

GREASE, LITHIUM BASE, POLYETHYLENE ADDITIVE,
NLGI #2

ESB-M1C93-B

1. SCOPE

The material defined by this specification is grease composed of mineral oil, lithium soap and polyethylene.

2. APPLICATION

This specification was released originally for grease used as a long-life lubricant on hood hinges and related body hardware applications.

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 WORKED PENETRATION, tenths of a millimeter 265 - 295
(ASTM D 217, DIN ISO 2137, 60 strokes)

3.3 DROPPING POINT 175 °C min
(ASTM D 566, D 2265, DIN ISO 2176)

4. GENERAL INFORMATION

The information given below is provided for clarification and assistance in meeting the requirements of this specification. Grease approved to this specification should have the following typical properties.

4.1 COLOR Amber
(Visual)

4.2 COMPOSITION

4.2.1 Lithium 12 Hydroxy Stearate Soap 6 – 12%
(ASTM D 128 or according to formulation)

4.2.2 Polyethylene 2.5 – 7.0%
(ASTM D 128 or according to formulation)

4.2.3 Mineral Oil Remainder

Date	Action	Revisions	Rev. 3
2010 11 18	Revised	See Summary of Revisions	A. Wedepohl, NA
2003 10 23	Revised	Para 3.0 inserted; para 3.1, 3.6, 3.7, 3.9 and 4 deleted	
1963 06 17	Released	OSI #420	



**4.3 MINERAL OIL PROPERTIES****4.3.1 Viscosity**
(ASTM D 445, DIN 51562, ISO 3104)

Viscosity at 100 °C	12.9 – 16.7 mm ² /s
Viscosity at 40 °C	177 – 190 mm ² /s

4.3.2 Pour Point
(ASTM D 97, DIN ISO 3016)

- 15 °C max

4.3.3 Flash Point
(ASTM D 92, DIN EN ISO 2592)

225 °C min

4.3.4 Fire Point
(ASTM D 92, DIN EN ISO 2592)

250 °C min

4.4 PENETRATION, tenths of a millimeter
(ASTM D 217, DIN ISO 2137)**4.4.1 Worked Penetration, 60 strokes**

265 – 295

4.4.2 Prolonged Worked Penetration, 100,000 strokes+/- 40 max change
from 60 stroke value**4.5 FILM STRENGTH DURABILITY, TIMKEN**(FLTM BJ 101-04, Coat Timken cup and block with 0.35 - 0.55 g of grease.
Break-in for 30 seconds with no load, 8 hours with 4.54 kg load)

Scar width after 8 hours	1.0 mm max No scoring
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4.6 OXIDATION STABILITY
(ASTM D 942, DIN 51808, 100 hours)**4.6.1 Pressure drop**

69 kPa max

4.6.2 Film Strength Durability After Oxidation
(1 hour with 4.54 kg load)1.0 mm scar, max
no scoring**4.6.3 Prolonged Worked Penetration After Oxidation**
(ASTM D 217, DIN ISO 2137, 100,000 strokes)+/- 40 max change
from 60 stroke value**4.7 CORROSION**
(Timken cup from Film Strength Durability)No rust or
discolorationTest Method: Place Timken cup in a chamber (Bell jar) at 95 - 100% relative humidity and 23 +/-
2 °C for 300 hOURS. Clean up with solvent and examine under microscope.**4.8 WATER WASHOUT**
(ASTM D 1264, DIN 51807 T02, 80 °C)

7% max