



## GREASE, CALCIUM COMPLEX, CORROSION CONTROL LUBRICANT

WSS-M1C172-A2

## 1. SCOPE

The material defined by this specification is a NLGI 1.5 grease consisting of a mineral oil base, a calcium-sulfonate soap thickener and other additives to give the desired characteristics.

## 2. APPLICATION

This specification was released originally for materials used for the lubrication of wheel pilot bores to prevent corrosion and seizure between the hub and road wheel interface.

## 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** Amber to Brown  
(Visual)

**3.3 WORKED PENETRATION, tenths of a millimeter** 290 - 320  
(ASTM D217, ISO 2137, 60 strokes, 25 °C)

**3.4 DROPPING POINT** 260 °C min  
(ASTM D2265, DIN ISO 2176)

## 3.5 CORROSION PROTECTION

3.5.1 Copper Corrosion (Copper Strip) 1b max  
(ASTM D4048, ISO 2160, 24hr, 100 °C)

3.5.2 Bearing Corrosion (Rust Test) Pass  
(ASTM D1743, 48hr, 52 °C)

3.5.3 Emcor Corrosion 0/1 max  
(ASTM D6138, DIN 51802, 168hrs)

## 3.6 WATER RESISTANCE

3.6.1 Water Washout 5% max  
(ASTM D1264, DIN 51807 T2, 79 °C)

3.6.2 Water Spray-off 40% max  
(ASTM D4049, 38 °C)

**3.7 FLOW PRESURE** 1400 hPa max  
(DIN 51805, -20 °C)

| Date       | Action    | Revisions | Rev. 0 |
|------------|-----------|-----------|--------|
|            |           |           |        |
|            |           |           |        |
| 2012 07 31 | Activated |           |        |



Documents

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#### 4. GENERAL INFORMATION

This 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 COMPOSITION

|       |                                                                     |      |
|-------|---------------------------------------------------------------------|------|
| 4.1.1 | Base Oil Content (Mineral Oil)<br>(According to formulation)        | 75 % |
| 4.1.2 | Thickener Content (Calcium Sulfonate)<br>(According to formulation) | 15 % |

##### 4.2 BASE OIL PROPERTIES

|       |                                                     |                          |
|-------|-----------------------------------------------------|--------------------------|
| 4.2.1 | Kinematic Viscosity at 40 °C<br>(ASTM D445, D2161)  | 460.0 mm <sup>2</sup> /s |
| 4.2.2 | Kinematic Viscosity at 100 °C<br>(ASTM D445, D2161) | 30.10 mm <sup>2</sup> /s |
| 4.2.3 | Flashpoint<br>(ASTM D92)                            | 288 °C                   |

##### 4.3 PENETRATION

(ASTM D217, ISO 2137, 60 strokes, 25 °C)

|       |                                               |        |
|-------|-----------------------------------------------|--------|
| 4.3.1 | Worked Penetration, 60 strokes                | 308    |
| 4.3.2 | Prolonged Worked Penetration, 100,000 strokes | +7.5 % |

##### 4.4 FLOW PRESURE

(DIN 51805, -20 °C)

695 hPa

##### 4.5 LOAD CARRYING PROPERTIES

|       |                                                                               |         |
|-------|-------------------------------------------------------------------------------|---------|
| 4.5.1 | Four Ball Wear Test<br>(ASTM D 2266, DIN 51350 T5 1hr, 1200 rpm, 40kg, 75 °C) | 0.55 mm |
| 4.5.2 | Four Ball EP Weld Load<br>(ASTM D 2596, DIN 51350 T4)                         | 620 kgf |

##### 4.6 OIL SEPERATION DURING STORAGE

(ASTM D 1742, 24hr, 0.25Psi, 40 °C)

0.5 %

##### 4.7 INTERFACE COMPATIBILITY

|       |                                                         |
|-------|---------------------------------------------------------|
| 4.7.1 | Chemical Attack to Painted Surfaces<br>(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.