



## GREASE, SYNTHETIC, STARTER MOTOR

WSS-M1C257-A1

### 1. SCOPE

The material defined by this specification is soft synthetic hydrocarbon based soap-gelled grease containing a combination of chemically active, anti-wear additives and blended solid lubricants and resistant to oxidation and corrosion.

### 2. APPLICATION

This specification originally released for grease used in gear box starting motor suitable for operating temperature -40 °C to 125 °C.

### 3. REQUIREMENTS

#### 3.0 STANDARD REQUIREMENTS FOR PRODUCTION MATERIALS

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

##### 3.1.1 Initial Qualifications

The supplier must furnish to the affected Materials Engineering activity a completed and certified copy of the attached Supplement A and test reports demonstrating the capability of the process for the listed critical properties.

##### 3.1.2 Ongoing Verification Plan

In addition to the control plan, the supplier and affected Materials Engineering activity shall establish a mutually agreed upon ongoing product verification plan which will be listed on Supplement B.

#### 3.4 CONSISTENCY

Material shall be a smooth homogenous product free from abrasive particles, it shall be consistent in color and texture, and be free from objectionable odors during normal storage.

#### 3.5 FUNCTIONAL APPROVAL

Materials being evaluated for approval to this specification shall be subjected to a production trial. Functional trial results must be approved by the affected assembly operation and Design Engineering. Results shall be made available to Materials Engineering prior to material approval and release.

| Date       | Action       | Revisions                                           |
|------------|--------------|-----------------------------------------------------|
| 2010 06 21 | Re-Activated | Grease will be used in starter motor L. Schmalz, NA |
| 2008 10 16 | N-STATUS     | Replaced by WSS-M13P13-A L. Schmalz, FNA            |
| 1998 05 01 | Activated    | A. Vallabhanath                                     |

**5. GENERAL INFORMATION**

The information given below is provided for clarification and assistance in meeting the requirements of this specification

|             |                                                                                           |           |
|-------------|-------------------------------------------------------------------------------------------|-----------|
| <b>5.1</b>  | <b>Color</b>                                                                              | Black     |
| <b>5.2</b>  | <b>Appearance</b>                                                                         | Smooth    |
| <b>5.3</b>  | <b>Density at 25 °C</b><br>(ASTM D 1480, 25 °C)                                           | 0.96 g/cc |
| <b>5.4</b>  | <b>Evaporation, max</b><br>(ASTM D 972, 24 h at 100 °C)                                   | 1.0%      |
| <b>5.5</b>  | <b>Oil Separation, max</b><br>(FTM 791b, Method 321.2, 24 h at 100 °C)                    | 10%       |
| <b>5.6</b>  | <b>Copper Corrosion</b><br>(ASTM D 130, 168 h at 100 °C)                                  | 4b        |
| <b>5.7</b>  | <b>Penetration</b><br>(ASTM D 217)                                                        |           |
|             | Unworked                                                                                  | 300       |
|             | Worked (60X)                                                                              | 310 - 340 |
| <b>5.8</b>  | <b>Dropping Point</b><br>(ASTM D 2265)                                                    | 194 °C    |
| <b>5.9</b>  | <b>Base Oil Pour Point</b><br>(ASTM D 97)                                                 | -51 °C    |
| <b>5.10</b> | <b>Base Oil Viscosity</b><br>(ASTM D 445; performed on a representative base oil mixture) |           |
|             | -40 °C                                                                                    | TBD       |
|             | 40 °C                                                                                     | 45 cSt    |
|             | 100 °C                                                                                    | 7.8 cSt   |