ISO: 9001-2000
System of Quality

AZMOL

AZOV GREASES & OILS

PRODUCT CATALOGUE

AZMOL

Perfectly Created

AZMOL Company is one of the biggest producers and sellers of lubricants in Europe. Having employed high-skilled specialists and using modern technologies in manufacturing we guarantee excellent properties of our products. AZMOL has an Active Membership Category in National Lubricating Grease Institute (NLGI, USA), and constantly participates in European Lubricating Grease Institute (ELGI) work. The Company's Laboratory tests the products quality according to three standards: ASTM, DIN, and GOST. The Company's Quality Management System conforms to the requirements of ISO 9001-2000. Flexibility in price policy, the best service and professionalism constitute the visiting-card of AZMOL Company.

Expert in Lubricants

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MOTOR OILS

Oil Grade	Oil Group, GOST 17479.1	Conforms to the requirements of		Viscosity		Viscosity Index, not less than	Temperature, °C		Base Number, mg KOH/g, not less than	Sulphated Ash Content, %, not more than
		SAE	API	Kinematic at 100 °C, mm^2/s	Dynamic at temperatures below 0°C, mPa · s, not more than – pumpability (MRV)		Flash Point, not lower than	Pour Point, not higher than		
AZMOL:										
M-20/4040	**Г**	**20W-40**	**SF/CC**	**12,5-16,3**	**60000 (-20 °C)**	**115**	**210**	**–30**	**7,5**	**1,2**
M-15/4040 Super	**Г**	**15W-40**	**SF/CC**	**13,5-14,5**	**60000 (-25 °C)**	**120**	**210**	**–30**	**7,5**	**1,2**
M-20/5040 Super	**Г**	**20W-50**	**SF/CC**	**17,0-18,5**	**60000 (-20 °C)**	**120**	**215**	**–30**	**7,5**	**1,2**
M-20/4040 Plus	**Г**	**20W-40**	**SF/CC**	**13,5-16,3**	**60000 (-20 °C)**	**118**	**210**	**–30**	**7,5**	**1,15**
M-20/5040 Super Plus	**Г**	**20W-50**	**SF/CC**	**17,0-18,5**	**60000 (-20 °C)**	**120**	**210**	**–30**	**7,0**	**1,2**
M-15/4050 Super Plus	**Д**	**15W-40**	**CD/SF**	**13,5-14,5**	**60000 (-25 °C)**	**120**	**210**	**–30**	**8,2**	**1,2**

••• Motor multi-grade oils on mineral base

• They provide with reliable engine protection from wear and contamination.

They are intended for lubricating of petrol engines and diesels, including medium supercharged ones, in passenger cars, minibuses, and lorries.

Oil Grade	Oil Group, GOST 17479.1	Conforms to the requirements of		Viscosity		Viscosity Index, not less than	Temperature, °C		Base Number, mg KOH/g, not less than	Sulphated Ash Content, %, not more than
		SAE	API	Kinematic at 100 °C, mm^2/s	Dynamic at temperatures below 0°C, mPa·s, not more than – pumpability (MRV)		Flash Point, not lower than	Pour Point, not higher than		
AZMOL:										
Turbo 1	E	15W-40	CF-4/SG	14,0-16,3	60000 (-25 °C)	125	205	-30	11,0	1,6
Turbo 2	E	10W-40	CF-4/SG	14,0-16,3	60000 (-30 °C)	140	205	-35	11,0	1,6
Turbo Plus	E	10W-40	CG-4/SJ	14,0-16,3	60000 (-30 °C)	140	205	-35	9,2	1,3

••• Motor multi-grade oils on mineral **(Turbo 1)** and semi-synthetic **(Turbo 2; Turbo Plus)** base
• They provide with excellent engine protection from wear and contamination.
They are intended for lubricating of petrol engines and diesels, including turbocharged ones, in passenger cars, trucks, and minibuses.

AZMOL Favorite 2	*	10W-40	SJ/CF *	14,0-16,0	60000 (-30 °C)	140	200	-35	8,5	1,3
AZMOL Favorite Plus	*	10W-40	SJ/CF	14,0-16,0	60000 (-30 °C)	145	200	-35	8,5	1,25

••• Motor multi-grade semi-synthetic oils.
They are intended for lubricating of petrol engines and diesels of all types, including the turbocharged and catalyst ones, in passenger cars, minibuses, and lorries.
*This operational group does not have any analogues in GOST 17479.1 classification.

Oil Grade	Oil Group, GOST 17479.1	Conforms to the requirements of		Viscosity		Viscosity Index, not less than	Temperature, °C		Base Number, mg KOH/g, not less than	Sulphated Ash Content, %, not more than
		SAE	API	Kinematic at 100 °C, mm^2/s	Dynamic at temperatures below 0°C, mPa·s, not more than – pumpability (MRV)		Flash Point, not lower than	Pour Point, not higher than		
AZMOL :										
Leader 0W-40	*	**0W-40**	**SJ/CF ***	**13,0-16,3**	**60000 (–40 °C)**	**165**	**205**	**– 50**	**9,0**	**1,5**
Leader 5W-40	*	**5W-40**	**SJ/CF ***	**13,0-16,3**	**60000 (–35 °C)**	**160**	**205**	**– 45**	**9,0**	**1,5**
Leader Plus	*	**5W-40**	**SL, SM/CF**	**13,0-16,3**	**60000 (–35 °C)**	**165**	**205**	**– 45**	**9,2**	**1,5**

••• Motor multi-grade synthetic oils

• They provide with extended oil change period, perfect engine cleanliness while high thermal loading, easy starting at low temperatures and fuel saving. They are compatible with all catalyst types of spent gases.
They are used for lubricating of modern petrol engines and diesels, including the turbocharged ones, in passenger cars, and minibuses.

*This operational group does not have any analogues in GOST 17479.1 classification.

AZMOL Universal	*	**15W-40**	**CG-4/CF/SJ**	**14,0-16,3**	**60000 (–25 °C)**	**130**	**210**	**–30**	**10,5**	**1,5**

••• Motor oil for diesels.

It is used for lubricating of high-speed four-stroke diesel engines, including turbocharged ones working under extreme operational conditions with outburst toxicity level conforming to the requirements of Euro-1, Euro-2. It is recommended for application in trucks working with the fuel containing not more than 0.05 % of sulfur on the highways, and not more than 0.5 % of sulfur outside of the highways.

Oil Grade	Oil Group, GOST 17479.1	Conforms to the requirements of		Viscosity		Viscosity Index, not less than	Temperature, °C		Base Number, mg KOH/g, not less than	Sulphated Ash Content, %, not more than
		SAE	API	Kinematic at 100 °C, mm^2/s	Dynamic at temperatures below 0°C, mPa·s, not more than – pumpability (MRV)		Flash Point, not lower than	Pour Point, not higher than		
AZMOL:										
M-2030	**B**	**20W-20**	**CB/SD**	**7,5-8,5**	**–**	**95**	**210**	**–30**	**4,2**	**0,95**
M-3032	**B_2**	**30**	**CB**	**10,5-11,5**	**–**	**95**	**220**	**–15**	**4,0**	**1,0**
M-2042	**$Г_2$**	**20**	**CC**	**7,5-8,5**	**–**	**95**	**210**	**–30**	**6,0**	**1,0**
M-3042	**$Г_2$**	**30**	**CC**	**10,5-11,5**	**–**	**95**	**220**	**–18**	**6,0**	**1,0**

••• Motor oils for diesels.

AZMOL M-2030 (M-8V) is a winter oil grade for medium-forced motor and tractor diesels. It can be used all year round in medium-forced petrol engines of passenger cars and trucks with the change period up to 18,000.00 km.

AZMOL M-3032 (M-10V_2) is a summer oil grade for medium-forced motor and tractor diesels such as SMD-14, A-41, D-50, D-37, etc.

AZMOL M-2042 (M-8G_2к) is a winter oil grade for lubricating of heavy-forced motor and tractor diesels with slight supercharging or without it.

AZMOL M-3042 (M-10G_2к) is a summer oil grade for lubricating of heavy-forced motor and tractor diesels with slight supercharging or without it.

M-14-G$_2$к	**$Г_2$**	**40**	**CC**	**14,0-15,0**	**–**	**90**	**215**	**–25**	**6,0**	**1,15**

••• Motor oil for diesels.

It is used for lubricating of four-stroke transport diesel engines.

It can replace **M-10G_2к** oil (AZMOL M-3042) while motor and tractor diesels summer operating in the areas with long and hot summer.

Oil Grade	Oil Group, GOST 17479.1	Conforms to the requirements of		Viscosity		Viscosity Index, not less than	Temperature, °C		Base Number, mg KOH/g, not less than	Sulphated Ash Content, %, not more than
		SAE	API	Kinematic at 100 °C, mm^2/s	Dynamic at temperatures below 0°C, mPa · s, not more than – pumpability (MRV)		Flash Point, not lower than	Pour Point, not higher than		
AZMOL:										
Diesel Z	**Д2**	**20**	**CD**	**8,0-9,3**	**–**	**102**	**195**	**– 30**	**8,5**	**1,5**
Diesel L	**Д2**	**30**	**CD**	**>= 11,4**	**–**	**90**	**220**	**– 18**	**8,2**	**1,5**

••• Motor oils for diesels.

AZMOL Diesel Z (M-8DM) oil and **AZMOL Diesel L (M-10DM)** oil are intended for winter and summer operation of heavy-forced diesels with turbo-charging working under extreme conditions respectively.

They can be used in the diesels without supercharging with significantly increased oil change period.

Oil Grade	Oil Group, GOST 17479.1	Conforms to the requirements of		Viscosity		Viscosity Index, not less than	Temperature, °C		Base Number, mg KOH/g, not less than	Sulphated Ash Content, %, not more than
		SAE	API	Kinematic at 100 °C, mm^2/s	Dynamic at temperatures below 0°C, mPa·s, not more than – pumpability (MRV)		Flash Point, not lower than	Pour Point, not higher than		
AZMOL										
M-3042 ts s	$Г_2$	**30**	**CC**	**10,0-11,0**	**–**	**92**	**210**	**– 10**	**9,0**	**1,5**
M-4042 ts s	$Г_2$	**40**	**CC**	**13,5-15,0**	**–**	**92**	**215**	**– 10**	**9,0**	**1,5**
M-5042 ts s (A)	$Г_2$	**50**	**CC**	**16,3-17,5**	**–**	**92**	**220**	**– 10**	**9,0**	**1,5**
M-5042 ts s (B)	$Г_2$	**50**	**CC**	**18,0-20,0**	**–**	**90**	**235**	**– 10**	**9,0**	**1,5**

••• Motor oils for marine diesel engines.

AZMOL M-3042 ts s oil is intended for circulation systems of middle-speed trunk-piston engines of moderate force extent, low-speed crosshead-type ones, reducers, compressors and other machinery of the vessels, requiring application of oils with high moisture resistance.

AZMOL M-4042 ts s oil is intended for circulation systems of middle-speed trunk-piston forced engines, low-speed crosshead-type ones, diesel driven electric generators, reducers, compressors and other machinery of the vessels, requiring application of oils with high moisture resistance.

AZMOL M-5042 ts s (A) oil is intended for circulation systems of middle-speed trunk-piston forced engines, cylinder lubrication systems of low-speed crosshead-type ones, requiring application of M-16 viscosity class oils.

AZMOL M-5042 ts s (B) oil is intended for high-speed marine diesel engines.

Oil Grade	Oil Group, GOST 17479.1	Conforms to the requirements of		Viscosity		Viscosity Index, not less than	Temperature, °C		Base Number, mg KOH / g, not less than	Sulphated Ash Content, %, not more than
		SAE	API	Kinematic at 100 °C, mm^2/s	Dynamic at temperatures below 0°C, mPa · s, not more than – pumpability (MRV)		Flash Point, not lower than	Pour Point, not higher than		
M-14V_2	B_2	40	CB	13,5-14,5	–	85	210	-12	4,8	1,2
M-10G_2TsS	$Г_2$	30	CC	10,0-11,0	–	92	210	-10	9,0	1,5
M-14G_2TsS	$Г_2$	40	CC	13,5-15,0	–	92	215	-10	9,0	1,5
M-16G_2TsS	$Г_2$	40	CC	15,5-17,0	–	92	220	-10	9,0	1,5
M-20G_2	$Г_2$	50	CC	⩾ 20	–	85	235	-15	9,0	1,9
M-14DTsL 30	$Д_2$	40	CD	13,5- 15,0	–	92	210	-10	27	4,6
M-20E 70	–	50	–	20-23	–	90	200	-12	70	10,5

••• Motor oils for marine diesel engines.

M-14V_2 oil is used for lubricating of two- and four-stroke locomotive and marine diesel engines of trunk-piston type working with the distillate diesel fuel containing not more than 0.5 % (mass fraction) of sulfur, as well as for quarry dump trucks engines.

M-10G_2TsS, M-14G_2TsS, M-16G_2TsS oils are used for lubricating of main and auxiliary trunk-piston diesel engines of sea and river-going fleets.

M-10G_2TsS oil is used in circulation systems of crosshead high-forced diesel engines.

M-14G_2TsS oil is used in locomotive diesel engines of ChN 26/26 type, stationary diesel driven electric generators with engines of ChN 40/48 type, diesel-reducer sets with engines of ChN 40/46 type.

M-16G_2TsS oil is used for cylinder lubricating of trunk-piston and crosshead diesel engines working with the fuel containing not more than 1.5 % (mass fraction) of sulfur.

M-20G_2 oil is used for lubricating of two-stroke marine and stationary diesel engines of DN 23/230 type.

M-14DTsL30 oil is used for lubricating of middle-speed trunk-piston marine diesel engines with circulation or combined lubrication systems containing 2.5–3% of sulfur and more.

M-20E70 oil is used for lubricating of cylinders in main high-forced marine diesel engines working with high-sulfur heavy fuels.

Oil Grade	Oil Group, GOST 17479.1	Conforms to the requirements of		Viscosity		Viscosity Index, not less than	Temperature, °C		Base Number, mg KOH/g, not less than	Sulphated Ash Content, %, not more than
		SAE	API	Kinematic at 100 °C, mm^2/s	Dynamic at temperatures below 0°C, mPa·s, not more than – pumpability (MRV)		Flash Point, not lower than	Pour Point, not higher than		
AZMOL START 2T	–	**40**	–	**12,5 - 16,0**	–	**90**	**220**	**– 20**	**1,4**	**0,12**

••• Motor low-ash mineral oil.
It is used for two-stroke medium-duty petrol engines (motorcycles, boat motors, petrol saws, lawn mowers, etc.).

AZMOL NEPTUN 2T	–	**20**	–	**8,0 - 9,0**	–	**120**	–	**– 25**	**3,5**	**0,05**

••• Motor low-ash mineral oil.
It is used for lubricating of modern two-stroke boat motors including outboard ones with water cooling; oversnow vehicle engines, motorcycles, petrol saws and other portable equipment with different oil submission types.

AZMOL SPORT 2T	–	**30**	–	**5,6 - 11,0**	–	**120**	–	**– 30**	**2,2**	**0,18**

••• Motor low-ash low-smoke semi-synthetic oil.
It is used for lubricating of modern two-stroke medium- and heavy-duty petrol engines (motorcycles, petrol saws, lawn mowers, etc.).
The lubrication can be made by both ways: either with fuel-oil composition making up or with separate submission of petrol and oil.

GEAR AND HYDRAULIC OILS
Gear Oils

Oil Grade	Designation, GOST 17479.2 – 85	Conforms to the requirements of		Kinematic Viscosity at 100 °C mm ^{2}/s,	Viscosity Index, not less than	Temperature, °C		Copper Corrosion (3h, 120°C), points, not more than	Tribological Characteristics, four - ball test		
		SAE	API			Flash Point, not lower than	Pour Point, not higher than		EP Index, N, not less than	Welding Load, N, not less than	Wear Scar Ø, mm, not more than
AZMOL:											
Forward Plus	**TM-4-12**	**80 W-85**	**GL - 4**	**>= 11,5**	**100**	**185**	**- 34**	**1в**	**400**	**3479**	**0,70**
Forward 85W-90	**TM-4-12**	**85 W-90**	**GL -4**	**13,5**	**95**	**185**	**- 26**	**1в**	**400**	**3479**	**0,70**

••• Gear multi-grade oils.
They are used for lubricating of transmission assemblies of front-wheel drive cars, and other machinery, the manufacturers recommend using gear oils of GL-4 class for.

T SZp -8	**TM -3-9**	**75 W -80**	**GL -3**	**7,5 - 8,5**	**140**	**164**	**– 50**	**–**	**392**	**2764**	**0,50**

••• Gear oil.
It is used for lubricating of transmission assemblies with planetary reduction gearboxes and some hydraulic control systems for mobile transport means.

Oil Grade	Designation , GOST 17479.2 – 85	Conforms to the requirements of		Kinematic Viscosity at 100 °C mm ^{2}/s,	Viscosity Index, not less than	Temperature, °C		Copper Corro-sion (3h, 120°C), points, not more than	Tribological Characteristics, four - ball test		
		SAE	API			Flash Point, not lower than	Pour Point , not higher than		EP Index, N, not less than	Welding Load, N, not less than	Wear Scar Ø, mm, not more than
TAp - 15 V	TM- 3- 18	90	GL-3	14,0 - 16,0	–	185	– 20	–	490	3283	0,40
TAD - 17 i	TM- 5- 18	85W-90	GL-5	>=17,5	100	200	– 25	2c	568	3687	0,40
AZMOL TAD-17i	TM- 5- 18	85W-90	GL-5	>=16,5	95	190	– 25	2c	549	3087	0,40

••• Gear oils.

TAp-15V oil is used for gear lubricating in trucks and for straight-tooth, spiral-bevel, and worm gears where contact stress achieves 2000 MPa, and the oil temperature is up to 130^{0}C. It is used at temperatures down to -25^{0}C all year round in the areas with moderate climate.

TAD-17i oil is used for lubricating of all gear types, including hypoid ones, in motor cars, and other mobile machinery. It most fully meets the transmission requirements of VAZ automobiles with classic (rear-wheel drive) configuration and foreign cars where the oils of GL-5 class are necessary. It is effective down to -25^{0}C. The top limit of long-term efficiency is 130–140^{0}C.

AZMOL TAD-17i oil is used for lubricating of all gear types, including hypoid ones, in motor cars, and other mobile machinery. It most fully meets the transmission requirements of VAZ automobiles with classic (rear-wheel drive) configuration and foreign cars where the oils of GL-5 class are necessary. It is effective down to -25^{0}C. The top limit of long-term efficiency is 130–140^{0}C.

AZMOL CLASSIC	T M- 5- 18	85 W -90	GL -5	>=17,5	95	195	– 25	2c	568	3687	0, 40

••• Gear oil.

It is used for lubricating of all gear types (including hypoid ones) in automobiles. It most fully meets the transmission requirements of GAZ trucks and passenger cars with classic (rear-wheel drive) configuration.

Oil Grade	Designation , GOST 17479.2 - 85	Conforms to the requirements of		Kinematic Viscosity at 100 °C mm ^{2}/s,	Viscosity Index, not less than	Temperature, °C		Copper Corrosion (3h, 120°C), points, not more than	Tribological Characteristics, four - ball test		
		SAE	API			Flash Point, not lower than	Pour Point , not higher than		EP Index, N, not less than	Welding Load, N, not less than	Wear Scar Ø, mm, not more than
Automotive transmission oil for hypoid gears	**TM-3-34**	**140**	**GL-5**	**20,5 - 32,4**	–	–	**– 20**	**Darkening**	–	–	–

••• Automotive transmission oil for hypoid gears.
It is used for hypoid gear lubricating of old model lorries and passenger cars (GAZ-53, ZiL-130, Moskvich 401-412, GAZ M-20, GAZ-21, GAZ-24, etc.).

Oils for Hydro-Mechanical Gears

Oil Grade	Viscosity Class, ISO 3448	Operation Category, ISO 6743	Kinematic Viscosity, mm^2/s, at temperature of			Foamability, cm^3, not more than	Temperature, °C		Corrosion Test, points
			100 °C, not lower	40 °C	-20 °C, not higher		Flash Point, not lower than	Pour Point, not higher than	
Hydro-oil « A »	**32**	**-**	**6,5**	**30 - 45**	**2100**	**150 (24 °C)**	**175**	**-40**	**pass**
Hydro-oil « R »		**-**	**>= 5,0**	**17 - 22**	**1300**	**150 (24 °C)**	**163**	**-45**	**pass**

••• Oils for hydro-mechanical and hydro-volume gears.

• They are manufactured on the basis of mineral base distillate deeply-refined oils with anti-oxidant, anti-wear, detergent-dispersing, and anti-foaming additives.

Grade «A» is used for all year round operation in hydrodynamic torque converters and automatic gearboxes of motor cars at ambient temperature down to –30°C.

Grade «R» is used in the system of steering wheel hydraulic booster and hydro-volume gears at ambient temperature down to –40°C.

Hydraulic Oils

Oil Grade	Viscosity Class, ISO 3448	Operation Category, ISO 6743	Class, GOST 17479.3-85	Kinematic Viscosity, mm^2/s, at temperature of			Viscosity Index, not less than	Temperature, °C	
				100 °C, not lower	40 °C, not lower	below 0 °C not higher		Flash Point, not lower than	Pour Point, not higher than
AZMOL MGE-10A	**15**	**HM**	**MG - 15 - V**	**–**	**14,0**	**1500 (-30°C)**	**–**	**130**	**-50**

••• Hydraulic mineral oil.
It is used in hydro-systems of overland machinery while operating within the temperature range from – (60 - 65) up to +(79-75) °C.

ESh	**–**	**–**	**MG - 32 - A**	**–**	**20,0**	**–**	**135**	**160**	**-50 (-45) ***

••• Hydraulic mineral oil.
It is used in hydraulic management systems of heavy-duty machinery (walking excavators, and other similar machines)
* It is intended for areas with moderate, warm, humid and hot climate.

MGE-46V	**46**	**HM**	**МГ-46-В**	**6,0 (+40 °C)**	**41,4 - 50,6**	**1000 (0 °C)**	**90**	**190**	**-32**

••• Hydraulic mineral oil.
It is used in hydraulic (hydro-static drive) systems of agricultural and other types of machinery working with pressure of 35 MPa including short-term increase up to 42 MPa. It is efficient within the temperature range from –10 up to +80 °C.

AZMOL MGP-10	**15**	**HM**	**–**	**–**	**10,0**	**1000 (-20 °C)**	**–**	**145**	**-40**

••• Hydraulic mineral oil.
It is applied as working fluid in hydraulic automotive shock-absorbers.

ENERGY-PRODUCTION EQUIPMENT OILS
Turbine Oils

Oil Grade	Class, GOST 28549.6-90	Kinematic Viscosity at 40°C, mm^2/s	Viscosity Index, Not less than	Oxidation Stability		Demulsification Number, s, not more than	Temperature, °C		Corrosion Test
				Sediment after oxidation, %, not more than	Acid Number after oxidation, mg KOH/g, not more than		Open Flash Point, not lower than	Pour Point, not higher than	
AZMOL Tp - 22 S	–	**28,8 - 35,2**	**93**	–	–	**180**	**189**	**-15**	–

••• Turbine oil • It contains additives improving anti-oxidant, anti-corrosion, and demulsifying properties. It is used in high-speed steam turbines, as well as in centrifugal and turbo-compressors in cases when oil viscosity provides with necessary anti-wear properties.

T p-30	–	**41,4 - 50,6**	**95**	**0,03**	**0,4**	**3,5**	**190**	**-10**	**Group 1**
T p-46	–	**61,2 - 74,8**	**90**	**0,10**	**1,5**	**3,0**	**220**	**-10**	**(copper)**

••• Turbine oils • They contain additives improving anti-oxidant, anti-corrosion, and other oil properties.
Tp-30 oil is intended for hydro-turbines, some turbo-compressors and centrifugal ones.
Tp-46 oil is intended for marine steam power plants with heavy-duty reducers and auxiliary machinery.

Compressor Oils

Oil Grade	Operation Category, ISO 6743	Kinematic Viscosity at 100°C, mm^2/s	Viscosity Index, not less than	Temperature, °C		Acid Number, mg KOH/g, not more than	Ash Content, %, not more than
				Flash Point, not lower than	Pour Point, not higher than		
KS-19	**DAA**	**18,0-22,0**	**92**	**260**	**– 15**	**0,02**	**0,005**

••• Compressor oil.
It is used for piston compressors lubricating with medium and high pressure.

AZMOL KS-19p	**DAV**	**18,0-22,0**	**85**	**240**	**– 15**	**0,2**	**0,005**

••• Compressor oil.
• It contains the additive package improving anti-wear and anti-oxidant properties.
It is used for piston compressors lubricating with medium and high pressure.

Refrigerator Oils

Oil Grade	Class, DIN 51 503	Kinematic Viscosity at 50 °C, mm^2/s	Temperature, °C		Copper Corrosion Test	Acid Number, mg KOH/g	Ash Content, %
			Flash Point, not lower than	Pour Point, not higher than			
HF 22-24	KS	24,5 - 28,4	130	-55	pass	0,04	–
HF 12-16	KS	> 17,0	174	-42	pass	0,02	–
HA-30	KA	28,0 - 32,0	185	-38	pass	0,05	0,004

••• Compressor mineral oils.
They are intended for refrigerator compressors.
HF 22-24 oil (petroleum thickened one) is intended for refrigerator compressors, working under low-temperature conditions down to –40 °C with 1-stage compression; down to –70 °C – with 2-stage compression with R22 freon.
HF 12-16 oil (petroleum one with anti-oxidant additive) is intended for household refrigerator compressors, working under medium-temperature conditions (down to –25 °C) with R12, and R22 freons.
It is recommended for mixing refrigerants (e.g., R22/R142, R22/R142/R21, etc.) both for new manufacturing of household refrigeration equipment and for refrigeration equipment retrofit working with R12.
HA-30 oil (distillate and residual oil mixture) is intended for refrigerator compressors working with ammonia (R 717) under medium- and low-temperature conditions.

HS -40	KS/K A	37,0 - 42,0	200	-50	pass	0,02	0,02

••• Compressor synthetic oil.
It is intended for refrigerator compressors working under heat density conditions within the temperature range from –50 up to +150 °C.

AZMOL HMI	K	9,0 - 12,0 (40 °C)	160	-50	pass	0,02	–

••• Compressor oil.
It is intended for household refrigerator compressors, working under medium-temperature conditions with R600a hydrocarbon refrigerant (isobutane).

INDUSTRIAL OILS

Oil Grade	Viscosity Class, ISO 3448	Operation Category, ISO 6743	Designation, GOST 17469.4-87	Kinematic Viscosity at 40 °C, mm^2/s	Temperature, °C		Oxidation Stability – Acid Number after oxidation, mg KOH/g, not more than	Tribological Characteristics, four-ball test	
					Open Flash Point, not lower than	Pour Point, not higher than		EP Index, N, not less than	Wear Scar, mm, not more than
AZMOL:									
I-G-S-32	**32**	**HM**	**I-G-S-32**	**29,0 - 35,0**	**185**	**– 15**	**–**	**–**	**0,4**
I-G-S-46	**46**	**HM**	**I-G-S-46**	**41,0 - 51,0**	**200**	**– 15**	**–**	**–**	**0,4**
I-G-S-68	**68**	**HM**	**I-G-S-68**	**61,0 - 75,0**	**210**	**– 15**	**–**	**–**	**0,4**

••• AZMOL I-G-S industrial additive oils.
They are used for hydraulic systems lubricating of machine tools, automatic lines and presses of modern domestic and foreign equipment, working under normal and severe conditions, under water-supply development ones, and equipment with fine filters.

IGP -18	**32**	**HM**	**I-G-S-32**	**24 - 30**	**180**	**– 15**	**0,5 ***	**–**	**–**
IGP -30	**46**	**HM**	**I-G-S-46**	**39 - 50**	**200**	**– 15**	**0,5 ***	**–**	**–**
IGP -38		**HM**	**I-G-S-68**	**55 - 65**	**210**	**– 15**	**0,5 ***	**–**	**–**

Oil Grade	Viscosity Class, ISO 3448	Operation Category, ISO 6743	Designation, GOST 17469.4-87	Kinematic Viscosity at 40 °C, mm^2/s	Temperature, °C		Oxidation Stability – Acid Number after oxidation, mg KOH/g, not more than	Tribological Characteristics, four-ball test	
					Open Flash Point, not lower than	Pour Point, not higher than		EP Index, N, not less than	Wear Scar, mm, not more than
IGP -49		**HM**	**I-G-S-68**	**76 - 85**	**215**	**– 15**	**0,5 ***	**–**	**–**
IGP -72	**68**	**HM**	**I-T-S-100**	**110 - 125**	**220**	**– 15**	**0,5 ***	**–**	**–**
IGP -91	**68**	**HM**	**I-T-S-150**	**148 - 165**	**225**	**– 15**	**0,5 ***	**–**	**–**
IGP -114	**100**	**HM**	**I-T-S-220**	**186 - 205**	**230**	**– 15**	**0,5 ***	**–**	**–**

••• Industrial additive oils for hydraulic systems.

• They represent petroleum selective solvent-refined oils with anti-oxidant, anti-corrosion, anti-foaming, and depressor additives.

They are the base oils for modern hydraulic systems of metal-cutting machine tools, automatic lines, heavy presses, and other industrial equipment.

IGP-18 – IGP-49 oils are applied in hydraulic drives of domestic and foreign machine tools in different industrial branches, for high-speed gearboxes lubricating, low- and medium-duty reducers, and worm gears, variable-speed drives, electro-magnetic and gear-type clutches, bearing joints, sliding and rolling guides, and in other joints, where there is need in oils improved with anti-oxidant and anti-wear properties.

IGP-72 – IGP-114 oils are used in hydraulic systems of heavy press equipment as well as for gear train lubricating, medium-duty reduction gears and worm reducers, in circulation lubricating systems of different equipment types.

*Acid Number increasing

Oil Grade	Viscosity Class, ISO 3448	Operation Category, ISO 6743	Designation, GOST 17469.4-87	Kinematic Viscosity at 40 °C, mm^2/s	Temperature, °C		Oxidation Stability – Acid Number after oxidation, mg KOH/g, not more than	Tribological Characteristics, four-ball test	
					Open Flash Point, not lower than	Pour Point, not higher than		EP Index, N, not less than	Wear Scar, mm, not more than
AZMOL:									
I-N-E-68	**68**	**G**	**I-N-E-68**	**50 - 70**	**190**	**– 20**	**–**	**333**	**–**
I-N-E-100	**100**	**G**	**I-N-E-100**	**100 - 110**	**190**	**– 20**	**–**	**355**	**–**
I-N-E-220	**220**	**G**	**I-N-E-220**	**175 - 200**	**200**	**– 15**	**–**	**372**	**–**

••• AZMOL I-N-E industrial additive oils.
They are used for sliding and rolling guides of metal-cutting machine tools, lead screw-to-nut gears in machine tools of high precision, including programmed control ones, where there is need in uniform slow translation.
AZMOL I-N-E-68 oil is used for low– and medium-duty horizontal guides lubricating.
AZMOL I-N-E-100 oil is used for medium- and heavy-duty horizontal and/or vertical guides lubricating, and/or vertical and horizontal guides in general lubricating system.
AZMOL I-N-E-220 oil is used for vertical guides lubricating as well as for horizontal guides lubricating with big area vertical sides.

Oil Grade	Viscosity Class, ISO 3448	Operation Category, ISO 6743	Designation, GOST 17469.4-87	Kinematic Viscosity at 40 °C, mm^2/s	Temperature, °C		Oxidation Stability – Acid Number after oxidation, mg KOH/g, not more than	Tribological Characteristics, four-ball test	
					Open Flash Point, not lower than	Pour Point, not higher than		EP Index, N, not less than	Wear Scar, mm, not more than
AZMOL:									
I-T-D-32	**32**	**CC**	**I-T-D-32**	**28,8 - 35,2**	**180**	**– 18**	**–**	**392**	**0,45**
I-T-D-46	**46**	**CC**	**I-T-D-46**	**41,4 - 50,6**	**190**	**– 18**	**–**	**392**	**0,45**
I-T-D-68	**68**	**CC**	**I-T-D-68**	**61,2 - 74,8**	**200**	**– 18**	**–**	**392**	**0,45**
I-T-D-100	**100**	**CC**	**I-T-D-100**	**90,0 - 110,0**	**205**	**– 18**	**–**	**441**	**0,45**
I-T-D-150	**150**	**CC**	**I-T-D-150**	**135,0 - 165,0**	**210**	**– 18**	**–**	**441**	**0,45**
I-T-D-220	**220**	**CC**	**I-T-D-220**	**198,0 - 242,0**	**215**	**– 18**	**–**	**490**	**0,45**
I-T-D-320	**320**	**CC**	**I-T-D-320**	**288,0 - 352,0**	**220**	**– 12**	**–**	**539**	**0,45**
I-T-D-460	**460**	**CC**	**I-T-D-460**	**414,0 - 506,0**	**220**	**– 12**	**–**	**539**	**0,45**

••• AZMOL I-T-D industrial additive oils.
They are used for gear transmissions lubricating and other components of industrial equipment where heavy load does not allow additives-free oils applying

AZMOL PZhT-220	**220**	**CB**	**–**	**18,0 - 24,0 (100 °C)**	**200**	**– 9**	**0,10 ***	**–**	**–**

••• Oil for rolling mills.
It is intended for circulation systems lubricating of fluid friction bearings (PZhT) in rolling mills at metallurgical works. It is efficient within the temperature range from 0 up to 120 °C (short-term contact is possible up to 200 °C), and specific load in gear transmissions from 80 up to 300 MPa.
*Acid Number changing.

Oil Grade	Viscosity Class, ISO 3448	Operation Category, ISO 6743	Designation, GOST 17469.4-87	Kinematic Viscosity at 40 °C, mm^2/s	Temperature, °C		Oxidation Stability – Acid Number after oxidation, mg KOH/g, not more than	Tribological Characteristics, four-ball test	
					Open Flash Point, not lower than	Pour Point, not higher than		EP Index, N, not less than	Wear Scar, mm, not more than
PS -28	**460**	**CB**	**I-T -A-460**	**26,0 - 30,0 (100 °C)**	**250**	**-10**	–	–	–

••• Oil for rolling mills.

• It represents residual oil of sulfurous selective solvent-refined petroleum.

• It is received by mixing of high viscous residual component from deasphaltizate of 1 and 2 grades.

It is intended for lubricating of rolling mills heavy-duty joints with circulation lubricating systems (excluding fluid friction bearings).

AZMOL:									
M Z -8				**6 - 10 (50 °C)**	**140**	–	–	–	–
M Z -16				**15 - 20**	**180**	–	–	–	–
M Z -38				**35 - 45**	**210**	–	–	–	–
M Z -90				**70 - 100**	**230**	–	–	–	–
M Z -120				**110 - 150**	**250**	–	–	–	–

••• AZMOL MZ quenching oils.

They are widely used in steel items quenching processes.

AZMOL MZ-8 oil is used while thermal treating of items from medium-carbon and cemented steel.

AZMOL MZ-16 oil is used for steel items quenching within the temperature range from 30 up to 80 °C.

AZMOL MZ-38 oil is used for steel items quenching within the temperature range from 70 up to 140 °C.

AZMOL MZ-90 and **AZMOL MZ-120** oils are used for steel items quenching within the temperature range from 130 up to 180 °C.

AZMOL MVZ-1				**15,0 - 23,0 (50 °C)**	**170**	–	–	–	–

••• Quenching oil.

It is used for metal items quenching in vacuum ovens.

LUBRICATING GREASES
Anti-Friction Greases

Grease Grade	Classification, DIN 51 502	Dropping Point, °C, not lower than	Temperature range for application, °C		Penetration at 25 °C, x 10^{-1} mm	Shear Stability at 50 °C, Pa, not less than	Colloid Stability, % of separated oil, not more than	Viscosity at 50 °C and velocity gradient of 10 s^{-1}, Pa-s, not more than
			min	max				
Cup Grease Zh	**K2C-25** **K3C-25**	**78**	**-25**	**+ 65**	**230 - 290**	**196**	**–**	**250 (0 °C)**

It is used for lubricating of rolling and sliding friction joints in different machinery types, working within the temperature range from –25 up to +65 °C. This grease is efficient at temperature down to -50 °C in rather powerful machinery types (bearings, hinges, assemblies, etc.).
It is applied for dismountable friction joints charging, working within the temperature range from–50 up to +65 °C, friction joints charging with a help of manual grease pumps at temperature down to –20 °C.

Graphite Zh	**OGF2C-20**	**76**	**-20**	**+ 60**	**>= 250**	**100**	**13**	**250 (0 °C)**

It is used for lubricating of rough heavy-duty machinery (open gear trains, threaded connections, lead screws, lifting jacks, springs, etc.).
It can be used at temperature below –20 °C in springs, and other similar assemblies/devices.

1-13	**K3H -20** **K4H -20**	**120**	**-20**	**+ 110**	**180 - 250**	**150 (80 °C)**	**20**	**500 (0 °C)**

It is used for lubricating of rolling and sliding friction joints in different machinery types.
It keeps its efficiency at temperature down to –40 °C in rather powerful machinery types.

Anti-Friction Multi-Purpose Greases

Grease Grade	Classification, DIN 51 502	Dropping Point, °C, not lower than	Temperature range for application, °C		Penetration at 25 °C, x 10^{-1} mm	Shear Stability at 50 °C, Pa, not less than	Colloid Stability, % of separated oil, not more than	Viscosity at 50 °C and velocity gradient of $10\ s^{-1}$, Pa-s, not more than
			min	max				
Litol-24	**K3K-40**	**185**	**40**	**+120 (+130)**	**220 - 250**	**200 (80 °C)**	**12**	**280 (0 °C)**
Litol-24RK	**K3K-40**	**180**	**40**	**+120 (+130) (50 °C)**	**220 - 250**	**150 (80 °C)**	**12**	**280 (0 °C)**

They are used for friction joints lubricating of wheel and caterpillar transport means, industrial equipment and marine machinery.
Litol-24RK grease is also intended for their preservation.

AZMOL Fiol-2	**K2K-40**	**188**	**40**	**+120**	**265 - 295**	**120 (80 °C)**	**16**	**250 (0 °C)**

It is used for friction joints lubricating of different machinery types (similar to Litol-24), working under medium load at temperature not higher than 120°C.

AZMOL Fiol-1	**K1K-40**	**185**	**40**	**+120**	**310 - 340**	**80 (80 °C)**	**25**	**200 (0 °C)**

It is used for friction joints lubricating under pressure (through grease cups), and for ropes with the coating of inner diameter less than 5 mm.

Grease Grade	Classification, DIN 51 502	Dropping Point, °C, not lower than	Temperature range for application, °C		Penetration at 25 °C, x 10^{-1} mm	Shear Stability at 50 °C, Pa, not less than	Colloid Stability, % of separated oil, not more than	Viscosity at 50 °C and velocity gradient of $10\,s^{-1}$, Pa-s, not more than
			min	max				
AZMOL:								
Lika - 1 (P)	**K1N-40 (KP1N-40)**	**215**	**– 40**	**+150**	**295 - 325**	**80**	**20**	**5**
Lika - 2 (P)	**K2N-40 (KP2N-40)**	**230**	**– 40**	**+150**	**265 - 295**	**150**	**12**	**6**
Lika - 3 (P)	**K3N-40 (KP3N-40)**	**230**	**– 40**	**+150**	**220 - 250**	**200**	**10**	**8**

• They are made on the basis of petroleum oils, thickened with complex lithium soap. • **AZMOL Lika-P** greases contain anti-wear and extreme pressure additives in addition.
They are used for friction joints lubricating in contemporary and prospective transport means, as well as in industrial equipment working under medium **(AZMOL Lika)** and heavy **(AZMOL Lika-P)** loads.

Anti-Friction Heat-Resistant Greases

Grease Grade	Classification, DIN 51 502	Dropping Point, °C, not lower than	Temperature range for application, °C		Penetration at 25 °C, x 10^{-1} mm	Shear Stability at 50 °C, Pa, not less than	Colloid Stability, % of separated oil, not more than	Viscosity at 50 °C and velocity gradient of 10 s^{-1}, Pa·s, not more than
			min	max				
TsIATIM-221	**KSi1N-60 KSi2N-60**	**200**	**– 60**	**+ 150**	**280 - 360**	**120**	**7**	**800 (-50 °C)**

It is used for lubricating of friction joints and mating surfaces "metal-to–metal" and "metal-to–rubber" (rolling bearings of electric machines, control systems and devices with rotational speed up to 10000 rev/ min, unit bearings of aircraft).

AZMOLGraphitol	**KF2P-15**	**250**	**–15**	**+ 160**	**265 - 295**	**–**	**8**	**–**

It is used for lubricating of rolling and sliding bearings, industrial equipment mating surfaces (hot air ventilators, door hinges and locks of drying chambers, and other industrial machinery).

Grease Grade	Classification, DIN 51 502	Dropping Point, °C, not lower than	Temperature range for application, °C		Penetration at 25 °C, x 10^{-1} mm	Shear Stability at 50 °C, Pa, not less than	Colloid Stability, % of separated oil, not more than	Viscosity at 50 °C and velocity gradient of 10 s^{-1}, Pa-s, not more than
			min	max				
AZMOL Aerol	**KF2P-15**	**250**	**–15**	**+ 160**	**265 - 295**	**–**	**8**	**–**

It is used for lubricating of industrial equipment rolling bearings (roller bearings of hauling chains, conveyers, transporters, bonderization chambers, painting and drying ones, and friction joints of pig iron casting distribution chains).

Aerol-1	**KF0P-15**	**No norm**	**–15**	**+ 160**	**340 - 400**	**–**	**–**	**–**

It is used for lubricating of universal spindle hinges at thick-sheet rolling-mill shops and industrial equipment rolling bearings with centralized grease feeding.

Silikol	**KP3P-40**	**250**	**–40**	**+ 160**	**220 - 250**	**120**	**7**	**800 (-50 °C)**

It is used for industrial equipment friction joints lubricating (low-duty rolling bearings of hot air ventilators in case-hardening furnaces and other industrial machinery types).

AZMOL BNZ-4	**K2P-40**	**230**	**–40**	**+ 160**	**265 - 295**	**300 (20 °C)**	**12**	**5 (50 °C)**

It is used for friction joints lubricating of drying-finishing machines in knitting industry, including vertical and inclined friction joints of drying-stretching stabilizing machines, drying and drum ones, cloth-printing machines, calenders, drying chambers transporter bearings at machine-building works.

Maspol	**K2N-20**	**220**	**–20**	**+ 150**	**–**	**300-800(20 °C)**	**10**	**–**

It is used for technological equipment friction joints.

Anti-Friction Low-Temperature Greases

Grease Grade	Classification, DIN 51502	Dropping Point, °C, not lower than	Temperature range for application, °C		Penetration at 25 °C, x 10^{-1} mm	Shear Stability at 50 °C, Pa, not less than	Colloid Stability, % of separated oil, not more than	Viscosity at 50 °C and velocity gradient of $10\ s^{-1}$, Pa-s, not more than
			min	max				
TsIATIM-203	**KP2E-50**	**160**	**–50**	**+ 90**	**250 - 300**	**250**	**10**	**1000 (-30 °C)**

It is used for gear trains and worm gears lubricating of reducers, sliding and rolling bearings; different dynamic drives, screw sets, loaded reducers, machinery operating in open areas, motor car friction joints.

GOI-54p	**K3C-40**	**61**	**–40**	**+50**	**200 - 245**	**150 (40 °C)**	**6**	**1200 (- 40 °C)**

It is used for devices and machinery lubricating as well as metal surface protecting from corrosion.

Zimol -2	**KHCF3N-60**	**190**	**–60**	**+150**	**220 - 265**	**200 (80 °C)**	**25**	**2000 (- 50 °C)**

It is used for friction joints lubricating of any transport means and engineering equipment, operating in very cold climate areas.

Anti-Friction Chemically Stable Greases

Grease Grade	Classification, DIN 51 502	Dropping Point, °C, not lower than	Temperature range for application, °C		Penetration at 25 °C, x 10^{-1} mm	Shear Stability at 50 °C, Pa, not less than	Colloid Stability, % of separated oil, not more than	Viscosity at 50 °C and velocity gradient of $10 s^{-1}$, Pa-s, not more than
			min	max				
TsIATIM -205	**K5C-20**	**65**	**–60**	**+ 50**	**165**	**–**	**4**	**–**

It is used for sealing and caking prevention of fixed threaded connections and gaskets in contact with corrosive medium (concentrated inorganic acids, alkalis, amines, alcohols, hydrazines).
The minimum grease application temperature in movable threaded connections is (– 20 °C).

Airborne Instrument Greases

Grease Grade	Classification, DIN 51 502	Dropping Point, °C, not lower than	Temperature range for application, °C		Penetration at 25 °C, x 10^{-1} mm	Shear Stability at 50 °C, Pa, not less than	Colloid Stability, % of separated oil, not more than	Viscosity at 50 °C and velocity gradient of $10 s^{-1}$, Pa-s, not more than
			min	max				
TsIATIM-201	**K2E-60**	**175**	**–60**	**+90**	**–**	**250-500**	**26**	**1100 (–50 °C)**

It is used for friction joints lubricating, working with low shear under medium load, aircraft equipment, radio engineering equipment, appliances and other precise machinery, some machines working in the Far North, main joints of motor car and other overland technical equipment, operating in the northern areas.

TsIATIM-202	**K2K-50**	**175**	**–50**	**+120**	**–**	**150**	**20**	**1300 (–30 °C)**

It is used for rolling bearings lubricating.
In most cases it is interchangeable with **TsIATIM-201** grease.

AZMOL OKB 122-7	**KSiK-60**	**–**	**–60**	**+120**	**–**	**150**	**10**	**1800 (–30 °C)**

It is used for bearing lubricating in aircraft electric machines and other airborne instrument equipment friction joints.

Reducer Semi-Fluid Greases

Grease Grade	Classification, DIN 51 502	Dropping Point, °C, not lower than	Temperature range for application, °C		Penetration at 25 °C, x 10^{-1} mm	Shear Stability at 50 °C, Pa, not less than	Colloid Stability, % of separated oil, not more than	Viscosity at 50 °C and velocity gradient of $10\ s^{-1}$, Pa·s, not more than
			min	max				
TsIATIM-208	**GP 1H-30**	–	**-30**	**+100**	**300 -360 (-15 °C)**	–	–	**1800 (-30 °C)**

It is used for heavy-duty gear reducers of caterpillar machinery.

STP-1	**GP 2F-5**	–	**-5**	**+50**	**80 -100 * (50 °C)**	–	–	**1–5 ** (75 °C)**
STP-2	**GP 2F-25**	–	**-25**	**+50**	**50 - 70 *(0 °C)**	–	–	**No norm ***
STP-3	**GP 1F-50**	–	**-50**	**+40**	**80 - 100 *(0 °C)**	–	–	**5–10 ** (25 °C)**

They are used for locomotive hauling reducers.
*Micro-penetration is determined.
**Specific viscosity, min.

Shahtol-U	**GP1H0**	–	–	–	–	–	–	**17–22 (100 °C) ***

It is used for underground equipment lubricating in coal mines, operating at ambient temperature above 0 °C.
*Kinematic viscosity, mm^2/s.

OZP -1	**OGP1E-5 OGP2E-5**	**30–55**	**-5**	**+70**	**280–320**	–	–	–

It is used for open gear trains lubricating of powerful drives in rotating furnaces, and forge-and-press equipment.

Grease Grade	Classification, DIN 51 502	Dropping Point, °C, not lower than	Temperature range for application, °C		Penetration at 25 °C, x 10^{-1} mm	Shear Stability at 50 °C, Pa, not less than	Colloid Stability, % of separated oil, not more than	Viscosity at 50 °C and velocity gradient of $10\ s^{-1}$, Pa-s, not more than
			min	max				
AZMOL :								
Transol - 100	**GHCFOOG-40**	**150**		**+110**	**400 - 430**	**–**	**35**	**1200 (–30 °C)**
Transol - 200	**GPOOE-40**	**150**		**+70**	**385 - 430**	**–**	**30**	**1400 (–30 °C)**

AZMOL Transol-100 grease is intended for lubricating of worm reducers and motor-reducers working under maximum specific load in gearing up to 400 MPa. It is efficient within the period of not less than 10000 h at the fixed temperature of grease in the reducer being not higher than 110°C.

AZMOL Transol-200 grease is intended for lubricating of spur and planetary reducers and motor-reducers working under maximum specific load in gearing up to 2000 MPa. It is efficient within the period of not less than 10000 h at the fixed temperature of grease in the reducer being not higher than 70°C.

Running-in Paste

Grease Grade	Classification, DIN 51 502	Dropping Point, °C, not lower than	Temperature range for application, °C		Penetration at 25 °C, x 10^{-1} mm	Shear Stability at 50 °C, Pa, not less than	Colloid Stability, % of separated oil, not more than	Viscosity at 50 °C and velocity gradient of 10 s^{-1}, Pa·s, not more than
			min	max				
Limol	**KF14 -50**	**240**	**-50**	**+250**	**300–340**	**–**	**6**	**–**

It possesses exclusively high extreme-pressure properties.
It is applied as fitting grease while threaded connections assembling and running-in, for sliding bearings running-in and lubricating, gear train and spiral gear hinges, heavy-duty slow-going friction joints.

Automobile Greases

Grease Grade	Classification, DIN 51 502	Dropping Point, °C, not lower than	Temperature range for application, °C		Penetration at 25 °C, x 10^{-1} mm	Shear Stability at 50 °C, Pa, not less than	Colloid Stability, % of separated oil, not more than	Viscosity at 50 °C and velocity gradient of $10 s^{-1}$, Pa-s, not more than
			min	max				
AZMOL ShRUS-4	KPF2K-40	190	-40	+120	250–280	150 (80 °C)	16	1800 (-30 °C)

It contains molybdenum disulphide.
It is used for hinges of motor car equiangular speeds.

AZMOL LSTs-15	KF2N-40	185		+140	250–280	120 (80 °C)	15	280 (0 °C)

It contains zinc oxide.
It is used for accelerator drive hinges and axis lubricating, switch-off levers, splined joints, mechanisms of motor car window-panel lifts, industrial equipment friction joints, working under medium load and within the temperature range up to 140 °C.

AZMOL Fiol-2U	KPF2K-40	185	-40	+120 (+130)	255–295	100–400 (80 °C)	12	2000 (-30 °C)

It contains molybdenum disulphide.
It is used for needle bearings lubricating in cardan shaft crossheads of VAZ motor cars and other models.

AZMOL #158	KF2K-40 KF1K-40	150			265–320	160	18	400 (0 °C)

It is applied in rolling bearings of motor car and tractor electrical equipment, needle bearings of cardan joint crossheads, in friction joints of passenger cars and trucks window-panel cleaning, combines, tractors and other machinery.

AZMOL KSB-1	KF2K-40	150			265–295	–	14	–

It is used for contact lubricating of motor car turning indicator switches.

Grease Grade	Classification, DIN 51 502	Dropping Point, °C, not lower than	Temperature range for application, °C		Penetration at 25 °C, x 10^{-1} mm	Shear Stability at 50 °C, Pa, not less than	Colloid Stability, % of separated oil, not more than	Viscosity at 50 °C and velocity gradient of $10\ s^{-1}$, Pa-s, not more than
			min	max				
DT -1	MXFH -40	110	-40	+110	315–345	–	–	–

It is applied while disc brake, main cylinder of clutch hydro-drive, brake pressure controller, main brake cylinder assembling of VAZ motor cars and others; it is also used for parts, operating in contact "rubber-to-metal" with braking fluid "Neva" or similar fluids.

AZMOL ShRB-4	K2K -40	200	-40	+130	265–295	200 (20 °C)	10	800 (20 °C)

It is applied as non-changeable grease for ball-and-socket joints of front suspension, steering control tractive heads of VAZ motor cars.

Railway Greases

Grease Grade	Classification, DIN 51 502	Dropping Point, °C, not lower than	Temperature range for application, °C		Penetration at 25 °C, x 10^{-1} mm	Shear Stability at 50 °C, Pa, not less than	Colloid Stability, % of separated oil, not more than	Viscosity at 50 °C and velocity gradient of 10 s^{-1}, Pa·s, not more than
			min	max				
LZ -TsNII	**KP3H-60 KP4H-60**	**135**	**-60**	**+100**	**200–260**	**200**	**22**	**420 (0 °C)**
It is applied in roller bearings of railway cars.								
ZhRO	**KP3K-50 KP4K-50**	**180**	**-50**	**+120 (+130)**	**190–250**	**350**	**15**	**2000 (-30 °C)**
It is applied in friction joints with rolling bearings of locomotives, diesel-trains, motor-car rolling stock.								
ZhTKZ -65	**OG2G-60 OG3G-60**	**120**	**-60**	**+110**	**230–300**	**–**	**40**	**1500 (-50 °C)**
It is used for lubricating of braking equipment and locomotive machinery, diesel-trains, motor-car rolling stock, working with low shear.								
ZhT-72	**KSiK-60**	**175**	**-60**	**+120**	**–**	**50**	**10**	**800 (-55 °C)**
It is used for lubricating of braking equipment and locomotive machinery, diesel-trains, motor-car rolling stock, working with low shear within temperature range from –60 up to +110 °C.								
Contact	**OGF3C -20 OGF4C -20**	**90**	**–**	**–**	**J 240**	**–**	**5**	**–**
It contains graphite. It is used for lubricating of rail cover plates providing with rail junction conductivity.								
AZMOL Relsol :								
M	**GP00C-30**	**70**	**–**	**–**	**400 -445**	**–**	**–**	**No norm**
GS	**GP000C-40**	**70**	**–**	**–**	**445 -495**	**–**	**–**	**No norm**

It is used for lubricating of wheel set flanges of hauling rolling stock.
There are two grades depending on grease feeding way:
AZMOL Relsol M is fed with lubricators with periodic grease feeding under pressure.
AZMOL Relsol GS is fed with lubricators with periodic pressure-free grease feeding.

Marine Greases

Grease Grade	Classification, DIN 51 502	Dropping Point, °C, not lower than	Temperature range for application, °C		Penetration at 25° C, x 10^{-1} mm	Shear Stability at 50 °C, Pa, not less than	Colloid Stability, % of separated oil, not more than	Viscosity at 50 °C and velocity gradient of 10 s^{-1}, Pa·s, not more than
			min	max				
AZMOL AMS-1	K1E -15	110	-15	+80	300–350	–	–	1000 (0 °C)
AZMOL AMS-2	K2E -15	115	-15	+80	250–300	–	–	1500 (0 °C)
AZMOL AMS-3	K3E -15	120	-15	+80	200–250	–	–	2000 (0 °C)

They are used for lubricating and protecting from corrosion of different vessels, submarines and hydroplanes machinery.

Industrial Greases

Grease Grade	Classification, DIN 51 502	Dropping Point, °C, not lower than	Temperature range for application, °C		Penetration at 25 °C, x 10^{-1} mm	Shear Stability at 50 °C, Pa, not less than	Colloid Stability, % of separated oil, not more than	Viscosity at 50 °C and velocity gradient of 10 s^{-1}, Pa·s, not more than
			min	max				
AZMOL IP-1L	K 1C-0 K 2C-0	85	0	+70	280–310	130	–	250 (0 °C)
AZMOL IP-1Z	K 1D-10	80	-10	+70	310–360	100	–	150 (0 °C)

They are used for bearings lubricating of rolling mills and other metallurgical equipment friction joints with centralized feeding.

There are two grease grades depending on application conditions: **AZMOL IP-1L** – summer grease, and **AZMOL IP-1Z** – winter grease.

Uniol-2M/1	KP1R -30 KP2R -30	240	-30	+180	280–320	150–400 (80 °C)	9	160 (0 °C)
Uniol-2M/2	KP 1R-30 KP0R -30	230	-30	+170	325–370	100–350 (80 °C)	12	110 (0 °C)

Uniol-2M/1 grease is intended for lubricating of machinery operating under heavy specific conditions. It can be applied for lubricating of powerful machinery at –40 °C. Short-term application at temperature up to 200 °C is possible.

Uniol-2M/2 grease is intended for lubricating in metallurgical equipment centralized systems.

AZMOL LS-1P	KP1K-20	185			310–340	100 (20 °C)	25	1000 (20 °C)

It is used for lubricating of friction joints in industrial equipment working under medium and heavy conditions and at temperature not higher than 130 °C.

Grease Grade	Classification, DIN 51 502	Dropping Point, °C, not lower than	Temperature range for application, °C		Penetration at 25° C, x 10^{-1} mm	Shear Stability at 50 °C, Pa, not less than	Colloid Stability, % of separated oil, not more than	Viscosity at 50 °C and velocity gradient of $10\,s^{-1}$, Pa-s, not more than
			min	max				
LKS - metallurgical	**KPF2P-30 KPF1P-30**	**200**	**-30**	**+150 (+170)**	**250–320**	**150–300 (20 °C)**	**12**	**2500 (-20 °C)**

It is used for lubricating of friction joints (rolling bearings) in metallurgical equipment.

AZMOL Alumina	**KP3R -30**	**220**	**-30**	**+160**	**220–260**	**250**	**8**	**No norm**

It is made on the base of petroleum oils thickened with complex aluminum soap • It contains additive composition providing with high tribological characteristics.
It is used for friction joints lubricating of machinery working under heavy conditions of strong humidity, sea-water contact and corrosive medium.

Drilling Greases

Grease Grade	Classification, DIN 51 502	Dropping Point, °C, not lower than	Temperature range for application, °C		Penetration at 25 °C, x 10^{-1} mm	Shear Stability at 50 °C, Pa, not less than	Colloid Stability, % of separated oil, not more than	Viscosity at 50 °C and velocity gradient of $10\ s^{-1}$, Pa·s, not more than
			min	max				
AZMOL Dolotol N	KPF2N-20 KPF3N-20	185	-20	+130	230–280	200 (80 °C)	10	1000 (0 °C)

It contains graphite and molybdenum disulphide.
It is used for lubricating and sealing of friction joints in roller drill bits with non-sealed rolling and sliding bearings, as well as for drill bit bearing preservation while storing.

AZMOL AV Dolotol	KPF1T-30 KPF0T-30	230	-30	+220	320–370	100	12	800 (0 °C)

It contains graphite and molybdenum disulphide.
It is used for lubricating of friction joints in drill bits with sealed sliding bearings, as well as for drill bit bearing preservation while storing.

AZMOL Dolotol NU	KF2K-30 KF1K-30	140	-30	+110	250–310	80	10	6 (50 °C)

It contains graphite and molybdenum disulphide.
It is used for lubricating of friction joints in drill bits with sealed sliding bearings, as well as for drill bit bearing preservation while storing.

Preservative Greases

Grease Grade	Classification, DIN 51 502	Dropping Point, °C, not lower than	Temperature range for application, °C		Penetration at 25 °C, x 10^{-1} mm	Shear Stability at 50 °C, Pa, not less than	Colloid Stability, % of separated oil, not more than	Viscosity at 50 °C and velocity gradient of 10 s^{-1}, Pa·s, not more than
			min	max				
Gun (Pushechnaya)	**M5C-50 M6C-50**	**60**	**-50**	**+50**	**90–150**	–	–	–

It is used for corrosion protection of surfaces of metal items from ferrous and non-ferrous metals under warehouse storing conditions and in open areas in sheds and cases.

ZhKB	–	–			–	–	–	**90–110 ***
ZhKB-1	–	–			–	–	–	**20–50 ***

Flash point is not lower than 170 °C • Pour point, °C, is not higher than: 25 – for ZhKB; 15 – for ZhKB-1.
It is intended for long-term protection from atmosphere corrosion of items and machinery, kept under shelter.
There are two grades of the grease: **ZhKB** – for steel of 45 grade according to GOST 1050 and pig iron of SCh grade according to GOST 1412; **ZhKB-1** – for steel of 45 grade according to GOST 1050.
*Kinematic viscosity, mm^2/s.

AZMOL ZES	**OG1G-30 OG2G-30**	**110**	**-30**	**+100**	**270–340**	–	**4**	**1200 (0 °C)**

It is intended for corrosion protection of lightning-protective cables, high-voltage lines fittings, machines, mechanisms and other metal items from ferrous and non-ferrous metals under service conditions, transporting and keeping in open areas.

Rope Greases

Grease Grade	Classification, DIN 51 502	Dropping Point, °C, not lower than	Temperature range for application, °C		Penetration at 25 °C, x 10^{-1} mm	Shear Stability at 50 °C, Pa, not less than	Colloid Stability, % of separated oil, not more than	Viscosity at 50 °C and velocity gradient of 10 s^{-1}, Pa·s, not more than
			min	max				
AZMOL Rope 39 U	–	**65–78**	**-25**	**+50**	–	–	–	**>= 4,5 ***

It is used for lubricating of multi-purpose wire ropes protecting them from corrosion and premature wear, it is highly recommended for lubricating of drilling and mine ropes.
*Specific viscosity at 100 °C.

Torsiol - 35B	–	**65–89**	**-35**	**+40**	–	–	–	**>=8,5mm^2/s ****
Torsiol - 35E	–	–			–	–	–	**10–20 *****

Torsiol-35B grease is intended for lubricating of general purpose wire ropes (excluding sea ones) in process of their manufacturing.
Torsiol-35E grease is intended for lubricating of wire ropes in service operation; it contains solvent, and does nc require any heating while applying.
**Kinematic viscosity at 100 °C.
***Kinematic viscosity at 50 °C.

E-1	–	**40–55**						

••• Grease for organic wire rope cores impregnating • Copper content is not less than 0.9%.
It is intended for organic cores prevention from decomposition:
E-1 is applied under conditions of moderate climate down to the temperature not lower than –20 °C;
E-1т is applied under conditions of tropical climate.

Sealing-Threaded Greases

Grease Grade	Classification, DIN 51 502	Dropping Point, °C, not lower than	Temperature range for application, °C		Penetration at 25 °C, x 10^{-1} mm	Shear Stability at 50 °C, Pa, not less than	Colloid Stability, % of separated oil, not more than	Viscosity at 50 °C and velocity gradient of 10 s^{-1}, Pa·s, not more than
			min	max				
LZ -162u	**MF4R-40 MF5R-40**	**149**	**-40**	**+180**	**150–200**	**–**	**6**	**–**

It is used for sealing of fittings (direct-flow fasteners, cork valves) of flowing oil and gas wells, including deep and extra-deep wells with pit face pressure up to 100 MPa.

Armatol-238	**MF1M-50 MF0M-50**	**160**	**-50**	**+120**	**300–360**	**–**	**15**	**–**

It is used for sealing of closures of opening oil field equipment for oil, gas and gas-condensate deposits, containing hydrogen sulphide and carbon dioxide up to 25% in volume.
It is applied in all climatic areas including cold climate districts.

Rezbol OM-2	**MPF1S-50 MPF0S-50**	**–**	**-50**	**+200**	**330–390**	**50 (80 °C)**	**10**	**–**

It is used for sealing and corrosion protection of threaded connections of casing, pump-compressor and drilling pipes while building and operating of oil and gas wells, as well as while thread-cutting at pipe plants.

Grease Grade	Classification, DIN 51 502	Dropping Point, °C, not lower than	Temperature range for application, °C		Penetration at 25 °C, x 10^{-1} mm	Shear Stability at 50 °C, Pa, not less than	Colloid Stability, % of separated oil, not more than	Viscosity at 50 °C and velocity gradient of 10 s^{-1}, Pa-s, not more than
			min	max				
Kranol	–	**60**		**40**	**35–70**	–	–	–

••• Grease for gas valves.

It is used for lubricating of gas pipe-lines fittings and gas-distributing and compressor stations under the pressure up to 7.5 MPa.

ZZK-Zu	**MGE -60**	**115**	**-60**	**+80**	**40–80**	–	–	–

It is used for sealing of slits in access holes, lids, doors and other places of machines while their long-term preserving.

Plitol M	**MP 4N-0**	**230**	**0**	**150**	**180–220**	**700 (80 °C)**	**6**	–

It is used for sealing and lubricating of bevel friction set of cork cocks of household gas cookers, installed in heated buildings

PRESERVATIVE LUBRICANTS
Preservative Oils

Product Grade	Kinematic Viscosity at 50 °C, mm^2/s	Preservative Properties	Mass Fraction, %		Temperature, °C	
			Water Content, not more than	Mechanical Impurities Content, not more than	Flash Point, not lower than	Pour Point, not higher than
AZMOL ZhKS-50	**37,0-47,0 (100 °C)**	**pass**	**–**	**–**	**200**	**– 16**

••• Preservative oil.

It is used for corrosion protection of gas-holders metal-works, items made out of ferrous and non-ferrous metals while operating, storing and transporting under extremely humid conditions.

RZh	**> 6,0**	**pass**	**nil**	**0,05**	**–**	**– 60**
VO	**> 60,0**	**–**	**nil**	**0,05**	**–**	**–**

••• Gun oils.

RZh oil is used for short-term corrosion protection of metal surfaces, it is also applied as working grease for load-free joints, working at temperature down to –50 °C, as well as for surface cleaning from deposits.

VO oil is used for short-term corrosion protection of metal surfaces, it is also applied as working grease for lad-free joints all year round but for winter, i.e. working at temperature not lower than 5 °C.

Preservative Compositions

Product Grade	Dropping Point, °C ,not lower than	Low-temperature Properties	Adhesiveness: %, not more than	Metal Corrosion	Water Content	Needle Penetration at 25 °C , mm/10, not less than
AZMOL AK	**70**	**pass -20 °C**	**20**	**pass**	**nil**	**45**

••• Mastic.

It is applied for corrosion protection of outer metal-works, bottoms, wings, and other parts of motor car bodies and agricultural machinery while storing and operating within the temperature range from – 20 up to 50 °C.
It is permitted to paste **AZMOL AK** Mastic onto the surfaces, pretreated with preservative compositions, as well as onto plant anti-corrosion coatings.

AZMOL AK-2	**70**	**pass -20 °C**	**20**	**pass**	**nil**	**–**

••• Mastic.

It is applied for corrosion protection of hidden hollows (thresholds, door frames, pillars, spars, etc.) motor car bodies, agricultural machinery, and other metal-works while storing and operating within the temperature range from –20 up to +50 °C. It is permitted to paste **AZMOL AK-2** Mastic onto the surfaces, pretreated with preservative compositions, as well as onto plant anti-corrosion coatings.

Petronol OU	**60–70**	**0,25**	**5,0**	**pass**	**pass**

It represents 60–70% composition solution in white spirit.
It is intended for protection of inside walls and deflectors of painting chambers from paint contact and corrosion.

CUTTING FLUIDS
Oil Cutting Fluids

Product Grade	Sulfur Content, %	Kinematic Viscosity at 50 °C, mm^2/c	Acid Number, mg KOH/g, not more than	Saponification Number, mg KOH/g,	Steel and Pig Iron Corrosion	Flash Point, °C, not lower than
MR-2U	–	23-28	1,0	–	pass	180

••• Oil cutting fluid. • It contains 1.4–2.0% of chlorine.
It is applied while ferrous metals and alloys cutting, as well as while structural carbon steel cutting in automatic machines and in separate operations of turning, milling, grinding; at the same time it is used as cutting fluid, lubricating medium for friction joints and working fluid of machinery tools hydro-systems. It is supplied into the cutting area by watering or under pressure.

AZMOL MR-3	1,0–2,2	5–17	2,0	20	pass	125

••• Oil cutting fluid.
It is applied while structural alloy and corrosion-resistant steel cutting in drilling operations, deep drilling of openings with the diameter up to 30 mm, boring, thread-grinding, and gear grinding. It is supplied into the cutting area by pouring or under pressure.

AZMOL MR-6	>= 1,0	20–30	–	–	pass	180

••• Oil cutting fluid. • It contains 11.5–15.0% of chlorine.
It is applied while corrosion-resistant and high-temperature steel cutting, titanium alloys, refractory materials in operations of thread cutting, drilling, unrolling, and stretching. It is supplied into the cutting area by pouring or under pressure.

AZMOL MR-7V	1,2–2,0	23–30	1,2	18	pass	180

••• Oil cutting fluid.
It is applied while cutting of carbon, alloy, stainless, and high-temperature steels in operations of turning, drilling, deep drilling of openings with the diameter exceeding 30 mm, milling, thread-cutting, and automatic machine processing. Its application while copper and its alloys processing is limited. It is supplied into the cutting area by pouring or under pressure.

Product Grade	Sulfur Content, %	Kinematic Viscosity at 50 °C, mm^2/c	Acid Number, mg KOH/g, not more than	Saponification Number, mg KOH/g,	Steel and Pig Iron Corrosion	Flash Point, °C, not lower than
AZMOL MR-11/A	>= 1,5	not less than 25	3,5	15	pass	180
AZMOL MR-11/B	>= 1,2	not less than 22	3,5	15	pass	180

••• Oil cutting fluid.

They are applied while steel and alloy cutting under severe conditions in operations of thread-cutting, gear-processing, turning, drilling, automatic machines processing. It is supplied into the cutting area by pouring or under pressure.

MR-12	>= 2,5	30–60	3,5	20	pass	195
MR-12/1	>= 2,5	60–120	3,5	20	pass	

••• Oil cutting fluid.

It is applied

illing

It is applied while low-speed blade processing of hard-processed steels and alloys (thread-cutting, unrolling, gear- and some types of pressing). It is supplied into the cutting area by pouring or the processed part dipping.

AZMOL T-7P	–	6–9	1,2	3	pass	140

••• Process grease.

It is applied while cold rolling of corrosion-resistant steels on multi-roller mills.

AZMOL ShS -2	–	–	15,0	–	pass (copper)	–

••• Grease • Dropping Point is not lower than 32 °C • Tribological characteristics at (20 ±5) °C, N, are not less than:

oad – 617; EP index – 225.

It is applied while

Product Grade	Sulfur Content, %	Kinematic Viscosity at 50 °C, мм²/с	Acid Number, mg KOH/g, not more than	Saponification Number, mg KOH/g,	Steel and Pig Iron Corrosion	Flash Point, °C, not lower than
TM-LEMNA	–	**not less than 90**	–	**60**	**pass**	**190**

••• Cutting fluid.

It is applied in operations of cold sheet forming and die forging of steel: finishing dying, deep drawing, calibration, broaching on automatic presses, and moulding, as well as while thread-rolling, and thread-cutting in metal product and pipe manufacturing.

Product Grade	Water Content, %, not more than	Kinematic Viscosity at 50 °C, mm^2/s	Acid Number, mg KOH/g, not more than	Saponification Number, mg KOH/g	Emulsion Stability: separated oil, % (within the period, h)	Hydrogen Emulsion Property
UKRINOL-211M	**1,5**	**25–45**	**20**	**>= 80**	**pass**	**–**

••• Process grease.
It is used for preparing of aqueous emulsions, applied as cutting fluids while cold rolling of carbon steel strips.

AZMOL EP-29U	**3,0**	**35–60**	**–**	**20–60**	**1 (24)**	**–**

••• Cutting emulsion.
It s applied as 3–10% aqueous emulsion while drawing of brass and copper alloys wire for metal cord.

EKS-5	**–**	**–**	**8–12**	**–**	**pass (2)**	**–**

••• Cutting emulsion.
It is used for preparing of aqueous emulsions, applied for lubricating of metal moulds in reinforced concrete products manufacturing.

AZMOL Ephirin	**20**	**not more than 200**	**15**	**>= 100**	**pass**	**–**

••• Process grease.
It s applied as 2–30% aqueous emulsion while drawing of copper wire.

ShM	**2**	**not less than 30**	**–**	**25–50**	**1 (4)**	**8–10**

••• Cutting emulsion.
It is used for preparing of 6–10% aqueous emulsion, applied as cutting fluid while grinding and polishing of corrosion-resistant steel sheets and strips at metallurgical works.

		10	20–45	pass (24)	

onne content is 4.0–5.0%, Sulfur content is 1.3–2.8%.
of 3–10% emulsions, applied while alloy, corrosion-resistant, high-temperature steels and
ns of turning, drilling, milling, unrolling, thread-cutting, drawing, as well as grinding under

	–	–	–	pass	–

AZMOL Aquol-2	5

••• Emulsifiable oil • Chl
It is used for preparing
alloys cutting in operatic
severe conditions.

AQUEMUS-2M	1

••• Process agent.

Product Grade	Water Content, %, not more than	Kinematic Viscosity at 50 °C, mm^2/s	Acid Number, mg KOH/g, not more than	Saponification Number, mg KOH/g	Emulsion Stability: separated oil, % (within the period, h)	Hydrogen Emulsion Property
AZMOL EGS	**5**	**–**	**8**	**–**	**pass 0,5 (3)**	**8–10**

••• Cutting emulsion.
It is used for preparing of 1.5% aqueous emulsion, applied as hydraulic fluid for mechanized shaft mining; it is possible to use any water including mine water, being hard up to 16 mg-eq/l.

Amipolis	**10**	**–**	**90–130**	**–**	**pass 0,5 (3)**	**7,5–9,0**

••• Process grease.
It is applied as 1–2% aqueous emulsion while drawing of light carbon, zinc-coated, and brass wire.

AZMOL KET-1	**not less than 30**	**–**	**–**	**15**	**–**	**–**

••• Process grease.
It is applied while pipe calibration with expanders.

Amirol-M	**5,0**	**800**	**100**	**–**	**nil (2)**	**8,0–9,0**

••• Additive.
It is used as anti-oxidant-plasticizer, toilet soap stabilizer in soap composition (household and toilet soap), as well as cutting fluid in metal-working industry.

SOLID PETROLEUM PRODUCTS
Bitumen

Product Grade	Needle Penetration at 25 °C, 0.1mm	Temperature, °C			Tension at 25 °C, mm, not less than	Softening Point change after warming up, °C, not more than	Penetration Index
		Softening Point, ring and ball	Brittle Point, not higher than	Flash Point, not lower than			
AZMOL SV 20/70	21–40	> 70	–	240	3,0	–	–
AZMOL SV 60/90	60–90	47–53	-15	230	55	5	-1...+1
AZMOL SV 90/130	91–130	43–49	-17	230	65	5	-1...+1
AZMOL SV 130/200	131–200	39–45	-18	220	70	5	-1...+1
AZMOL SV 10/90	5–20	> 90	–	240	1,0	–	–

••• Bituminous compositions • They represent complex mixtures of hydrocarbon and their non-metal derivatives (hydrocarbon compounds with sulfur, oxygen, and nitrogen).

AZMOL SV 20/70 is applied as binding material for construction works in different branches of national economy; **AZMOL SV 60/90**, **AZMOL SV 90/130**, and **AZMOL SV 130/200** are applied as binding materials while constructing and repairing of road and aerodrome covering, as well as while roofing and hydraulic insulating materials manufacturing.

Bituminous Polymer Materials

Product Grade	Needle Penetration at 25 °C, x 0.1 mm, not less than	Film Flexibility, bar, d=10 mm, °C, not higher than	Adhesiveness Point °C, not lower than	Water Absorption, % not more than
AZMOL AERO	**20**	**-25**	**50**	**0,5**

••• Bituminous polymer sealing material.
It is used for seams and cracks sealing of concrete and asphalt-concrete coatings of aerodromes, roads, constructions, and cement ties in aerodrome, road, housing-and-municipal constructing, and other branches. Its application is similar to RBV mastic one.

OTHER PETROLEUM PRODUCTS
Process Oils and Other Oils

Product Grade	Kinematic Viscosity, mm^2/s	Acid Number, mg KOH/g of oil, not more than	Temperature, °C		Mass Fraction, %, not more than			Metal Corrosion	Wear Scar, ∅, mm, not more than
			Flash Point, not lower than	Pour Point, not higher than	Ash Content	Water Content	Mechanical Impurities Content		
AZMOL Trikol	**26,0–32,0 (50 °C)**	**0,10**	**180**	**-10**	**–**	**nil**	**nil**	**pass**	**–**

••• Mineral oil.
It is used for lubricating of loop-forming system in circular fabric machines of knitting industry.

AZMOL MP	**9,0–12,0**	**–**	**140**	**-40**	**1,2**	**Traces**	**0,015**	**–**	**0,4**

••• Washing oil.
It is used for washing of system lubricating in motor car engines while motor oil changing without their disassembly.

Vacuum Oils

Product Grade	Kinematic Viscosity, mm^2/s	Cokeability, %, not more than	Acid Number, mg KOH/g of oil, not more than	Temperature, °C		Fraction Composition, °C		Vapour Pressure at 20° SPa, not more than	Colour, TsNT units, not more than
				Flash Point, not lower than	Pour Point, not higher than	Initial Distillation Point	90 % of oil are distilled at		
VM-4	8–11 (100 °C)	0,2	0,2	205	–15	370	515 °C	$(5,3–4,0)x10^{-3}$	7,0

••• Vacuum oil • It is manufactured with the help of vacuum distillation of oil raw material followed by adsorbent cleaning.
It is used as working fluid for high-capacity oil-vapour boost, auxiliary vapour jet-type, and fore pumps.

Heat-Transfer Oils

Product Grade	Kinematic Viscosity at 20 °C, mm^2/s	Temperature, °C		Metal Corrosion	pH Value	Density at 20 °C, kg/cm^3
		Initial Solidification Point, not higher than	Boiling Point, not lower than			
AZMOL Ecoterm	**4,5–5,5**	**-18**	**100**	**pass**	**8,0–10,0**	**1110–1140**

••• Heat-transfer agent

• It represents aqueous-glycol mixture.

It is used in industrial and household heating systems, working within the temperature range from –18 up to +100 °C

SPECIAL FLUIDS

Product Grade	Initial Solidification Point, °C, not higher than	Alkalinity, cm^3, not less than	Foaming		Metal Corrosion, g/m^2 per 24 h, not more than					Rubber Swelling, (100 °C, 72 h), volume change, %, not more than
			Foam Volume in 5 min, cm^3, not more than	Foam Disappearance Time, s, not more than	Copper	Brass, Steel	Solder	Aluminum	Cast Iron	
AZMOL:										
Tosol-40	**-40**	**10**	**30**	**3**	**0,2**	**0,2**	**0,3**	**0,5**	**0,2**	**5**
Tosol-65	**-65**	**10**	**30**	**3**	**0,2**	**0,2**	**0,3**	**0,5**	**0,2**	**5**
Tosol-30	**-30**	**10**	**30**	**3**	**0,2**	**0,2**	**0,3**	**0,5**	**0,2**	**5**

••• Cooling fluids.

They are intended for internal-combustion engines cooling.

They also can be used as working fluids in other heat-transfer apparatuses, operating at low and moderate temperatures.

OTHER PRODUCTS
Additives

Product Grade	Water Content, %, not more than	Acid Number, mg KOH/g, not more than	Total Alkali, mg KOH/g, not less than
AZMOL BP-3	**2**	**6**	**100**

••• Adhesive additive.
It is used for improving of road bitumen and mineral materials adhesiveness in road constructing.

Product Grade	Water Content, %, not more than	Copper Content, %, not less than
Copper Naphthenate	**0,2**	**9,0**

••• Copper naphthenate for anti-putrefactive compositions.
It is applied as antiseptic in compositions intended for wire, cable yarn, paper, and other materials impregnating.

Foundry Binding Material

Product Grade	Conventional Viscosity at 50 °C, Engler degree	Ultimate Tension Strength of dried samples, kg /cm^2, not less than	Water Content, %, not more than	Pour Point, °C, not higher than	Saponification Number, mg KOH/g, not less than
AZMOL USK	**2,1–3,3**	**9,0**	**0,3**	**–20**	**50**

••• Foundry binding material.
It is used in foundry while manufacturing of different complex machine moulding core types.

Fattening Materials

Product Grade	Mass Fraction , %		5% Water Emulsion Stability	
	Fattening Materials Content, not less than	Water Content, not more than		within pH range from 2 up to 9, for 0.5 h
ZhKN -1	80	2,0	pass	–
ZhKN -2	80	10,0	–	pass
ZhKN -3	80	10,0	–	–

••• Fattening materials for leather greasing • They represent the composition of esters, and sulpho-emulsifiers on the basis of fattening materials and additives.

g materials and additives.

ZhKN-1 material is applied while melted leather greasing, as well as a component for emulsio

l ents the composition of esters and additives.

KN-2 and **ZhKN-3** materials are applied while melted leather greasing, as well as a component for emulsion leather asing. They represent the composition of esters and additives.

Zh
gr

Detergents

Product Grade	Mass Fraction, %		Nonionic Surfactant Availability	Acid Number, mg KOH/g, not less than	Initial Solidification Point , °C,	Hydrogen Emulsion Property	Emulsion Anti -corrosion Properties
	Nonvolatile Matters Content, %, not less than	Water Content, %, not more than					
Olinol -1	–	**46**	–	**22–40**	–	**8–10**	**pass**

••• Liquid detergent.

It is used as aqueous solution or emulsion (0.3–3.0% strength is recommended) on automatic washing lines for

and preservation within warehousing period, preceding assembly.

	–	–	**pass**	–	**-5**	**6–9**	–
	–	–	**pass**	–	**-52**	**6-9**	–

etergent.

or motor car window-panels effective cleaning.

	26	–	–	**13**	–	**8,5–9,5**	**pass**

; detergent.

d as 1–5% aqueous solution for washing (cleaning) of metal surfaces (railway tank-cars, vans, wheel sets)

arnish-paint coating of motor cars, motorcycles, and other machinery.

ised for production area tiled floor cleaning.

corrosion ,

AZMOL : Summer Blesk Winter Blesk

••• Glass c

It is used f

AZMOL Effectam

••• Proces

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JSC “Azov Greases & Oils”
2, Shaumyan Str., Berdyansk, 71114,