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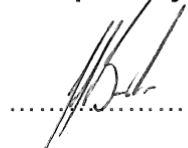
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Compiled by



J.J. Bester

Senior Advisor: Tribology

Date: 12/1/2016

Approved by

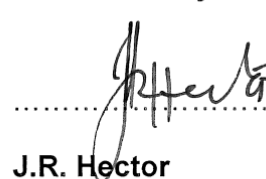


L.F. Barker

Chief Engineering Advisor

Date: 12/1/2016

Authorised by

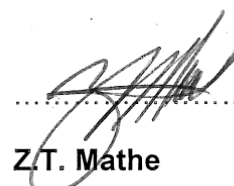


J.R. Hector

Senior Manager: Process Engineering

Date: 22/1/2016

Supported by SCOT TC



Z.T. Mathe

Power Plant TC Chairperson

Date: 02/02/2016

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SCOT Study Committee Number/Name : **Power Plant Technical Committee**

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1. INTRODUCTION

This specification replaces Eskom specification GSP 36-843 Rev 0. The test methods and performance limits have been revised to align these requirements to the latest SANS standards.

2. SUPPORTING CLAUSES

2.1 SCOPE

None

2.1.1 Purpose

The lubricants defined by this specification are high quality mineral oil based greases employing a lithium or lithium complex type gelling agent or soap thickener, suitable for the lubrication of chassis systems of passenger cars, trucks and other vehicles. They contain additives to improve wear resistance, oxidation stability and corrosion preventing properties.

2.1.2 Applicability

The lubricants defined in this specification are typically used for periodic re-lubrication and service fill applications in automotive chassis systems. They may be used in selected industrial application requiring a grease of this type

2.2 NORMATIVE/INFORMATIVE REFERENCES

Parties using this document shall apply the most recent edition of the documents listed in the following paragraphs.

2.2.1 Normative

- [1] ASTM D217, Standard Test Methods for Cone penetration of Lubricating Grease.
- [2] ASTM D445, Standard Test Method for Kinematic Viscosity of Transparent and Opaque liquids.
- [3] ASTM D566, Standard Test Method for Dropping Point of lubricating Grease.
- [4] ASTM D1742, Standard Test Method for Oil Separation from Lubricating Grease during Storage.
- [5] ASTM D1743, Standard Test Method for Determining Corrosion Preventative Properties of Lubricating greases.
- [6] ASTM D2266, Standard Test Method for Wear Preventative Characteristics of Lubricating Grease (Four-Ball Method).
- [7] ASTM D4170, Standard Test Method for Fretting Wear Protection by Lubricating Greases.
- [8] ASTM 4289, Standard Test Method for Compatibility of Lubricating Grease with Elastomers.
ASTM 4693, Standard Test method for Low-temperature Torque of Grease Lubricated Wheel Bearings.

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2.2.2 Informative

[9] SANS 1851, Standard Specification for Greases.

[10] ASTM D 4950-95, Standard Classification and Specification for Automotive Service Greases.

2.3 DEFINITIONS

None

2.3.1 Disclosure Classification

Controlled Disclosure: Controlled Disclosure to External Parties (either enforced by law, or discretionary).

2.4 ABBREVIATIONS

| Abbreviation | Description |
|--------------|--|
| ASTM | American Society for Testing of Materials. |
| NLGI | National Lubricating Grease Institute. |
| SANS | South African National Standard. |

2.5 ROLES AND RESPONSIBILITIES

None

2.6 PROCESS FOR MONITORING

None

2.7 RELATED/SUPPORTING DOCUMENTS

None

3. VEHICLE CHASSIS GREASES STANDARD

3.1 REQUIREMENTS

3.1.1 Technical data

Technical data sheets shall be supplied for all lubricants. All information listed in Appendix A Table 1 shall be provided.

3.1.2 Material Safety Data Sheets (MSDS)

Material Safety Data Sheets shall be supplied for each lubricant.

3.1.3 Branded lubricants

Only branded lubricants meeting this performance standard will be considered.

3.1.4 Lubricant compatibility

Equivalent or comparable lubricants are lubricants of the same type and grade designed to meet the requirements of the same types of applications and of a similar performance standard.

The supplier shall ensure that the lubricant, when mixed in any proportion with other lubricants of the same grade and meeting the same performance requirements, is fully compatible with and equivalent to, the current lubricant and the system to be lubricated. The resultant mixture shall meet the performance requirements of this specification.

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The supplier shall notify Eskom of any significant formulation changes that may affect the lubricant performance and/or its compatibility with existing equipment and/or lubricants and describe the nature of the change.

3.1.5 Packaging

Only clean new drums shall be used to package Eskom lubricants.

Package sizing shall be in accordance with the relevant power station purchasing schedule.

Packaging shall be of such a nature as to ensure the lubricant's quality and condition are maintained during transportation and storage.

All information required shall be clearly visible and legible on the container.

3.1.6 Information

Packaging shall reflect the following information:

- a. The lubricant Brand Name and Supplier Name.
- b. The Batch Number and/or the date of manufacture.
- c. The quantity in kilograms.
- d. The lubricant type and NLGI consistency number applicable to the lubricant.

3.1.7 Storage

The lubricant packaging and condition shall be such that when stored, unopened, for a period of 12 months, under normal atmospheric conditions, the lubricant shall still meet the relevant performance standard and be suitable for use.

Adhesive labels shall be suitable for outdoor storage for a period of at least 2 years.

3.1.8 Transportation

All lubricants shall be transported in a manner that prevents damage to the packaging or its contents.

All necessary precautions shall be taken to prevent leaks or spills.

3.1.9 Lubricant cleanliness

All lubricating greases shall be homogenous, and free from lumps, abrasive particles and other impurities that may have a detrimental effect on the performance of the grease.

3.1.10 Tests

Performance requirements for these greases are detailed in Appendix A Table 1.

Lubricant code modifiers are detailed in Appendix A .Table 2

3.2 RECORDS

Technical Data Sheets: Copies of latest technical datasheets showing compliance to this specification will be kept by Eskom's Technology Division.

Material Safety Data Sheets: Copies of Material Safety datasheets shall be kept by Eskom's Technology Division.

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4. AUTHORISATION

This document has been seen and accepted by:

| Name | Designation |
|-----------|--|
| LF Barker | Chief Engineering Advisor. |
| | Document Approved by TDAC ROD 27 February 2013 |
| | Document Approved by SCOT Power Plant Technical Committee for update to extent Expiry date |

5. REVISIONS

| Date | Rev. | Compiler | Remarks |
|---------------|------|-------------|---|
| November 2012 | 0.1 | J.J. Bester | Draft Document for review created from GSP 36-843 |
| November 2012 | 1.0 | J.J. Bester | Final Document approved |
| January 2016 | 2 | J.J. Bester | No Changes Expiry Date Extension as Approved by Power Plant Technical Committee |

6. DEVELOPMENT TEAM

None

7. ACKNOWLEDGEMENTS

None

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APPENDIX A**Table 1 – Performance Requirements for Vehicle Chassis Greases**

| PROPERTY | TEST METHOD | REQUIREMENT | | |
|--|-------------|-------------|----------|----------|
| ESKOM GRADE | | GCV-1LEP | GCV-2LEP | GCV-3LEP |
| NLGI GRADE | | 1 | 2 | 3 |
| Thickener/soap/gelling agent type | | report | report | report |
| Colour | | report | report | report |
| Appearance | | report | report | report |
| Drop point, °C. | ASTM D 566 | 150 | 150 | 150 |
| Worked Penetration @ 25°C. | ASTM D 217 | 310-340 | 265-295 | 220-250 |
| Oil Separation, % (m/m), max. | ASTM D 1742 | 10 | 10 | 10 |
| Base Oil Viscosity, cSt @ 40°C | ASTM D 445 | report | report | report |
| Four Ball Wear, Scar Diameter, mm. | ASTM D 2266 | 0.6 | 0.6 | 0.6 |
| Bearing Corrosion Test | ASTM D 1743 | pass | pass | pass |
| Fretting Wear Protection, mass loss, mg, max. | ASTM 4170 | 10 | 10 | 10 |
| Compatibility of grease with elastomers, vol change, % | ASTM 4289 | 0-40 | 0-40 | 0-40 |
| Compatibility of grease with elastomers, hardness change | ASTM 4289 | -15 to 0 | -15 to 0 | -15 to 0 |
| Low Temperature performance, torque at -40°C, N.m, max. | ASTM 4693 | 15.5 | 15.5 | 15.5 |

NOTE Use code modifier listed in table 2, relevant to type of soap thickener used.

Table 2 – Lubricant Codes for Soap Thickeners or Gelling Agents

| Thickener/gelling agent | Code modifier |
|----------------------------|---------------|
| Lithium | L |
| Lithium 12-Hydroxystearate | LH |
| Lithium calcium complex | LKX |
| Lithium complex | LX |

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