



GREASE, LITHIUM SOAP, MINERAL OIL, SOLID LUBRICANTS, AXLE

WSS-M1C147-C

1. SCOPE

The material defined by this specification is grease consisting of mineral oil, lithium soap thickener, extreme pressure additives, and solid lubricants. NLGI grade 2.

2. APPLICATION

This specification was released originally to lubricate ring and pinion gears for the NVH check prior to assembly into axle. Recommended operating range is -30°C to 130°C.

3. REQUIREMENTS

3.1 STANDARD REQUIREMENTS FOR PRODUCTION MATERIALS

Material suppliers and part producers must conform to the Company's Standard Requirements For Production Materials (WSS-M99P1111-A).

3.2	COLOR (Visual)	Black
3.3	WORKED PENETRATION, tenths of a millimeter (ASTM D217, DIN ISO 2137, 60 stroke)	265 – 295
3.4	DROPPING POINT (ASTM D556, ASTM D2265, DIN ISO 2176)	175 °C min

4. GENERAL INFORMATION

This information given below is provided for clarification and assistance in meeting the requirements of this specification. Contact gmfs@ford.com for questions concerning Engineering Material Specifications. Grease approved to this specification should have the following typical properties.

4.1	BASE OIL VISCOSITY at 40°C (ASTM D445, DIN 51562, ISO 3104)	114 mm ² /s
4.2	PENETRATION (ASTM D217, DIN ISO 2137)	
4.2.1	Worked Penetration, 60 strokes	265 – 295
4.2.2	Prolonged Worked Penetration, 100,000 strokes	272

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**4.3 LOAD CARRYING PROPERTIES**

4.3.1 4-Ball EP Weld Point (ASTM D2596, DIN 51350 T4)	3600 N
4.3.2 Ball Wear Test, Wear Scar dia. (ASTM D 2266, DIN 51350 T5 800N)	0.8 mm
4.3.3 Almen-Weiland OK load (DIN 51350 T5)	15,500 N
4.3.4 Friction Force with OK load (DIN 51350 T5)	3,150 N

4.4 OXIDATION STABILITY

(ASTM D942 or DIN 51808, 100hr at 99°C)	10 kPa
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4.5 CORROSION PROTECTION

(DIN 51802, SKF-Emcor)	0
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4.6 WATER WASHOUT

(ASTM D1264, DIN 51807 T02, 1 hr at 79°C)	3 - 4%
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4.7 OIL SEPARATION DURING STORAGE

(ASTM D1742, DIN 51817 or FTMS 791 C 321.3)	0%
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4.8 OIL SEPARATION

(DIN 51817, 7 days at 40°C)	3.8%
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4.9 LOW TEMPERATURE TORQUE

(ASTM D1478 or IP 186)	
-20 °C start	151 Nm
-20 °C running after 20 minutes	59 Nm

4.10 INTERFACE COMPATIBILITY

- 4.10.1 Chemical Attack to Painted Surfaces
(FLTM BJ 126-01).

Note: Not tested for initial application of this grease. Grease must be tested for chemical attack to painted surfaces for applications that come in contact with paint surfaces, ex. E-coat and powder coat.

- 4.10.2 Resistance to Stress Cracking
(FLTM BO 127-03)

Note: Not tested for initial application of this grease. Grease must be tested for resistance to stress cracking when used for additional applications that come in contact with polymers such as PC, ABS, PC+ABS, ASA or acrylic

- 4.10.3 Elastomer Compatibility,
(ASTM D 4289, 70 h, 100 C, DIN 53505, DIN 53504)

Note: Not tested for initial application of this grease. Grease must be tested for elastomer compatibility when used for additional applications that come in contact with elastomers. Application specific elastomer should be used for testing instead of a reference elastomer.