refined, mineral oil distillate. To guarantee protection, the distillate is enriched with anti-oxidation, anti-corrosive and other additives. Protective action of ANTYKOL N, depending on storage conditions, is 8 to 15 months.

APPLICATIONS:

ANTYKOL NQ is used for temporary protection against atmospheric corrosion of precise metallic product surfaces, usually working in low temperatures (up to -45°C). It also may be used as lubrication oil, therefore it does not have to be removed from the operating surfaces prior to starting to operate the equipment.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 40°C	mm ² /s	19.5
kinematic viscosity at 50°C	mm ² /s	13
solidification point	°C	-45
flash point	°C	146
weld load	daN	200

ANTYKOL 100 S

GENERAL DESCRIPTION:

ANTYKOL 100 S protection and engine oil is made of highly refined oil distillate and a set of enriching additives of anti-oxidation, anti-corrosive and foaming inhibiting properties, and reducing deposits.

APPLICATIONS:

ANTYKOL 100 S protective and engine oil is used for corrosion protection of internal surfaces of combustion engines, air compressors, engine pumps. In motor vehicles, it is also used as engine oil with the interchange period up to 2 thousand kilometres.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 40°C	mm ² /s	104
viscosity index	-	106
pour point	°C	-26
flash point	°C	204

ANTYKOL TS 120

GENERAL DESCRIPTION:

ANTYKOL TS 120 protective oil is made through oil processing. The raffinate is enriched with anti-oxidation, anti-corrosive, washing and dispersing additives, as well as additives reducing the solidification point and increasing resistance to foaming.

APPLICATIONS:

ANTYKOL TS 120 protection oil is used for saturation of self-lubricating sintered sleeves and races of slide bearings.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 40°C	mm ² /s	120
viscosity index	-	109
flash point	°C	231
weld load	daN	200

AKORINOL ŁT

GENERAL DESCRIPTION:

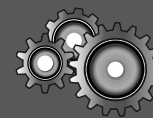
AKORINOL ŁT is made of paraffin-based light oil fractions enriched with anti-oxidative, washing, anticorrosive and foaming inhibiting additives. The product has high cleaning efficiency and good anticorrosive properties, as well as ability to inhibit so called perspiration corrosion.

APPLICATIONS:

AKORINOL ŁT oil is used for cleaning metallic products, including bearing parts and for corrosion protection of parts between operations.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 20°C	mm ² /s	4.9
flash point (t.o.)	°C	125
flash point (t.z.)	°C	110
anticorrosive properties in moist environment (50°C/72h)	-	no corrosion



AKORINOL NQ

GENERAL DESCRIPTION:

AKORINOL NQ dewatering and protecting oil is made of properly refined oil distillates which are enriched with dewatering, anti-oxidation, anti-corrosive and foaming inhibiting additives. The oil produces a thin oil film with good protective properties. Depending on application conditions, the corrosion protection ability is between 6 and 9 months.

APPLICATIONS:

AKORINOL NQ is used for dewatering of metallic surfaces after machining with water and oil-water fluids. It is also used for temporary corrosion protection of metallic products, machine parts and other metallic items during their storage and transport, when the application of low viscosity oil forming a thin film of good protective properties is required.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 20°C	mm ² /s	9.6
kinematic viscosity at 40°C	mm ² /s	3.2
flash point	°C	79
dewatering ability	-	pass
demulsifying ability	-	pass

AKORINOL L-5Q

GENERAL DESCRIPTION:

AKORINOL L-5Q is made of light oil fraction enriched with anti-oxidation, washing, anti-corrosive and foaming inhibiting additives. The product has high cleaning efficiency and good rust protection, as well as ability to inhibit the so called perspiration corrosion.

APPLICATIONS:

AKORINOL L-5Q is used for washing metallic products and for inter-operation corrosion protection.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 20°C	mm ² /s	5.2
kinematic viscosity at 40°C	mm ² /s	3.16
solidification point	°C	-15
flash point	°C	78
rust protection in moist environment (50°C/72h)	-	no corrosion

AKORINOL THP

GENERAL DESCRIPTION:

AKORINOL THP is made of light paraffin-based oil base with anti-oxidising, washing, anti-corrosive and anti-foaming agents. The product ensures high washing performance and good anti-corrosive properties and the ability of inhibiting so called perspiration corrosion. The oil is characterised by a nice, specific scent.

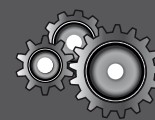
APPLICATIONS:

AKORINOL THP is designed for washing and preservation of machines and equipment, rolling and sliding bearings and other metallic components.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 20°C	mm ² /s	3.7
corrosion on steel plates	-	no corrosion
ignition point, t.o.	°C	110
ignition point, t.z	°C	102





ITERM-4

GENERAL DESCRIPTION:

ITERM-4 is an efficient oil for heat exchange systems made from specially selected quality base oil subjected to deep hydro refining process. Thanks to advanced production technology the product is distinguished by good heat conductivity and high thermo-oxidative stability. ITERM-4 contains enriching substances which stabilise its specifications at high temperatures. Another strength of the product is that it does not release unpleasant odour.

APPLICATIONS:

- industrial cooling and heating systems;
- heaters and oil systems for heating;
- closed-circuit heating equipment;

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 100°C	mm ² /s	1.4
kinematic viscosity at 40°C	mm ² /s	3.8
kinematic viscosity at 20°C	mm ² /s	6.5
combustion point	°C	140

ITERM 6 MB

GENERAL DESCRIPTION:

ITERM 6 MB oil for heating devices is made of refined, mineral base oil. It contains dispersing and washing additives as well as additives improving resistance to foaming. Owing to that, ITERM 6 MB exhibits great resistance to thermal degradation and oxidation, sufficient viscosity which results in easy system start-up and highly efficiently maintained oil circulation, long operating time without decomposition products, increasing product viscosity, and high heat exchange index.

APPLICATIONS:

ITERM 6 MB is used as heat carrier in heating closed-circuit heating systems, in temperature range from -10 to 285°C, industrial cooling and heating systems (a product used in systems of capacity as high as a dozen thousand litres), heaters and oil systems for heating, among others, bitumen products for road constructions, furnaces fired with solid fuel, provided with additional heat drawing systems. It is recommended for maintaining forced turbulent flow in heating systems, and the temperature differential between oil film around the heating component should not increase 15-30°C.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 40°C	mm ² /s	41.1
kinematic viscosity at 100°C	mm ² /s	6.1
solidification point	°C	-13
flash point	°C	252
carbon residue	% (m/m)	0.3

ITERM 30 MF

GENERAL DESCRIPTION:

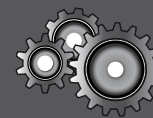
ITERM 30 MF oil is made based on refined oil fraction treated with anti-oxidation, dispersive and anti-foaming additives.

APPLICATIONS:

ITERM 30 MF is used for lubrication of machinery and equipment operated at temperatures up to 200°C, e.g. chains in dryer conveyors.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 40°C	mm ² /s	600
kinematic viscosity at 100°C	mm ² /s	31
solidification point	°C	-5
ignition point	°C	264
coking residue	% (m/m)	0.9



ORLEN OIL TRAFO EN

MEETS REQUIREMENTS: PN-EN 60296

GENERAL DESCRIPTION:

Non-inhibited transformer oil made of deeply refined, naphthenic type mineral oil.

APPLICATIONS:

The oil is intended for use in transformers, switching devices and similar electrical devices in which oil performs insulating and heat dissipation function.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 40°C	mm ² /s	10.0
pour point	°C	-57
flash point	°C	145
surface tension	nN/m	50
breakdown voltage	kV	62



ELASTICOL 3090

GENERAL DESCRIPTION:

ELASTICOL 3090 heavy paraffinic oil without depressants, mainly manufactured for using in rubber industry, where high viscosity in wide range of temperatures is required. Characteristic:

- high kinematic viscosity in 40°C and 100°C
- high density
- very high flash point.

APPLICATIONS:

- using as a process oil,
- blending of lubricants,
- manufacturing rubber compound.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity in 100°C	mm ² /s	30-35
density in 15°C	g/ml	0.880-0.910
flash point	°C	>280
viscosity index	-	>89

OIL FOR VARIOUS APPLICATIONS H-1

GENERAL DESCRIPTION:

H-1 multi purpose oil is made basing on refined, mineral oil base, a set of emulsifiers specific for non-flammable liquids and anti-corrosive additives.

APPLICATIONS:

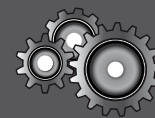
The H-1 oil in the form of water emulsion is used:

- in mining industry, in powered roof supports and central or individually powered props, as HFAE non-flammable liquids,
- as a coolant in diesel locomotive engines.

Recommended emulsion concentration: from 2 to 10% with water hardness up to 10°N (e.g. for hydraulic liquids 2% solutions).

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
rust prevention 2% emulsion on steel 60°C/24h	-	pass
solidification point	°C	-16
flash point	°C	176
pH 2% emulsion	-	8.7



KALIBROL LUX

GENERAL DESCRIPTION:

KALIBROL LUX is made from oil base obtained through conservative petroleum distillation of paraffin nature. The oil base is enriched with anti-corrosive additives.

APPLICATIONS:

KALIBROL LUX is used for checking, adjustment, cleaning and maintenance of fuel system of self-ignition engines. It can also be used for corrosion protection of fuel systems metallic parts stored according to user manuals of which limit storage time is up to one year.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 40°C	mm ² /s	2.60
clouding temperature	°C	-11
flash point	°C	88
corrosive action on cooper plates 3h /100°C	rating	pass

AMORTYZOL 15-WL 150

GENERAL DESCRIPTION:

AMORTYZOL 15-WL 150 is a mineral oil for hydraulic absorbers.

APPLICATIONS:

AMORTYZOL oil 15-WL 150 is applied to telescopic shock absorbers for damping of vehicle suspension vibrations.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
kinematic viscosity at 40°C	mm ² /s	2.60
clouding temperature	°C	-11
flash point	°C	88
corrosive action on cooper plates 3h /100°C	rating	pass

HUTPLEX HVM

GENERAL DESCRIPTION:

HUTPLEX HVM is a multi-purpose grease made based on complex overbased calcium sulphonate in consistency class NLGI 1.5, characterised by high resistance to high loading and high dropping point above 300°C. Thanks to the content of specially selected set of additives, the grease ensures optimum ductility and strong adhesion to metallic surfaces, while protecting them from water ingress. HUTPLEX HVM is characterised by excellent resistance to hot water, brine, hydrocarbons and hydrogen sulphide.

The tests have proven that the grease can absorb even 50% of water without affecting stability of the thickener and its anti-wear and anti corrosive performance. HUTPLEX HVM ideally protects lubricated surfaces from corrosion, both in distilled and salty water, while maintaining high thermal stability. HUTPLEX HVM grease ensures very high load and pressure performance. The production technology makes it possible to obtain high quality grease which, without using EP/AW additives, has achieved a very low ball defect diameter while tested in a four-ball apparatus. The high weld load of 800 kg and very high non-seizure load measured with Timken apparatus allow maximum friction increase even under extreme load conditions.

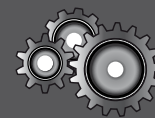
APPLICATIONS:

Thanks to its properties, H HVM is intended mainly for lubricating machinery and equipment in cooper mining, as well as in coal and lignite mining. It can be used in metallurgical, steel industry and for pot applications. It performs exceptionally well as a grease for sealing gas valves. It can be used in heavy industries requiring a high quality of grease used in temperature range -30 to +180°C. HUTPLEX HVM can be used in pin joints, bearings and other friction pairs exposed to high temperatures, load and water.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
consistency group	NLGI	1.5
worked penetration at 25°C 60 x [0.1mm]	mm/10	294
penetration change (worked) P10000 / P60, [%]	mm/10	294
dropping point	°C	>300
defect diameter (40 kG, 60 min.)	mm	0.3
weld load	kG	800
water resistance – water spray	% m/m	4.8
testing anti corrosive properties with EMCOR method, salty water (5% r-r NaCl)	-	0-0
oxidation resistance, pressure drop (100°C, 100h)	-	35

CALCIUM SULPHONATE BASED GREASES



HUTPLEX HV

GENERAL CHARACTERISTICS:

HUTPLEX HV is multi-purpose grease in the NLGI No. 1.5 consistency class that belongs to a new group of lubricants offered by ORLEN OIL, characterized by high mechanical and thermal resistance, and resistance to water and corrosive activity of external factors. The high share of sulphonate thickener provides unique properties of anti-wear, high pressure resistance and excellent corrosion resistance in salt water and hot water environments.

APPLICATION:

High temperature sulphonate greases HUTPLEX HV are highly adhesive EP greases to lubricate machine parts in the mining, metallurgical, heavy and marine industries, especially for the friction nodes exposed to high shock loads and low operating friction torques in high-dust, in terms of exposure to water and brine. The grease is ideal for coal and copper mines to lubricate bearings, bolt connections, and other mechanisms, machines and equipment operating within the temperature range: -30 to 180 °C. HUTPLEX HV works also in difficult metallurgical applications, for lubrication of bearings in the standing rolling mills.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
NLGI class		1.5
worked penetration at 25°C, 60 times	mm/10	302
the application temperature range	°C	-30 to 180
dropping point	°C	>300
base oil viscosity at 40°C	mm²/s	420
welding load	kG	800



HUTPLEX WR

GENERAL CHARACTERISTICS:

Multi-purpose HUTPLEX WR greases are highly adhesive lubricants with high mechanical and thermal resistance, and resistance to water and corrosive activity of external factors. The high share of sulphonate thickener provides unique properties of anti-wear, high pressure resistance and excellent corrosion resistance in salt water and hot water environments.

APPLICATION:

High temperature sulphonate greases WR HUTPLEX are intended to lubricate machine elements in the steel industry, especially the roller bearings of a rolling mill and other friction nodes exposed to high temperatures. Thanks to the extraordinary thermal stability of HUTPLEX WR greases recover the original structure right after returning to ambient temperature. They are ideal for the lubrication of machines and equipment for mining coal, copper, cement manufacturers, steel, heavy industry and all friction nodes exposed to extreme pressure and water while requiring maximum protection against corrosion.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES	
		HUTPLEX WR-1	HUTPLEX WR-2
NLGI class		1	2
worked penetration at 25°C, 60 times	mm/10	318	278
the application temperature range	°C	-30 to 180	-25 to 180
dropping point	°C	>300	>300
base oil viscosity at 40°C	mm²/s	180	180
welding load	kG	800	800

GREASEN SYNTEX HT 2

STANDARDS, SPECIFICATIONS:

DIN 51 502: KP2R-50

ISO 6743-9: EFHB-2

NLGI: 2

APPROVALS:

HSW SA

GENERAL DESCRIPTION:

GREASEN SYNTEX HT 2 grease is made of high quality synthetic base oil and inorganic thickener. It also includes additives improving anti-wear, lubricating, anti-corrosive and anti-oxidation properties. It allows for lubricating of mechanisms exposed to impact loads, vibrations, high dustiness, moisture, water washing. It is practically infusible, antistatic and is compatible with copper alloy elements and many elastomers, which allows lubricating of metal-plastic or metal-rubber friction parts.

APPLICATIONS:

GREASEN SYNTEX HT 2 - high temperature complex lithium grease based on synthetic oil. It is intended to lubricate heavy-duty rolling and sliding bearings and other mechanisms operated in the temperature range from -50°C to +180°C. Due to its high durability, it can be used for long-term and maintenance-free lubricating of machines and devices of various types operating in the temperature up to 130°C, with no need of additional lubrication during normal operation. Its main fields of use are mining, metallurgy, cement industry, papermaking industry, electronic/electric industry.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
NLGI class		2
worked penetration at 25°C	mm/10	285
dropping point	°C	290
oil separation from grease, 100°C/30h	% (m/m)	2.6
corrosive action on copper plates, 100°C/3h	rating	1
protection against corrosion EMCOR test	points	0-0
lubricating properties on a four ball pressure tester, weld load	kG	250
base oil viscosity at 40°C	mm²/s	48

GREASEN COMPLEX 2

STANDARDS, SPECIFICATIONS:

DIN 51502: KP2P-40

ISO 6743-9: DEHB-2

ASTM D4950: GC

NLGI: 2

GENERAL DESCRIPTION:

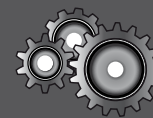
GREASEN COMPLEX 2 is made of highly refined mineral base oil with the kinematic viscosity at 40°C 85 cSt and complex lithium thickener. It also includes additives improving anti-wear, lubricating, anti-corrosive and anti-oxidation properties. It is characterised by high dropping point, very good pumping ability, high resistance to hot water, good lubricating properties, low temperature stability, compatibility with copper elements as well as good stability during storage.

APPLICATIONS:

Multipurpose, high temperature resistant GREASEN COMPLEX 2 grease is intended to lubricate heavy-duty rolling and sliding bearings and other mechanisms, also using central lubrication systems, operating in the temperature range between -30°C and 160°C, periodically up to 180°C. GREASEN COMPLEX 2 is specially recommended to lubricate bearings of car wheel hubs, electric motors, fans, guides, articulated joints and other automotive and industry mechanisms. Due to its high durability, it can be used for long term and unmanned lubricating of machines and devices of various types, with no need of additional lubrication during normal operation.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
NLGI class		2
worked penetration at 25°C	mm/10	285
dropping point	°C	270
oil separation from grease, 100°C/24h	% (m/m)	1.3
corrosive action on copper plates, 100°C/3h	rating	1
protection against corrosion EMCOR test	points	0-0
lubricating properties on a four ball pressure tester, weld load	kG	250
base oil viscosity at 40°C	mm²/s	85



GREASEN ŁT-4S

STANDARDS, SPECIFICATIONS:

GREASEN ŁT-4 S-2
DIN 51502: KP2K-30
ISO 6743-9: CCEA-2

GREASEN ŁT-4 S-3
DIN 51502: KP3N-20
ISO 6743-9: BDEA-3

GENERAL DESCRIPTION:

A mineral-oil-based grease, thickened with lithium hydroxystearate, GREASEN ŁT-4S contains enhancing additives, in particular, anti-corrosive and anti-oxidation additives, as well as additives improving lubrication properties. GREASEN ŁT-4 S-2 is water resistant. The operating temperature range is:

GREASEN ŁT-4 S-2: -30°C ÷ 120°C

GREASEN ŁT-4 S-3: -20°C ÷ 130°C

APPLICATIONS:

GREASEN ŁT-4S2 grease is used to lubricate:

- automotive anti-friction bearings;
- cross joints during their installation;
- pull rods and guides of machines as well as other machine elements;
- friction bearings working in the grease acceptable range of temperatures.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES	
		ŁT-4 S2	ŁT-4 S3
worked penetration at 25°C	mm/10	285	248
dropping point	°C	200	200
tendency to release grease from the bearings (130°C, 16h, 660 rpm/min)	%	1.2	1.1
weld load	kG	200	200
resistance to water washout dyn. meth. 79°C	%	3.5	2.8
base oil viscosity at 40°C	mm²/s	85	85

GREASEN EP-23

STANDARDS, SPECIFICATIONS:

DIN 51502: KF2N-30
ISO 6743-9: CDEB-2

APPROVED BY:
REMA

GENERAL DESCRIPTION:

GREASEN EP-23 is a complex lithium grease with a molybdenum disulfide content (3%), resistant to moisture, steam and light acids, bases and vibration, high pressures and shock loads.

APPLICATIONS:

GREASEN EP-23 is intended for the lubrication of heavy-duty friction centres operating in temperatures between -30° to +140°C.

It is recommended for application everywhere where frequent direction changes or simultaneous low speeds and high loads occur, e.g. in constant velocity joints.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
worked penetration at 25°C	mm/10	286
dropping point	°C	203
lubricating properties, weld load	kG	315
resistance to water at 38°C	%	0.012
base oil viscosity at 40°C	mm²/s	150

LITEN NANO

NORMS, APPROVALS, SPECIFICATIONS:

LITEN NANO 2:
ISO 6743-9: CDEB-2
DIN 51 502: KPF2N-30

colour: silver-black

GENERAL DESCRIPTION:

The lubricants LITEN NANO are complex lithium greases based on the naphthenic oil. The lubricants are tempered by anticorrosion and EP additives. Due to the thickener used in them, they are characterized by high resistance to water washout. This lubricant is resistant to corrosion, oxidation and washing out the water; it contains a unique NANO formula, which includes a mixture of solid lubricant nano-particle bodies. The high content of the composition NANO makes the grease adhere perfectly to the lubricated surfaces, forming a durable film, resistant to heavy loads, thereby reducing friction and wear of the coexisting surfaces.

APPLICATIONS:

LITEN NANO is designed for the lubrication of rolling bearings, plain bearings and heavy duty friction associations working in the temperature range: -30°C to + 140°C. LITEN NANO is also recommended for use where there is a frequent change of direction or a combination of low and high velocity as well as heavy loads in particular impact loads, for instance in constant velocity joints. Its high anti-wear parameters reduce friction of contact surfaces which reduces the surface wear.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
worked penetration at 25°C	°C	286
dropping point, min.	°C	231
resistance to water washout dyn. meth. 79°C	%	1.2
weld load, min.	kG	500
base oil viscosity (mineral oil) at 40°C	mm ² /s	110

LITEN PREMIUM ŁT-4EP

APPROVALS:

LITEN PREMIUM ŁT-4EP2: ZETOR (Proxima, Proxima Plus, Proxima Power, Forterra)

STANDARDS, SPECIFICATIONS:

LITEN PREMIUM ŁT-4EP1:
DIN 51 502: KP1N-30, ISO 6743-9: CDHB-1
LITEN PREMIUM ŁT-4EP2:
DIN 51 502: KP2N-30, ISO 6743-9: CDHB-2
LITEN PREMIUM ŁT-4EP3:
DIN 51 502: KP3N-30, ISO 6743-9: CDHB-3

GENERAL DESCRIPTION:

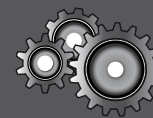
LITEN PREMIUM ŁT-4EP are lithium greases intended to lubricate various friction parts operating in the temperature range of -35°C to +140°C and under medium loads. They are characterised with high tribological performance and resistance to ageing. Modern composition of enriching additives applied in LITEN PREMIUM ŁT-4EP provides also a higher dropping point, better properties in low temperatures and better resistance to water wash out compared to standard lithium greases.

APPLICATIONS:

LITEN PREMIUM ŁT-4EP greases are used to lubricate: rolling and sliding bearings including central lubricating systems (LITEN PREMIUM ŁT-4EP1, ŁT-4EP2), light-duty and medium-duty low-speed gears, machine articulated joints and slide guides, other friction parts in industrial applications, and also as multipurpose automotive grease.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES		
		LITEN PREMIUM ŁT-4 EP1	LITEN PREMIUM ŁT-4 EP2	LITEN PREMIUM ŁT-4 EP3
NLGI class		1	2	3
worked penetration at 25°C	mm/10	320	280	230
dropping point	°C	251	255	265
oil separation from grease, 100°C/24h	% (m/m)	2.2	0.1	0.0
lubricating properties on a four ball pressure tester, weld load	daN	250		
base oil viscosity (mineral oil) at 40°C	mm ² /s	150		



LITEN ŁT-4

STANDARDS, SPECIFICATIONS:

LITEN ŁT-41:

DIN 51 502: K1K-30, ISO 6743-9: CCHA-1

LITEN ŁT-42:

DIN 51 502: K2K-30, ISO 6743-9: CCHA-2

LITEN ŁT-43:

DIN 51 502: K3K-30, ISO 6743-9: CCHA-3

GENERAL DESCRIPTION:

LITEN ŁT-4 greases are universal lithium greases based on mineral paraffin oil. They are refined with an enriching pack of additives with anti-oxidation, anti-corrosive and lubricating properties. LITEN ŁT-4 greases are resistant to water.

APPLICATIONS:

LITEN ŁT-4 greases are used to lubricate rolling and sliding bearings operating in the temperature range of - 30°C to +130°C.

Grease selection depends on the method of grease feeding (e.g. central lubrication, manual lubrication), rotational speed and bearing working temperature.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES		
		LITEN ŁT-41	LITEN ŁT-42	LITEN ŁT-43
NLGI class		1	2	3
worked penetration at 25°C	mm/10	326	285	237
dropping point	°C	200	202	205
oil separation from grease, 100°C/24h	% (m/m)	-	0.8	0.2
corrosive action on a copper plate 100°C/3h	rating	1		
base oil viscosity (mineral oil) at 40°C	mm²/s	85		

LITEN ŁT-4P

STANDARDS, SPECIFICATIONS:

LITEN ŁT-4P2:

DIN 51 502: KP2N-30

ISO 6743-9: CDHA-2

LITEN ŁT-4P3:

DIN 51 502: KP3N-30

ISO 6743-9: CDHA-3

APPROVED BY: FŁT Kraśnik - Liten ŁT4-P3

GENERAL DESCRIPTION:

LITEN ŁT-4P plastic greases are manufactured in the process of densification of high refined mineral oil with lithium soap of 12 hydroxystearine acid. LITEN ŁT-4P greases are enriched with antioxidative and anticorrosive additives as well as additives improving lubricating properties. They are high quality multipurpose greases.

APPLICATIONS:

LITEN ŁT-4P are manufactured in 1, 2 and 3 consistency classes. They are applied for lubricating of covered rolling bearings operating in temperatures between -30°C and +140°C in conditions requiring the following properties: resistance to oxidation, corrosion protection, resistance to water and mechanical stability. LITEN ŁT-4P greases may also be used to lubricate sliding bearings.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES	
		LITEN ŁT-4P2	LITEN ŁT-4P3
NLGI class		2	3
worked penetration at 25°C	mm/10	285	240
dropping point	°C	190	189
oil separation from grease, 100°C/24h	% (m/m)	2	4
lubricating properties on a four ball pressure tester, weld load	kG	178	180
base oil viscosity at 40°C	mm²/s	85	

LITEN EPX

STANDARDS, SPECIFICATIONS:

LITEN EPX-00:

DIN 51 502: GP00K-20, ISO 6743-9: BCEB-00

LITEN EPX-0:

DIN 51 502: GP0K-20, ISO 6743-9: BCEB-0

APPROVALS:

LITEN EPX-00: MESKO-ROL, ZENTEX

GENERAL DESCRIPTION:

LITEN EPX semi-liquid gear lithium greases are based on mineral oil with the kinematic viscosity of ca. 150 mm²/s at 40°C. Due to required better lubricating properties, they are enriched with EP additives as well as additives increasing adhesion, anti-oxidation and anti-corrosive properties.

APPLICATIONS:

LITEN EPX greases are intended to lubricate closed toothed cylindrical and bevel gears, operating in the temperature range between - 20°C and +120°C.

The choice of LITEN EPX grease depends on the design and sealing degree of the gear and working temperature.

LITEN EPX 00 is used in lower temperatures than those given above and in the case of good sealing of the gear,

LITEN EPX 0 is used in moderate conditions.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES	
		EPX 00	EPX 0
NLGI class		00	0
worked penetration at 25°C	mm/10	420	382
dropping point	°C	173	190
oil separation from grease, 100°C/24h	% (m/m)	-	-
lubricating properties on a four ball pressure tester, weld load	kG	200	
base oil viscosity (mineral oil) at 40°C	mm ² /s	150	

LITEN EP

STANDARDS, SPECIFICATIONS:

LITEN EP-0

DIN 51 502: KP0K-20, ISO 6743-9: BCHB-0

LITEN EP-1

DIN 51 502: KP1K-20, ISO 6743-9: BCHB-1

LITEN EP-2

DIN 51 502: KP2K-20, ISO 6743-9: BCHB-2

GENERAL DESCRIPTION:

LITEN EP plastic greases are made of refined mineral oil with the viscosity of about 85 mm²/s at 40°C, the lithium soaps of 12- hydroxy stearic acid and a set of additives increasing their lubricating, antio-oxidation and anti-corrosive properties.

APPLICATIONS:

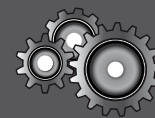
LITEN EP-0 is intended to lubricate bearings in equipment with central lubricating system, operating in low temperatures (-20 to +120°C) and requiring forcing grease to long distances,

LITEN EP-1 is intended to lubricate bearings in equipment with central lubricating system, operating in moderate ambient temperatures and requiring forcing grease to long distances,

LITEN EP-2 is intended to lubricate bearings in equipment with individual and central lubricating system, operating in high ambient temperatures and requiring forcing grease to short distances.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES		
		LITEN EP-0	LITEN EP-1	LITEN EP-2
NLGI class		0	1	2
worked penetration at 25°C	mm/10	378	332	293
dropping point	°C	190	202	210
oil separation from grease, 100°C/24h	% (m/m)	-	3.8	0.6
weld load	kG	250		
base oil viscosity (mineral oil) at 40°C	mm ² /s	150		



SMAROL UNIWERSALNY EKO

ECOLOGICAL PLASTIC GREASE FOR GENERAL PURPOSES



PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
worked penetration at 25°C	mm/10	251
dropping point	°C	210
oil separation from grease, 100°C/24h	%	4.1
weld load	kG	200
copper strip corrosion plate, 100°C/24h	-	pass
base oil viscosity at 40°C	mm ² /s	100

SMAROL NANO

FOR LAWN MOWERS AND BRUSHCUTTERS



PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
worked penetration at 25°C	°C	281
dropping point	°C	232
resistance to water washout dyn. meth. 79°C	%	1.0
weld load	kG	500
scar diam, 40 kG, 1h	mm	0.5
base oil viscosity (mineral oil) at 40°C	mm ² /s	100

NORMS, APPROVALS, SPECIFICATIONS:

DIN 51 502: K2/3K-30

ISO 6743-9: CCHA-2/3

consistency class: NLGI 2/3

colour: green

GENERAL DESCRIPTION:

Plastic grease SMAROL UNIWERSALNY EKO is produced by thickening a blend of highly-refined base oil and bio-degradable oil with lithium soap. The grease is refined with additives that improve its greasing properties and have an anti-corrosive and anti-oxidation influence. SMAROL UNIWERSALNY EKO grease belongs to easy biodegradable preparations, because its decomposition reaches 96% after 21 days (the result confirmed by the CEC L-33-A-94 test performed by Environmental Engineering Faculty of Warsaw University of Technology).

APPLICATIONS:

SMAROL UNIWERSALNY EKO is dedicated for use in a wide variety of temperatures between -30°C and +140°C and ensures perfect lubrication even in the toughest exploitation conditions. Multipurpose SMAROL UNIWERSALNY EKO may successfully be used at home, in a workshop or on a farm for lubricating:

- hinges, locks, threads,
- chains, gear wheels
- rolling and sliding bearings
- elements of vehicles as well as industrial and agricultural machines.

It reduces wear and friction and ensures resistance to humidity.

STANDARDS, SPECIFICATIONS:

DIN 51 502: KF2N-30

ISO 6743-9: CEDB-2

consistency class: NLGI 2

colour: silver-black

GENERAL DESCRIPTION:

SMAROL NANO for lawn mowers and brushcutters is dedicated for greasing angular bearings of brushcutters and trimmers. The grease is produced of high-quality base oil thickened with complex lithium soap. It is refined with anti-corrosive additives and EP. Thanks to the addition of the thickener the grease is characterized by high dropping point and mechanical stability. This grease is resistant to corrosion, oxidation and washout by water. It contains a unique NANO formula, thanks to which it adheres perfectly to lubricated surfaces creating a long-lasting layer resistant to very heavy loads, acids, alkalies, and high temperatures. Using a substance of currently lowest known friction coefficient (COF) under 0,3 ensures very good properties preventing friction damage.

APPLICATIONS:

SMAROL NANO for lawn mowers and brushcutters is dedicated for most of all for greasing angular bearings of brushcutters and trimmers, both with a combustion engine and electrical. It may successfully be used at home, in a workshop and on a farm for greasing and protecting against corrosion of hinges, locks, threads and elements of vehicles and machines. SMAROL NANO for lawn mowers and brushcutters is dedicated for use in a wide variety of temperatures between -30°C and +160°C, and in dry-greasing conditions even up to over 500°C. SMAROL NANO for lawn mowers and brushcutters ensures reduction of friction resistance, which is delivered by very high parameters of weld load – 500 kG and a very low scar diameter – 0,5 mm.

GREASEN S-EP 00/000

STANDARDS, SPECIFICATIONS:

NLGI: 00/000

DIN 51502: KP00/000E-30

ISO 6743-9: EBEB-00/000

GENERAL DESCRIPTION:

GREASEN S-EP 00/000 is a semi-liquid grease produced on a lithium and lime soap base with consistency class of NLGI 00/000. It contains EP and AW additives, as well as agents improving anti-corrosion and anti-oxidation properties.

APPLICATIONS:

GREASEN S-EP 00/000 is intended primarily for lubricating friction centres in heavy commercial vehicles and buses with central lubricating systems, within a temperature range of -45°C to +90°C. In the case of total loss lubrication, the upper limit value of use in both cases equals +120°C.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
worked penetration at 25°C	mm/10	433
penetration at temp. -45°C	mm/10	166
dropping point	°C	182
mechanical stability, 60°C/4h	% [mm]	2.7
weld load	kG	250
the copper plate corrosion, 100°C/3h	-	1
base oil viscosity at 40°C	mm ² /s	19

GREASEN N-EP 00/000

APPROVAL:

MAN 283 Li-P 00/000

STANDARDS, SPECIFICATIONS:

NLGI: 00/000

DIN 51 502: KP00/000E-30

ISO 6743-9: CBEB-00/000

GENERAL DESCRIPTION:

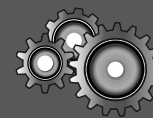
GREASEN N-EP 00/000 is a semi-liquid grease produced basing on lithium and lime soap with consistency class NLGI 00/000. It contains EP and AW additives, as well as agents improving anti-corrosion and anti-oxidation properties.

APPLICATIONS:

GREASEN N-EP 00/000 is intended primarily for lubricating friction centres in heavy commercial vehicles and buses with central lubricating systems, within the temperature range of -30°C to +90°C. In the case of double-ended lubrication, the max. application temperature is 120°C.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
worked penetration at 25°C	mm/10	410
penetration at temp. -30°C	mm/10	310
dropping point	°C	168
mechanical stability, 60°C/4h	% [mm]	2.9
weld load	kG	250
the copper plate corrosion, 100°C/3h	-	1
base oil viscosity at 40°C	mm ² /s	36



LITEN LC EP

STANDARDS, SPECIFICATIONS:

LITEN LC EP 1

DIN 51 502: KP1K-30; ISO 6743-9: CCHB-1

LITEN LC EP 2

DIN 51 502: KP2K-30; ISO 6743-9: CCHB-2

LITEN LC EP 3

DIN 51 502: KP3K-30; ISO 6743-9: CCHB-3

GENERAL DESCRIPTION:

The plastic lubricants LITEN LC EP are produced based on the highly refined, mineral oil base and lithium - calcium thickener. Its composition includes additive combination improving the lubrication, antioxidant and anti-corrosive properties. The plastic lubricants LITEN LC EP due to the lithium - calcium thickener used are highly resistant to water washout. They also provide anti-corrosive protection in humid conditions.

APPLICATIONS:

The lubricants LITEN LC EP are designed primarily for the lubrication of rolling bearings working at high loads, in the temperature range -30 to 120°C, as well as when bearings with less load experience impact loads. Operating temperature limits may be higher or lower depending on the bearing type and required periods of lubrication.

LITEN LC EP-1 is designed for the lubrication of bearings in the equipment with central lubricating systems, operating at medium ambient temperatures and requiring pumping grease on very long distances in the temperature range -30°C to 120°C.

LITEN LC EP-2 is designed for the lubrication of bearings in the equipment with individual and central lubricating systems, operating at high ambient temperatures and requiring pumping grease on short distances in the temperature range -30°C to 120°C.

LITEN LC EP-3 is intended for the lubrication of bearings in the equipment with individual lubricating system in the temperature range -30 to 120°C.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES		
		EP 1	EP 2	EP 3
worked penetration at 25°C	mm/10	322	278	243
dropping point	°C	195	204	209
corrosive action on cooper plates, 100°C/24 h	-	pass		
resistance to water washout dyn. meth. 79°C	%	1.4	0.6	0.7
oil separation from grease, 100°C/24h	%	1.8	1.2	0.3
weld load	kG	250		
base oil viscosity at 40°C	mm²/s	85		

KALTON EP

STANDARDS, SPECIFICATIONS:

KALTON EP-1

DIN 51 502: KP1C-20

ISO 6743-9: BAHB-1

KALTON EP-2:

DIN 51 502: KP2C-20

ISO 6743-9: BAHB-2

GENERAL DESCRIPTION:

KALTON EP plastic grease is made of refined mineral oil with the viscosity minimum 85 mm²/s at 40°C, calcium soaps of high molecule fatty acids and adequate additives increasing the strength of the lubricating film. KALTON EP grease is resistant to water washing and guarantees corrosion protection in moist environment.

APPLICATIONS:

KALTON EP grease is intended to lubricate highly loaded rolling bearings, especially if they are exposed to impact loads, working in the temperature range between -20°C and +60°C, including water presence, e.g. roll stands of metals, presses, heavy building machines, etc.

KALTON EP-1 is recommended for central lubricating systems,

KALTON EP-2 is recommended for manual lubricating and to lubricators situated near the lubricating centre.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES	
		KALTON EP-1	KALTON EP-2
NLGI class		1	2
worked penetration at 25°C	mm/10	325	288
dropping point	°C	98	104
corrosive action on copper plates, 50°C/50h	-	pass	pass
lubricating properties on a four ball pressure tester, weld load	kG	250	
base oil viscosity (mineral oil) at 40°C	mm ² /s	85	

GREASEN GRAFIT

STANDARDS, SPECIFICATIONS:

DIN 51502: KF2C-20,

ISO 6743-9: BAGB-2

GENERAL DESCRIPTION:

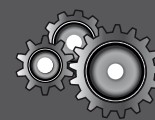
GREASEN GRAFIT is a mineral oil based calcium grease with viscosity of ca. 110 mm²/s at 40°C containing minimum 10% natural graphite.

APPLICATIONS:

GREASEN GRAFIT is intended to lubricate: automotive suspension springs, open toothed gears, worm gears, threads of screws exposed to corrosive agents, chains and other heavily loaded friction centres operating in the temperatures between -20°C to + 60°. It can be used as typical assembly grease. It demonstrates resistance to cold water. It cannot be used to lubricate any vehicle elements other than the suspension springs. Not suitable for anti-friction bearings and other precision mechanisms.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
worked penetration at 25°C	mm/10	270
dropping point	°C	90
released oil (structural stability)	%	3.0
water content	%	2.0
lubricating properties on a four ball pressure tester, weld load	kG	250
base oil viscosity (mineral oil) at 40°C	mm ² /s	110



GREASEN STP

STANDARDS, SPECIFICATIONS:

DIN 51502: M1C-20,
ISO 6743-9: BAEA-1

GENERAL DESCRIPTION:

GREASEN STP is calcium grease of NLGI 1 consistency class. Made of mineral oil base of viscosity approximately 85 mm²/s at 40°C.

APPLICATIONS:

GREASEN STP is intended exclusively for periodical lubrication of vehicle chassis, pins, articulations, guides in the temperature range between -20°C to +60°C. It is quite resistant to cold water. Not suitable for lubricating rolling bearings and water pumps.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
worked penetration at 25°C	mm/10	330
dropping point	°C	105
base oil viscosity (mineral oil) at 40°C	mm ² /s	85

MACHINE GREASE

STANDARDS, SPECIFICATIONS:

MACHINE GREASE 2:
DIN 51 502: K2C-10
ISO 6743-9: AAHA-2
MACHINE GREASE 3:
DIN 51 502: K3C-10
ISO 6743-9: AAHA-3

GENERAL DESCRIPTION:

THE MACHINE GREASES 2 and 3 are made of refined oil bases with viscosity of 85 mm²/s at 40°C and calcium soaps of high-molecular fatty acids. They are water resistant. They may be applied in central lubrication systems.

APPLICATIONS:

THE MACHINE GREASES 2 and 3 are intended to lubricate sliding bearings and other friction surfaces within the temperature range of -10°C to +60°C.

THE MACHINE GREASE 2 is used for lubrication when it is to be delivered through small diameter long conduits, whereas **THE MACHINE GREASE 3** is used when better bearing sealing is required, and if it is to be delivered to shorter distances through larger diameter conduits.

THE MACHINE GREASE 2 and 3 is suitable for lubrication of rolling bearings.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES	
		MACHINE GREASE 2	MACHINE GREASE 3
NLGI class		2	3
worked penetration at 25°C	mm/10	286	235
dropping point	°C	89	95
water content	%	1.1	1.0
base oil viscosity (mineral oil) at 40°C			

CSW ROLLING MACHINES GREASE

STANDARDS, SPECIFICATIONS:

CSW-1:
DIN 51 502: K1C0
ISO 6743-9: BAHA-1

CSW-2:
DIN 51 502: K2C0
ISO 6743-9: BAHA-2

GENERAL DESCRIPTION:

THIS ROLLING MACHINE GREASE is made of refined mineral oil with the viscosity of minimum 150 mm²/s at 40°C, calcium soaps of fatty acids and adequate sulphurised vegetable acid. Depending on the consistence there are two grease types: CSW-1 and CSW-2. CSW grease is resistant to water.

APPLICATIONS:

THIS ROLLING MACHINE CSW GREASE of improved lubricating properties is intended to lubricate rolling bearings of central lubricated rolling stands and auxiliary devices in working temperatures which do not exceed 60°C, and for other devices exposed to high and impact loads.

CSW-1 is recommended if the grease is to be delivered through small diameter long conduit or at low ambient temperatures.

CSW-2 is recommended if conduits are shorter and of larger diameter and if grease sealing properties are required.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES	
		CSW-1	CSW-2
NLGI class		1	2
worked penetration at 25°C	mm/10	310	270
dropping point	°C	92	89
corrosive action on steel plates 100°C/3h	-	pass	pass
base oil viscosity (mineral oil) at 40°C	mm ² /s	150	

GREASE FOR L, Z BRAKING MECHANISMS

STANDARDS, SPECIFICATIONS:

GREASE FOR L BRAKING MECHANISMS:
DIN 51 502: M0C0
ISO 6743-9: AAEA-0

GREASE FOR Z BRAKING MECHANISMS:

DIN 51 502: M00C-20
ISO 6743-9: AAEA-00

GENERAL DESCRIPTION:

GREASE FOR L AND Z BRAKING MECHANISMS is made of refined mineral oils and calcium soaps of high molecule fatty acids.

APPLICATIONS:

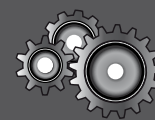
A BRAKE MECHANISM GREASE – calcium, seasonal, intended to lubricate switching equipment of railway brake mechanisms.

L BRAKE MECHANISM GREASE – used in summer time.

Z BRAKE MECHANISM GREASE – used in winter time.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES	
		L	Z
worked penetration at 25°C	mm/10	348	405
dropping point	°C	150	80
free bases content for NaOH	%	0.18	0.22
base oil viscosity (mineral oil) at 40°C	mm ² /s	150	



BENTOMOS 23

STANDARDS, SPECIFICATIONS:

DIN 51 502: KF2S-10

ISO 6743-9: BDEB-2

GENERAL DESCRIPTION:

BENTOMOS 23 high temperature grease made through the process of thickening highly refined mineral oils with kinematic viscosity 150mm²/s at 40°C with bentonite. BENTOMOS 23 contains molybdenum disulfide with the grain size less than 5µm. BENTOMOS 23 is infusible and water resistant.

APPLICATIONS:

BENTOMOS 23 is applied to lubricate rolling and slide bearings and other friction surfaces with constant working temperature above 100°C, mainly in the range of 120-200°C, and if appropriately frequently exchanged or refilled even up to ca. 220°C.

It is recommended to be used at high and especially impact loads. It is not suitable to lubricate low torque driven bearings and small lateral clearance bearings.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
NLGI class		2
dropping point	°C	290
worked penetration at 25°C	mm/10	295
mechanical stability micro-penetration after 4h rolling at 60°C	%	176
structural stability: oil separation from grease	% (m/m)	6.0
weld load	kG	315
base oil viscosity (mineral oil) at 40°C	mm ² /s	150

BENTOR 2

STANDARDS, SPECIFICATIONS:

DIN 51 502: K2S-10

ISO 6743-9: ACEB-2

GENERAL DESCRIPTION:

BENTOR 2 high temperature grease is made of highly refined, highly viscous mineral oil (oil viscosity at 40°C ca. 150 mm²/s) and bentonite thickener. BENTOR 2 grease is water resistant and generally infusible. It preserves plastic properties up to the temperature of - 10°C.

APPLICATIONS:

BENTOR 2 is applied to lubricate rolling and slide bearings and other friction surfaces with constant working temperature between 120°C and 200°C. It is not suitable for lubricating bearings driven at low torque and bearings with small lateral play.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
NLGI class		2
worked penetration at 25°C	mm/10	295
dropping point	°C	290
mechanical stability micro-penetration after 4h rolling at 60°C	%	172
structural stability: oil separation from grease	% (m/m)	6.0
weld load	kG	160
base oil viscosity (mineral oil) at 40°C	mm ² /s	150

ALITEN EP

STANDARDS, SPECIFICATIONS:

ALITEN EP-1:

DIN 51 502: KP1N-20, ISO 6743-9: BDHB-1

ALITEN EP-2:

DIN 51 502: KP2N-20, ISO 6743-9: BDHB-2

GENERAL DESCRIPTION:

ALITEN EP multipurpose plastic grease is made of refined mineral oil (with the cinematic viscosity at 100°C ca.15-20 mm/s) thickened with complex aluminium soap. The grease is enriched with adequate additives of the EP type as well as anti-corrosive and anti-oxidation additives.

APPLICATIONS:

Lubricating rolling bearings, operating in the temperature range between -20°C and +140°C,

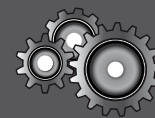
ALITEN EP-1 is intended to lubricate bearings in equipment with central lubricated system, operating in moderate temperatures and requiring forcing grease to long distances,

ALITEN EP-2 is intended to lubricate bearings in equipment with central lubricated system, operating in high ambient temperatures and not requiring forcing grease to long distances.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES	
		ALITEN EP-1	ALITEN EP-2
NLGI class		1	2
worked penetration at 25°C	mm/10	335	286
dropping point	°C	230	265
oil separation from grease, 100°C/24h	% (m/m)	3	0.5
lubricating properties on a four ball pressure tester, weld load	kG	160	
base oil viscosity (mineral oil) at 40°C	mm²/s	150	





SMAROL PTFE



GENERAL FEATURES:

SMAROL PTFE - is a special grease marked by strong adhesion and good penetration. It is designed for the lubrication of corner machine parts exposed to high temperatures or significant water leaks. After application and drying, it leaves a protective oil film on the lubricated elements, which provides very good protection against oxidation and therefore improves resistance to aging. It is resistant to water, water vapour and aggressive liquids (most acids and lyes).

APPLICATION:

Apart from individual applications, it can also be used in the textile and ceramic industry, in glass and brick works, casting facilities and metal processing plants, sewage treatment plants, power plants, rolling plants, as well as in ports and shipyards, to lubricate the following: sleeve type and articulated bearings, chains - including those provided with O-Ring or X-Ring rings, roller chains, sprockets, levers, slide guides, linear slide systems, stems, hinges, steel ropes, ball joints, conveyors working in ovens and dryers.

KZE GREASE FOR TOOTHED GEARS

STANDARDS, SPECIFICATIONS:

DIN 51 502: GP00/000C-0
ISO 6743-9: AAEB-00/000

GENERAL DESCRIPTION:

KZE grease is made with refined oil base and a set of enriching additives especially increasing the strength of the lubricating film and decreasing solidification point.

APPLICATIONS:

KZE grease is used to lubricate closed toothed gears of wheel sets of electric rail vehicles. KZE-L is applied in the summer period in the temperatures from 0°C to 60°C.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
worked penetration at -25°C	mm/10	-
relative viscosity prior to addition of solvent, at 100°C	°E	10.6
lubricating properties on a four ball pressure tester, weld load	kG	250
dropping point	°C	230
base oil viscosity at 40°C	mm ² /s	150

KZ GREASE FOR TOOTHED GEARS

STANDARDS, SPECIFICATIONS:
ISO 6743-9: BAHA

GENERAL DESCRIPTION:

KZ toothed gear grease is made with spindle oil of adequate viscosity, distillate and viscous substances, P-40 industrial asphalt and rosin. It contains TRI (trichloroethylene) solvent.

APPLICATIONS:

Lubrication of low-speed and open head toothed gears, and bevel gears at working temperature up to +40°C. Lubrication of worm gears made of bronze and cast steel.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
relative viscosity prior to addition of solvent, at 100°C	°E	14
flash point	°C	162
drop point after solvent evaporation	°C	36
corrosive action on steel plates 100°C/3h	-	pass
weld load	kG	250
base oil viscosity at 40°C	mm ² /s	90

LR CABLE GREASE

STANDARDS, SPECIFICATIONS:
DIN 51 502: M5C-20
ISO 6743-9: BABA-4

GENERAL DESCRIPTION:

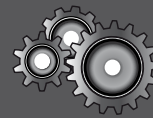
THE LR CABLE GREASE is made of refined mineral oil and hydrocarbonate thickeners.

APPLICATIONS:

LR GREASE is intended for the preservation of various construction steel cables/ropes during production. It is suitable to lubricate neither hoisting ropes of drum hoists nor Koepe pulleys.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES
worked penetration at 25°C	mm/10	188
dropping point	°C	65
lubricating properties on a four ball pressure tester, weld load	kG	200
fragility temperature	°C	< -38
base oil viscosity at 40°C	mm ² /s	540



UNITEX

STANDARDS, SPECIFICATIONS:

UNITEX 00:

DIN 51 502:MP00G-30

ISO 6743-9: CBEA-00

GENERAL DESCRIPTION:

Biodegradable UNITEX grease is made of a mixture of synthetic ester oil and vegetable oil, calcium thickener and enriching additives with the consistence class of NLGI: 00 and 2. This grease is characterised by very good operating properties, such as resistance to water, low resistance to pressing through low diameter ducts (which is particularly important in winter), reducing noise made by trams in rail curves. UNITEX grease biodegradability is ca. 90 % (CEC L-33-A-93 method).

APPLICATIONS:

UNITEX biodegradable grease is intended for total loss lubrication of railway and tram traction, as well as machines and equipment used in forests, water intakes, etc. where there is the potential danger of environment contamination.

PHYSICAL AND CHEMICAL PROPERTIES:

PARAMETERS	UNITS	TYPICAL VALUES	
		UNITEX 00	UNITEX 2
NLGI class		00	2
worked penetration at 25°C	mm/10	429	279
dropping point	°C	150	136
corrosive action on copper plates, 100°C/3h	-	no corrosion	no corrosion
lubricating properties on a four ball pressure tester, weld load	kG	200	



BROAD HEXANE FRACTION



GENERAL DESCRIPTION:

A mixture of hydrocarbons, mainly C6 containing n-paraffin, i-paraffin, olefins and naphthenes. It is applied as a solvent and a thinner in medicine, pharmaceutical industry, plastic processing and electronics. Its properties are similar to those of pharmaceutical petrol.

PHARMACEUTICAL PETROL



GENERAL DESCRIPTION:

Pharmaceutical petrol is a mixture of saturated aliphatic hydrocarbons with the number of carbon atoms of C6 and C7. It is made through catalytic hydrogenation and rectification of non-aromatic residue of aroma extraction. Pharmaceutical petrol is mainly used as a solvent in medicine, pharmaceutical industry, plastics processing and electronics.

III LOW AROMATIC EXTRACTION NAPHTHA



GENERAL DESCRIPTION:

III low-aromatic extraction naphtha is a mixture of saturated aliphatic hydrocarbons, aromatic hydrocarbons (up to 2.5%) and insignificant quantities of unsaturated hydrocarbons (up to 1.5%). III low-aromatic extraction naphtha is made through conservative processing of oil. It is used mainly as a solvent in rubber and dyeing industry and for degreasing in metal industry as well as for manufacturing of some adhesives.

PAINTER'S NAPHTHA



GENERAL DESCRIPTION:

Painter's naphtha is a mixture of aliphatic and aromatic hydrocarbons. It is made through conservative and destructive processing of oil with application of hydrorefining and rectification processes. Painter's naphtha is mainly used as a solvent and a thinner of phthalic, oil and asphalt paints.

DENATURATED ALCOHOL



GENERAL DESCRIPTION:

Fully contaminated ethyl alcohol. Application French polish solvent, alcohol-fired cookers, window washing, disinfecting agent.

LIGHTING KEROSENE



GENERAL DESCRIPTION:

Mixture of hydrocarbons obtained through refining a adequate oil distillates. Lighting kerosene which also can be used as remover of fats and greases from metallic surfaces.

CLEANING KEROSENE



GENERAL DESCRIPTION:

Light oil distillates chemically neutralised. Used for e.g. cleaning and preservation of metallic elements.

ORLEN OIL Sp. z o.o.

ul. Opolska 114, 31-323 Kraków

tel. centrala +48 12 665 55 00

fax +48 12 665 55 01

e-mail: centrala@orlenoil.pl

infolinia: 0 801 102 103

► www.orlenoil.com

