

CERTIFICATE OF ANALYSIS № 534

Motor oil M-10G2K

GOST 8581-78 zm.1-10



Batch № 534

Manufacturing date: 13.07.23 Batch net weight: 15 t

Product Characteristics

№	Characteristics and units	Standard limits	Actual	Test method
1	Kinematic viscosity at 100oC, cSt, in range	10,5-11,5	11,18	DSTU GOST 33
2	Viscosity Index, not lower than	85	135	DSTU GOST 25371
3	Total base number, mg KOH per 1 g, not lower than	6	6,65	GOST 11362
4	Sulfated ash, %, not lower than	1,15	0,9	GOST 12417
5	Flash point (COC), °C, not lower than	210	240	DSTU GOST 4333
6	Pour point, °C, not more than	-15	-23	GOST 20287 method B
7	Density at 20 °C, kg/m3, not more than	905	875	GOST 3900
8	Mechanical impurities content, %, not more than	0,015	0,011	GOST 6370
9	Water content, %, not more than	0,03	nil	GOST 2477
10	Calcium weight, %, not lower than	0,19	0,255	GOST 13538
11	Zinc weight, %, not lower than	0,05	0,065	GOST 13538
12	Phosphorus weight, %, not lower than	0,05	0,054	GOST 9827
13	Purity mg per 100 g of oil, not more than	500	380	GOST 12275
14	The power to establish PZV, point, not more than	0,5	0,5	GOST 5726
11	Colour on colorimeter (15:85), not more than	4,0	1,5	GOST 20284
12	Corrosion on plumbum plates (DK-NAMI), g/m2, not more than	nil	nil	GOST 20502
13	Stabilization by inductive period of sedimentation (IPS), 50 hours	Pass	Pass	GOST 11063

Manufactured by KSM PROTEC LLC, Ukraine

Conclusion: Motor oil M-10G2K sample satisfies the requirement of GOST 8581-78 zm.1-10 standard based on characteristics analyzed.

Shelf life - 5 years from date of manufacture



Laboratory № 1008

Date of issue: 17.07.23

CERTIFICATE OF ANALYSIS № 288

Motor oil TEMOL Universal (M-8B)

TU U 23.2-30858281-007:2008 zm.1,2,3,4

Batch № 288

SAE 20

API SD/SB

Manufacturing date: 22.03.21

Batch net weight: 5,0 t

Product Characteristics

№	Characteristics and units	Standard limits	Actual	Test method
1	Kinematic viscosity at 100°C, cSt, in range	6-9	8,10	DSTU GOST 33 or ASTM D445
2	Viscosity Index, not lower than	90	104	DSTU GOST 25371 or ASTM D2270
3	Total base number, mg KOH per 1 g, not lower than	4,0	4,87	DSTU 5094 or ASTM D2896 or ISO 3771
4	Sulfated ash, %, not lower than	1,10	0,72	DSTU GOST 12417 or ASTM D874
5	Flash point (COC), °C, not lower than	207	239	DSTU GOST 4333 or ASTM D92
6	Pour point, °C, not more than	-25	-30	GOST 20287 method B or ASTM D97
7	Density at 20 °C, kg/m ³ , not more than	905	876	GOST 3900 or ASTM D1298
8	Mechanical impurities content, %, not more than	0,015	0,010	GOST 6370 or ASTM D2273
9	Water content, %, not more than	0,03	nil	GOST 2477 or ASTM D95
10	Active elements content, Ca+Mg (counted by Ca) %, not lower than	0,12	0,16	GOST 13538 or ASTM D4927
11	Colour on colorimeter (15:85), not more than	3,5	1,5	GOST 20284 or ASTM D1500
12	Corrosion on plumbum plates (DK-NAMI), g/m ² , not more than	10	7,2	GOST 20502 method A, var. II
13	Stabilization by inductive period of sedimentation (IPS), 30 hours	Pass	Pass	GOST 11063

Manufactured by KSM PROTEC LLC, Ukraine

Conclusion: Motor oil TEMOL Universal (M-8B) satisfies the requirement of TU U 23.2-30858281-007:2008 zm.1,2,3,4 standard based on characteristics analyzed.

Shelf life - 5 years from date of manufacture



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CERTIFICATE OF ANALYSIS № 297

Oil TEMOL Scooter 2T

TU U 23.2-30858281-007:2008 zm.1,2,3,4



Batch № 297

SAE 20

Manufacturing date: 26.04.23

Batch net weight: 3,0 t

API TC

Product Characteristics

№	Characteristics and units	Standard limits	Actual	Test method
1	Kinematic viscosity at 100°C, cSt, in range	6-12	10,56	DSTU GOST 33 or ASTM D445
2	Total base number, mg KOH per 1 g, not lower than	1,0	1,66	DSTU 5094 or SATM D2896 or ISO 3771
3	Sulfated ash, %, not more than	0,4	0,19	DSTU GOST 12417 or ASTM
4	Flash point (COC), °C, not lower than	205	240	DSTU GOST 4333 or ASTM D92
5	Pour point, °C, not more than	-15	-16	GOST 20287 method B or ASTM D97
6	Mechanical impurities content, %, not more than	0,015	nil	GOST 6370 or ASTM D2273
7	Water content, %, not more than	nil	nil	GOST 2477 or ASTM D95
8	Density at 20 °C, kg/m3, not more than	900	871	GOST 3900 or ASTM D1298
9	Corrosion test	Pass	Pass	GOST 2917 and P.6.12 or ASTM D130

Manufactured by KSM PROTEC LLC, Ukraine

Conclusion: Oil TEMOL Scooter 2T sample satisfies the requirement of TU U 23.2-30858281-007:2008 zm.1,2,3,4 standard based on characteristics analyzed.

Shelf life - 5 years from date of manufacture



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CERTIFICATE OF ANALYSIS № 502

Oil PROTEC IG-20

TU U 19.2-37838186-005:2012 zm.1,2



Batch № 502

Manufacturing date: 03.08.22

Batch net weight: 18 t

Product Characteristics

№	Characteristics and units	Standard limits	Actual	Test method
1	Kinematic viscosity at 40°C, cSt, in range	25-35	31,53	DSTU GOST 33 or ASTM D445
2	Total acid number, mg KOH per 1 g, not more than	0,05	0,022	GOST 11362 and P.7.6
3	Flash point, °C, not lower than	180	222	DSTU GOST 4333 or ASTM D92
4	Pour point, °C, not more than	-10	-15	GOST 20287 method B or ASTM D97
5	Mechanical impurities content, %, not more than	0,015	nil	GOST 6370 or ASTM D2273
6	Water content, %, not more than	0,03	nil	GOST 2477 or ASTM D95
7	Density at 20 °C, kg/m ³ , not more than	910	869	GOST 3900 or ASTM D1298
8	Oxidation stability: acid number, mg KOH/r, not more than	0,3	0,23	DSTU GOST 18136 (GOST 18136)
9	Oxidation stability: increase in resins, %, not more than	3	1,75	DSTU GOST 18136 (GOST 18136)
10	Sulfur weight, %, not more than	1,3	0,36	GOST 1437 or ASTM D4927
11	Colour on colorimeter, not more than	4,0	1,0	GOST 20284 or ASTM D1500

Manufactured by KSM PROTEC LLC, Ukraine

Conclusion: Oil PROTEC IG-20 sample satisfies the requirements of TU U 19.2-37838186-005:2012 zm.1,2 standard based on characteristics analyzed.

Shelf life - 5 years from date of manufacture.



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CERTIFICATE OF ANALYSIS № 292

OIL PROTEC IG-40

TU U 19.2-37838186-005:2012 zm.1,2



Batch № 292

Manufacturing date: 24.04.23

Batch net weight: 9 t

Product Characteristics

№	Characteristics and units	Standard limits	Actual	Test method
1	Kinematic viscosity at 40oC, cSt, in range	51-75	64,76	DSTU GOST 33 or ASTM D445
2	Total acid number, mg KOH per 1 g, not more than	0,07	0,010	GOST 11362 and P.7.6
3	Flash point, °C, not lower than	200	236	DSTU GOST 4333 or ASTM D92
4	Pour point, °C, not more than	-10	-12	GOST 20287 method B or ASTM D97
5	Mechanical impurities content, %, not more than	0,015	nil	GOST 6370 or ASTM D2273
6	Water content, %, not more than	0,03	0,03	GOST 2477 or ASTM D95
7	Density at 20 °C, kg/m3, not more than	910	865	GOST 3900 or ASTM D1298
8	Oxidation stability: acid number, mr KOH/r, not more than	0,4	0,29	DSTU GOST 18136 (GOST 18136)
9	Oxidation stability: increase in resins, %, not more than	3	1,15	DSTU GOST 18136 (GOST 18136)
10	Sulfur weight, %, not more than	1,3	0,26	GOST 1437 or ASTM D4927
11	Colour on colorimeter, not more than	4,0	2,5	GOST 20284 or ASTM D1500

Manufactured by KSM PROTEC LLC, Ukraine

Conclusion: Oil PROTEC IG-40 sample satisfies the requirement of TU U 19.2-37838186-005:2012 zm.1,2 standard based on characteristics analyzed.

Shelf life - 5 years from date of manufacture.



Laboratory technician

Laboratory head

Date of issue: 26.04.23

CERTIFICATE OF ANALYSIS № 291

Compressor oil KS-19

GOST 9243-75 zm.1-5



Batch № 291

Manufacturing date 25.04.23

Batch net weight 1,8 t

Product Characteristics

№	Characteristics and units	Standard limits	Actual	Test method
1	Kinematic viscosity at 100oC, cSt, in range	18-22	19,27	DSTU GOST 33
2	Viscosity Index, not lower than	92	92	DSTU GOST 25371
3	Acid number, mg KOH per 1 g, not lower than	0,02	0,005	GOST 5985
4	Flash point, °C, not lower than	260	270	DSTU GOST 4333 or ASTM D92
5	Pour point, °C, not more than	-15	-17	GOST 20287 method B
6	Mechanical impurities content, %, not more than	nil	nil	GOST 6370
7	Water content, %, not more than	nil	nil	GOST 2477
8	Density at 20 °C, kg/m3, not more than	905	888	GOST 3900
9	Oxidation stability: sediment, %, not more than	nil	nil	GOST 981
10	Oxidation stability: acid number, mr KOH/r, not more than	1,0	0,32	GOST 981
11	Corrosion on plumbum plates of the C1 or C2 brands in accordance with GOST 3778-77, g/m2, not more than	10,0	7,5	GOST 20502
12	Sulfur weight, %, not more than	1,0	0,333	GOST 1437
13	Presence of water-soluble acids and alkalis	nil.	nil	GOST 6307
14	Ash content,%, no more than	0,005	0,005	GOST 1461
15	Coking, %, not more than	0,5	0,4	GOST 19932
16	Presence of selective solvents	nil	nil	GOST 1057
17	Tendency to varnish at a temperature of 200 oC for 30 min,%, not more than	3,5	3,0	GOST 23175
18	Color on the CNT colorimeter, units CNT, no more than	7,0	3,0	GOST 20284

Manufactured by KSM PROTEC LLC, Ukraine

Conclusion: Compressor oil KS-19 sample satisfies the requirements of GOST 9243-75 zm.1-5 standard based on characteristics analyzed.

Shelf life - 5 years from date of manufacture.

Laboratory technician

Laboratory head

Date of issue 25.04.23



CERTIFICATE OF ANALYSIS № 153

Motor oil PROTEC SD 10W-40

TU U 19.2-37838186-002:2012 zm.1,2



Batch № 153

API CI-4/SL

MB 228.3, Cummins CES 20078

Manufacturing date: 10.02.21

Batch net weight: 4,375 t

ACEA E7, A3/B4

MAN M 3275, Volvo VDS-3

Caterpillar ECF-1a

Renault RLD-2, Mack EO-N

Product Characteristics

№	Characteristics and units	Standard limits	Actual	Test method
1	Kinematic viscosity at 100°C, cSt, in range	12,5 - 16,3	15,24	DSTU GOST 33 or ASTM D445
2	Viscosity Index, not lower than	140	158	DSTU GOST 25371 or ASTM D 2270
3	Total base number, mg KOH per 1 g, not lower than	9,0	10,7	DSTU 5094 or p.7.4 or ISO 3771
4	Sulfated ash, %, not lower than	1,5	1,31	DSTU GOST 12417 or ASTM D 874
5	Flash point (COC), °C, not lower than	205	237	DSTU GOST 4333 or ASTM D92
6	Pour point, °C, not more than	-35	-41	GOST 20287 method B or ASTM D 95
7	Density at 20 °C, kg/m3, not more than	910	851	GOST 3900 or ASTM D 1298
8	Mechanical impurities content, %, not more than	nill	nill	GOST 6370 or ASTM D 2273
9	Water content, %, not more than	0,03	nill	GOST 2477 or ASTM D 95
10	Calcium weight, %, not lower than	0,3	0,34	GOST 13538 or ASTM D 6443
11	Zinc weight, %, not lower than	0,09	0,1	GOST 13538 or ASTM D 6443
12	Colour on colorimeter (15:85), not more than	3,5	1,5	GOST 20284 or ASTM D 1500
13	Stabilization by inductive period of sedimentation (IPS), 50 hours	Pass	Pass	GOST 11063
14	Corrosion on plumbum plates (DK-NAMI), g/m2, not more than	Pass	Pass	GOST 20502 method A, V.II
15	Cold Cranking Simulatorat viscosity at -25°C, mP*s, not more than	7000	5600	GOST 1929 or p.7.5 or ASTM D 5293

Manufactured by KSM PROTEC LLC, Ukraine

Conclusion: Motor oil PROTEC SD 10W-40 sample satisfies the requirement of TU U 19.2-37838186-002:2012 zm.1,2 standard based on characteristics analyzed.

Shelf life - 5 years from date of manufacture.

Laboratory technician

Laboratory head

Date of issue:



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CERTIFICATE OF ANALYSIS № 421

Motor oil PROTEC MD+ 15W-40

TU U 19.2-37838186-002:2012 zm.1-3



Batch № 421

API CI-4/SL

MB 228.3, Cummins CES 20078

Manufacturing date: 08.06.23

Batch net weight: 2,55 t

ACEA E7, A3/B4

MAN M3275, Volvo VDS-3

Caterpillar ECF-1a

Renault RLD-2, Mack EO-N

Product Characteristics

№	Characteristics and units	Standard limits	Actual	Test method
1	Kinematic viscosity at 100°C, cSt, in range	12,5-16,3	15,48	DSTU GOST 33 or ASTM D445
2	Viscosity Index, not lower than	125	142	DSTU GOST 25371 or ASTM D2270
3	Total base number, mg KOH per 1 g, not lower than	9,0	11,21	DSTU 5094 or p.7.4 or ISO 3771
4	Sulfated ash, %, not lower than	1,45	1,45	DSTU GOST 12417 or ASTM D874
5	Flash point (COC), °C, not lower than	205	229	DSTU GOST 4333 or ASTM D92
6	Pour point, °C, not more than	-28	-30	GOST 20287 method B or ASTM D97
7	Density at 20 °C, kg/m ³ , not more than	910	869	GOST 3900 or ASTM D1298
8	Mechanical impurities content, %, not more than	nil	nil	GOST 6370 or ASTM D2273
9	Water content, %, not more than	0,03	nil	GOST 2477 or ASTM D95
10	Active elements content, Ca+Mg (counted by Ca) %, not lower than	0,3	0,33	GOST 13538 or ASTM D6443
11	Zinc weight, %, not lower than	0,09	0,1	GOST 13538 or ASTM D6443
12	Colour on colorimeter (15:85), not more than	4,0	1,5	GOST 20284 or ASTM D1500
13	Dynamic viscosity at -20°C, mP*s, not more than	7 000	5 300	GOST 1929 or p.7.5 or ASTM D5293
14	Corrosion on plumbum plates (DK-NAMI), g/m ² , not more than	Pass	Pass	GOST 20502 method A v.II
15	Stabilization by inductive period of sedimentation (IPS), 50 hours	Pass	Pass	GOST 11063

Manufactured by KSM PROTEC LLC, Ukraine

Conclusion: Motor oil PROTEC MD+ 15W-40 sample satisfies the requirement of TU U 19.2-37838186-002:2012 zm.1-3 standard based on characteristics analysis



Date of issue: 09.06.23

CERTIFICATE OF ANALYSIS № 621

Axle oil mark L

DSTU GOST 610:2019



Batch № 621

Manufacturing date: 09.08.23

Batch net weight: 3,06 t

Product Characteristics

№	Characteristics and units	Standard limits	Actual	Test method
1	Kinematic viscosity at 50oC, cSt, in range	42-60	56,03	DSTU GOST 33
2	Flash point, °C, not lower than	135	222	DSTU GOST 4333
3	Mechanical impurities content, %, not more than	0,03	0,011	GOST 6370
4	Water content, %, not more than	0,03	0,03	GOST 2477
5	Presence of water-soluble acids and alkalis	nil	nil	GOST 6370
6	Cold Cranking Simulatorat viscosity at -10oC, P, not more than	150	125	GOST 1929 method A and p. 8.2

Manufactured by KSM PROTEC LLC

Conclusion: Axle oil mark L sample satisfies the requirement of DSTU GOST 610:2019 standard based on characteristics analyzed.

Laboratory technician

Laboratory head

Date of issue: 09.08.23



CERTIFICATE OF ANALYSIS № 524

Transmission oil TAP-15V

GOST 23652-79, zm. 1-8



Batch № 524

Manufacturing date: 27.09.22

Batch net weight: 15 t

Product Characteristics

№	Characteristics and units	Standard limits	Actual	Test method
1	Kinematic viscosity at 40°C, cSt, in range	14-16	14,97	DSTU GOST 33
2	Viscosity Index, not lower than	85	138	DSTU GOST 25371
4	Flash point, °C, not lower than	185	225	DSTU GOST 4333
5	Pour point, °C, not more than	-20	-27	GOST 20287 method B
6	Ash content, %, not more than	0,3	0,24	GOST 1461
7	Mechanical impurities content, %, not more than	nil	nil	GOST 6370
8	Water content, %, not more than	0,03	nil	GOST 2477
9	Density at 20 °C, kg/m ³ , not more than	930	880	GOST 3900
10	Corrosion test during 3 hr at 100°C on steel and copper plates, point, not more than	2c	2b	GOST 2917
11	Colour on colorimeter, not more than	6,0	3,5	GOST 20284
12	Sequence I, not more than	300/0	0/0	GOST 23652 p.5.5
13	Sequence II, not more than	50/0	15/0	GOST 23652 p.5.5
14	Sequence III, not more than	300/0	0/0	GOST 23652 p.5.5
15	Four ball EP test machine (20±5°C): scuff index, N, not less than	490	499	GOST 9490
16	Four ball EP test machine (20±5°C): welding load, N, not less than	3 283	3 283	GOST 9490

Manufactured by KSM PROTEC LLC, Ukraine

Conclusion: Transmission oil TAP-15V sample satisfies the requirement of GOST 23652, zm. 1-8 standard based on characteristics analyzed.

Shelf life - 5 years from date of manufacture.



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CERTIFICATE OF ANALYSIS № 577

Transmission oil TAD-17i

GOST 23652-79, zm. 1-8



Batch № 577

Manufacturing date: 19.10.22

Batch net weight: 15 t

Product Characteristics

№	Characteristics and units	Standard limits	Actual	Test method
1	Kinematic viscosity at 40oC, cSt, not lower than	17,5	20,1	DSTU GOST 33
2	Viscosity Index, not lower than	100	118	DSTU GOST 25371
3	Total acid number, mg KOH per 1 g, not more than	2,0	1,38	GOST 11362 and P.5.9
4	Flash point, °C, not lower than	200	248	DSTU GOST 4333
5	Pour point, °C, not more than	-25	-27	GOST 20287 method B
6	Ash content, %, not more than	0,3	0,24	GOST 1461
7	Mechanical impurities content, %, not more than	nil	nil	GOST 6370
8	Water content, %, not more than	0,03	nil	GOST 2477
9	Density at 20 °C, kg/m3, not more than	907	885	GOST 3900
10	Corrosion test during 3 hr at 100°C on steel and copper plates, point, not more than	2c	2b	GOST 2917
11	Colour on colorimeter, not more than	5,0	1,5	GOST 20284
12	Sequence I, not more than	200/0	0/0	GOST 23652 p.5.5
13	Sequence II, not more than	100/0	10/0	GOST 23652 p.5.5
14	Sequence III, not more than	200/0	0/0	GOST 23652 p.5.5
15	Four ball EP test machine (20±5°C): scuff index, N, not less than	568,4 (58)	588 (60)	GOST 9490
16	Four ball EP test machine (20±5°C): welding load, N, not less than	3687 (376)	3687 (376)	GOST 9490
17	Four ball Wear test machine (20±5°C), 392N, scar mm, not more than	0,40	0,39	GOST 9490
18	Sulfur content, %, not more than	2,5	1,30	GOST 1431

Manufactured by KSM PROTEC LLC, Ukraine

Conclusion: Transmission oil TAD-17i sample satisfies the requirement of GOST 23652, zm. 1-8 standard based on characteristics analyzed.

Shelf life - 5 years from date of manufacture.

Laboratory technician

Laboratory head

Date of issue: 21.10.22





CERTIFICATE OF ANALYSIS № 429

Transmission Oil PROTEC Nigrol L

TU U 19.2-37838186-003:2012 zm.1



Batch № 429

Manufacturing date: 08.06.23

Batch net weight: 7 t

Product Characteristics

№	Characteristics and units	Standard limits	Actual	Test method
1	Kinematic viscosity at 100°C, cSt, in range	27,0 - 34,0	28,81	DSTU GOST 33 or ASTM D445
2	Flash point, °C, not lower than	180	219	DSTU GOST 4333 or ASTM D92
3	Pour point, °C, not more than	-5	-16	GOST 20287 method B or ASTM D97
4	Water content, %, not more than	1,0	0,8	GOST 2477 or ASTM D95
5	Density at 20 °C, kg/m ³ , not more than	970	863	GOST 3900 or ASTM D1298
6	Corrosion test during 3 hr at 100°C on steel and copper plates	pass	pass	GOST 2917 and p.7.4 or ASTM D130
7*	Rubber compatibility (volume change) for UIM-1, %, in range	+1,0 - +6,0	+4,0	GOST 9.030 and p.7.5

Manufactured by KSM PROTEC LLC

Conclusion: transmission oil PROTEC Nigrol L sample satisfies the requirement of TU U 19.2-37838186-003:2012 zm.1 standard based on characteristics analysis.



Laboratory technician

Laboratory head

Date of issue: 12.06.23

CERTIFICATE OF ANALYSIS № 212

Transmission oil TEp-15

GOST 23652-79 zm. 1-8



Batch № 212

SAE 90

GL-2

Manufacturing date 22.02.22

Batch net weight: 1,65 t

Product Characteristics

№	Characteristics and units	Standard limits	Actual	Test method
1	Kinematic viscosity at 100°C, cSt, in range	14-16	14,98	DSTU GOST 33
2	Flash point, °C, not lower than	185	240	DSTU GOST 4333
3	Pour point, °C, not more than	-18	-24	GOST 20287 method B
4	Ash content, %, not lower than	0,3	0,35	GOST 1461
5	Mechanical impurities content, %, not more than	0,03	0,01	GOST 6370 and p.5.6
6	Water content, %, not more than	0,03	nil	GOST 2477
7	Density at 20 °C, g/sm3, not more than	0,95	0,876	GOST 3900
8	Thermo-oxidative stability DK-NAMI(T=140°C,20 hr):sediment in petroleum ether,%,not more than	0,7	0,28	GOST 11063 and p.5.4.2
9	Thermo-oxidative stability DK-NAMI(T=140°C,20 hr),%viscosity increase T=100°C,not more than	0,25	0,14	GOST 11063 and p.5.4.2
10	Presence of water-soluble acids and alkalis	nil	nil	GOST 6307
11	Cold Cranking Simulatorat viscosity at -15°C, mP*s, not more than	200(2000)	190(1900)	GOST 1929
12	Corrosion test during 3 hr at 100°C on steel and copper plates	pass	pass	GOST 2917 and p.5.2
13	Phosphorus weight, %, not lower than	0,06	0,068	GOST 9827
14	Rubber compatibility (volume change) for UIM-1, %, in range	4-10	7	GOST 9.030 method A
15	Four ball Wear test machine (20±5°C), 392N, scar mm, not more than	0,55	0,48	GOST 9490
16	Sulfur content, %, not more than	3,0	1,00	GOST 1431 or GOST 1437

Manufactured by KSM PROTEC LLC, Ukraine

Conclusion: Transmission oil TEp-15 sample satisfies the requirement of GOST 23652-79 zm. 1-8 standard based on characteristics analyzed.

Shelf life - 5 years from date of manufacture



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Смазка LZ-ZNH

Смазка LZ-ZNH произведена согласно спецификации, указанной в Приложении №1 от 19.04.2023 к Контракту № 051-23 от 30.03.2023



Партия № 111

Дата изготовления 04.05.23 Маса нетто 2,72 т

Фізико-хімічні показателі

№	Наименование показателей	Норма согласно Спецификации *	Фактическое значение	Метод испытаний
1	Внешний вид	Однородная мазь от светло-желтого до темно-желтого цвета	Однородная мазь светло-желтого цвета	П. 3.2
2	Пенетрация при 25оС с перемешиванием 60 двойных ударов, мм-1, в пределах	200 - 260	224	ГОСТ 5346, метод А или В
3	Вязкость при 0оС и среднем градиенте скорости деформации 10 с-1, Па·с, не менее	420	385	ГОСТ 7163
4	Предел прочности при 50оС, Па, не менее	220	279	ГОСТ 7143, метод Б
5	Температура каплепадения, оС, не ниже	135	154	ГОСТ 6793
6	Коллоидная стабильность, % выд. масла, не более	22	17,7	ГОСТ 7142
7	Массовая доля свободных щелочей в пересчете на NaOH, %, не более	0,2	0,05	ГОСТ 6707
8	Содержание механических примесей, %, не более	Отсутствие	Отсутствие	ГОСТ 6479
9	Испаряемость при 100оС за 1 час, %, не более	7	0,5	ГОСТ 9566
10	Массовая доля воді, %, не более	0,4	0,03	ГОСТ 2477

Этот паспорт действительно на фактически отгруженную партию товара и не может быть использован как образец в тендерном предложении без документального подтверждения полномочий от ООО "КСМ ПРОТЕК".

Производитель: ООО "КСМ ПРОТЕК", Украина

Вывод: по проверенным показателям пробы Смазка LZ-ZNH соответствует спецификации, указанной в Приложении №1 от 19.04.2023 к Контракту № 051-23 от 30.03.2023

Гарантийный срок хранения - 5 лет со дня изготовления.



Завантажено

Нач. лабораторії

Дата виходу паспорта 05.05.23 г.

CERTIFICATE OF ANALYSIS № 72

Graphite Grease

GOST 3333-80 zm. 1,2,3



Batch № 72

Manufacturing date: 25.03.21

Batch net weight: 2,188 t

Product Characteristics

№	Characteristics and units	Standard limits	Actual	Метод испытания
1	Appearance	Uniform grease with color between dark-brown and black	Uniform grease with black color	P.4.2 of GOST 3333-80
2	Dropping point, °C, not lower than	77	102	GOST 6793
3	Penetration at 25°C, 0,1 mm, not lower than	250	300	GOST 5346, method B
4	Steel plate corrosion, steel grades 40, 45 and 50, according to GOST 1050-74	Pass	Pass	GOST 9.080
5	Colloid stability, %, of separated oil, not more than	5,0	3,36	GOST 7142
6	Water content, %, not more than	3,0	1,8	GOST 2477
7	Shear stability at 50°C, Pa, not lower than	100	135	GOST 7143 method B
8*	Viscosity at 0°C and velocity gradient of 10 s-1, Pa*s, not more than	100	88	GOST 7163

Manufactured by KSM PROTEC LLC

Conclusion: Graphite Grease lubricating grease sample satisfies the requirement of GOST 3333-80 zm. 1,2,3 standard based on characteristics analyzed.

Laboratory technician

Laboratory head

Date of issue: 26.03.21



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Batch № 202

Manufacturing date: 06.07.23

Batch net weight: 3,77 t

Product Characteristics

№	Characteristics and units	Standard limits	Actual	Test method
1	Appearance	Uniform grease with color between light-yellow and brown	Uniform grease with light brown color*	P. 7.2
2	Dropping point, °C, not lower than	185	204	GOST 6793
3	Penetration at 25°C, 0,1 mm, in range	220 - 250	240	GOST 5346, method V
4*	Viscosity at -20°C and velocity gradient of 10 s ⁻¹ , Pa*s (P), not more than	650 (6500)	612 (6120)	GOST 7163
5*	Viscosity at 0°C and velocity gradient of 10 s ⁻¹ , Pa*s (P), not more than	280 (2800)	214 (2140)	GOST 7163
6*	Viscosity at 50°C and velocity gradient of 100 s ⁻¹ , Pa*s (P), not less than	8,0 (80)	10,9 (109)	GOST 7163
7	Shear stability at 20°C, Pa (gs/cm ²), in range	500 (5,0) - 1 000 (10,0)	686 (6,86)	GOST 7143, method B
8	Shear stability at 80°C, Pa (gs/cm ²), not lower than	200 (2,0)	289 (2,89)	GOST 7143, method B
9	Colloid stability, %, of separated oil, not more than	12,0	10,68	GOST 7142
10	Metal corrosion	Pass	Pass	GOST 9.080 and P. 7.3
11	Vaporability at 120 °C, %, not more than	6,0	1,0	GOST 9566
12	Free alkali content NaOH, %, not more than	0,1	0,07	GOST 6707
13	Water content	nil	nil	GOST 2477 and P. 7.4
14	Mechanical impurities content, %, not more than	0,03	nil	GOST 6479 and P. 7.5
15	Four ball EP test machine (20±5°C): scuff index, N (kgs), not less than	274 (28)	323 (33)	GOST 9490
16	Four ball EP test machine (20±5°C): welding load, N (kgs), not less than	1381 (141)	1568 (160)	GOST 9490
17	Four ball EP test machine (20±5°C): critical load, N (kgs), not less than	617 (63)	735 (75)	GOST 9490
18*	Elastomer of grade 26-44, %: volume change	±8	-1,8	GOST 9.030 and P. 7.6
19*	Elastomer of grade 26-44, %: hardness change	±8	-3,4	GOST 9.030 and P. 7.6

*As agreed by the parties

Manufactured by KSM PROTEC LLC

Conclusion: Litol-24 Lubricating Grease lubricating grease sample satisfies the requirement of DSTU GOST 21150:2019 standard based on characteristics analyzed.

Laboratory technician

Laboratory head

Date of issue: 07.07.23

CERTIFICATE OF ANALYSIS № 87

Solidol Zhirovoi Lubricating Grease

GOST 1033-79 zm. 1,2,3



Batch № 87

Manufacturing date: 06.04.21

Batch net weight: 2,669 t

Product Characteristics

№	Characteristics and units	Standard limits	Actual	Test method
1	Appearance	Uniform grease with color between light-yellow and dark-brown	Uniform grease with brown color	P.4.2 of GOST 1033
2	Dropping point, °C, not lower than	78	97	GOST 6793
3	Penetration at 25°C, 0,1 mm	230 - 290	250	GOST 5346, method V
4*	Viscosity at 0°C and velocity gradient of 10 s ⁻¹ , Pa*s, not more than	250	235	GOST 7163
5	Shear stability at 50°C, Pa, not lower than	196	216	GOST 7143
6	Free organic acids content, not more than	nill	nill	GOST 6707
7	Water content, %, not more than	2,5	1,6	GOST 2477
8*	Mechanical impurities insoluble in hydrochloric acid content	nill	nill	GOST 6479
9*	Calcium soaps of fatty acids conter, %, not less than	11,0	13,1	GOST 5211
10	Free alkali content NaOH, %, not more than	0,2	0,13	GOST 6707

Manufactured by KSM PROTEC LLC

Conclusion: **Solidol Zhirovoi** lubricating grease sample satisfies the requirement of GOST 1033-79 zm. 1,2,3 standard based on characteristics analyzed.

Laboratory technician

Laboratory head

Date of issue: 07.04.21



CERTIFICATE OF ANALYSIS № 60

Antifreeze TEMOL Tosol A-40

TU U 20.5-30858281-009:2016 zm.1



Batch № 60

Manufacturing date: 12.12.22 Batch net weight: 7,5 т

Product Characteristics

№	Characteristics and units	Standard limits	Actual	Test method
1	Appearance	Uniform transparent liquid without mechanical impurities. Color must refer to sample's color	Uniform transparent liquid without mechanical impurities with blue color	p.8.4
2	Density at 20 °C, kg/m3, not lower than	1,065	1,072	DSTU 7261
3	Temperature of crystallization start, °C, not more than	-38	-38	p.8.5
4	Fractional content: temperature of distillation start, °C, not lower than	100	105	p.8.6
5	Fractional content: mass fraction of liquid, that distills before 150 °C, %, not more than	55	46	p.8.6
6	Corrosive affect on metals, g/m ² *day, not more: copper, brass, steel, cast iron, aluminum	0,30	0,092	p.8.7
7	Corrosive affect on metals, g/m ² *day, not more: solder	0,50	0,106	p.8.7
8	Foam formation: foam's volume, cm ³ , not more than	50	40	p.8.8 or ASTM D1881
9	Foam formation: foam's stability, sec, not more than	5	2	p.8.8 or ASTM D1881
10	Rubber's volume increase, %, not more than	5	1,5	p.8.9
11	pH value at 20°C, in range	7,5 - 11	8,86	p.8.10 or ASTM D1287
12	Alkalinity, cm ³ , not lower	2,0	18,00	p.8.11 or ASTM D1121

Manufactured by KSM PROTEC LLC, Ukraine

Conclusion: Antifreeze TEMOL Tosol A-40 sample satisfies the requirement of TU U 20.5-30858281-009:2016 zm.1 standard based on characteristics analyzed.



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