

## 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



## 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 <sup>2</sup> ), 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 <sup>2</sup> ), 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

