

CERTIFICATE OF ANALYSIS № 94

Graphite Grease

GOST 3333-80 zm. 1,2,3

Batch № 94

Manufacturing date 10.04.24

Batch net weight: 2,581 t

Product Characteristics

№	Characteristics and units	Standard limits	Actual	Test method
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	107	GOST 6793
3	Penetration at 25°C, 0,1 mm, not lower than	250	270	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	4,97	GOST 7142
6	Water content, %, not more than	3,0	1,5	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

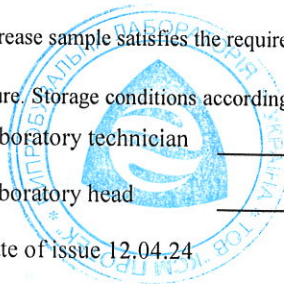
Conclusion: Graphite Grease lubricating grease sample satisfies the requirement of GOST 3333-80 zm. 1,2,3 standard based on characteristics analyzed.

Shelf life - 5 years from date of manufacture. Storage conditions according to DSTU 4454.

Laboratory technician

Laboratory head

Date of issue 12.04.24



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CERTIFICATE OF ANALYSIS №97

Litol-24 Lubricating Grease

DSTU GOST 21150:2019

Batch № 97

Manufacturing date: 12.04.24

Batch net weight: 4,25 t

Product Characteristics

№	Characteristics and units	Standard limits	Actual	Test method
1	Appearance	Uniform grease with color between light-yellow and brown	Homogeneous ointment of light brown color	P. 7.2
2	Dropping point, °C, not lower than	185	207	GOST 6793
3	Penetration at 25°C, 0,1 mm, in range	220 - 250	245	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)	255 (2,55)	GOST 7143, method B
9	Colloid stability, %, of separated oil, not more than	12,0	7,2	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	0,08	GOST 6707
13	Water content	Absent	Absent	GOST 2477 and P. 7.4
14	Mechanical impurities content, %, not more than	0,03	Absent	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

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.

Shelf life - 5 years from date of manufacture. Storage conditions according to DSTU 4454.

Laboratory technician _____

Laboratory head _____

Date of issue: 15.04.24



CERTIFICATE OF ANALYSIS № 95

PROTEC 1-13 Lubricating Grease

TU U 19.2-37838186-006:2012 zm. 1,2

Batch № 95

Manufacturing date 10.04.24 Batch net weight 2,787 t

Product Characteristics

№	Characteristics and units	Standard limits	Actual	Test method
1	Appearance	Homogeneous ointment from light to dark brown color	Homogeneous yellow ointment	GOST 38.001
2	Penetration at 25°C, 0.1 mm, within	200 - 250	235	GOST 5346 method V
3	Dropping point, °C, not lower than	120	151	GOST 6793
4	Shear stability at 80°C, Pa, not lower than	150	172	GOST 7143, method B
5	Colloid stability, % of separated oil, not more than	20	12,63	GOST 7142
6	Water content	0,75	nil	DSTU GOST 2477
7	Free alkali content NaOH, %, not more than	0,2	0,2	GOST 6707
8	Mechanical impurities content, %, not more than	nil	nil	GOST 6479
9	Viscosity at 0°C and velocity gradient of 10 s-1, Pa*s, not more than	500	410	GOST 7163
10	Metal corrosion	Pass	Pass	GOST 9.080
11	Protective property	Pass	Pass	GOST 9.054 and p. 7.4

Manufactured by KSM PROTEC LLC, UKRAINE

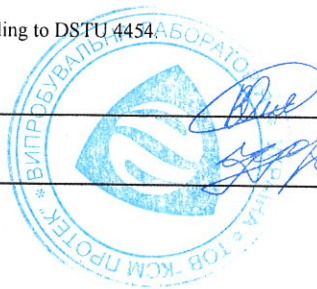
Conclusion: PROTEC 1-13 Lubricating Grease sample satisfies the requirement of TU U 19.2-37838186-006:2012 zm. 1,2 standard based on characteristics analyzed.

Shelf life - 5 years from date of manufacture. Storage conditions according to DSTU 4454

Laboratory technician _____

Laboratory head _____

Date of issue 12.04.24p.



CERTIFICATE OF ANALYSIS № 160

Solidol Zhirovoi Lubricating Grease

GOST 1033-79 zm. 1,2,3



Batch № 160

Manufacturing date: 06.06.23

Batch net weight: 3,44 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	94	GOST 6793
3	Penetration at 25°C, 0,1 mm	230 - 290	240	GOST 5346, method V
4	Viscosity at 0°C and velocity gradient of 10 s ⁻¹ , Pa*s, not more than	250 (2500)	235 (2350)	GOST 7163
5	Shear stability at 50°C, Pa, not lower than	196 (2,0)	196 (2,0)	GOST 7143
6	Free organic acids content, not more than	nil	nil	GOST 6707
7	Water content, %, not more than	2,5	1,8	GOST 2477
8*	Mechanical impurities insoluble in hydrochloric acid content	nil	nil	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	0,03	GOST 6707

* As agreed by the parties

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: 08.06.23

