



Grease, Polyalphaolefin Oil or Polyalphaolefin Oil Plus Mineral Oil and Lithium Soap Thickener

1 Scope

Note: Nothing in this standard supercedes applicable laws and regulations.

Note: In the event of conflict between the English and domestic language, the English language shall take precedence.

1.1 Purpose/Material Description. This standard defines grease composed of polyalphaolefin (PAO) oil or polyalphaolefin plus mineral oil and lithium soap thickener, having consistency of one, two or three (1, 2, or 3).

1.2 Symbols. Not applicable.

1.3 Applicability. Grease defined by this specification may be used on wheel bearings, chassis components (including ball joints, steering pivots, and universal joints), and general applications (including door cylinder locks, window regulators, sunroofs, and parking cables).

1.4 Remarks. Suitability with plastics and elastomers must be verified. This grease is not suitable for use with elastomers made from buna, butyl, Ethylene Propylene Diene Monomer (M-class) (EPDM), or natural rubber.

2 References

Note: Only the latest approved standards are applicable unless otherwise specified.

2.1 External Standards/Specifications.

ASTM D217	ASTM D1743	ASTM D6184	DIN 51817
ASTM D566	ASTM D2265	DIN 51350	DIN ISO 2137
ASTM D1264	ASTM D2596	DIN 51802	DIN ISO 2176
ASTM D1478	ASTM D4693	DIN 51805	
ASTM D1742	ASTM D6138	DIN 51807	

2.2 GM Standards/Specifications.

GMW3059	GMW14270
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2.3 Additional References. Not applicable.

3 Requirements

3.1 Performance Requirements.

3.1.1 Base Oil. Synthetic hydrocarbons comprised of olefin oligomers (polyalphaolefins) or a blend of polyalphaolefins and mineral oil shall be used as the base oil.

3.1.2 Thickener. Lithium-based soap shall be used as the thickener. The type of soap shall be characterized as being lithium, lithium 12-hydroxystearate, or lithium complex.

3.1.3 Specific Requirements. Polyalphaolefin based (synthetic) grease shall meet the requirements listed in Appendix A, Table A1 and Table A2. Polyalphaolefin (PAO) plus mineral oil-based (synthetic blend) grease shall meet the requirements listed in Appendix A, Table A1 and Table A3.

3.2 Performance Levels.

3.2.1 Performance Level Designation (PLD). Polyalphaolefin based (synthetic) greases have PLDs of CA and CB for chassis applications and WA and WB for wheel bearing applications. PAO plus mineral oil-based (synthetic blend) grease. PLDs for general applications are GA and GB.

3.2.2 Nomenclature. Grease type, performance levels and consistency are defined using the following nomenclature:

2XY#

Where:

- 2 means PAO or PAO plus mineral oil oil-based and lithium soap thickener
- XY are letters designating PLDs shown in 3.2.1
- # is a number from one to three (1 to 3) indicating National Lubricating Grease Institute (NLGI) consistency

3.2.2.1 Example: 2CB2 is PAO oil with lithium thickener, PLD of CB, National Lubricating Grease Institute (NLGI) consistency 2.

3.3 All materials supplied to this standard must comply with GMW3059, **Restricted and Reportable Substances**, including the requirement to obtain a GM-approved International Material Data System (IMDS) submission.

4 Manufacturing Process

Not applicable.

5 Rules and Regulations

5.1 Legal Regulations. All materials must satisfy applicable laws, rules, regulations and recommendations valid in the country of usage.

5.2 Language. In the event of conflict between the English and domestic language, the English language shall take precedence.

5.3 Inspection and Rejection. All shipments of material or parts under contract or purchase order manufactured to this specification shall be equivalent in every respect to the initial samples approved by Engineering. There shall be no changes in either formulation or manufacturing processes permitted without prior notification and approval by Engineering. Lack of notification by the supplier constitutes grounds for rejection of any shipment. While samples may be taken from incoming shipments and checked for conformance to this specification, the supplier shall accept the responsibility for incoming shipments meeting this specification without dependence upon purchaser's inspection.

The series of tests used to approve each batch of product along with acceptance limits will be agreed upon by the purchaser and seller. The laboratory providing the certificate of analysis must also participate in a proficiency testing program (round robin) that is approved by the Fuels, Fluids, and Lubricants Global Subsystem Leadership Team (GSSLT) or designate. The Fuels, Fluids, and Lubricants GSSLT or designate must receive copies of the proficiency testing reports directly from the test program administrator.

5.4 Initial Source Approval. No shipment shall be made by any supplier until representative initial production samples have been approved by the Fuels, Fluids, and Lubricants Global Subsystem Leadership Team or designees meeting the requirements of this specification.

5.5 Material Safety Data Sheets/Safety Data Sheets (MSDS/SDS). For new product submissions, or when a change in chemical composition of an existing product has occurred, a complete copy of the Material Safety Data Sheet/Safety Data Sheet must be submitted in compliance with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS) requirements or other country-specific MSDS/SDS requirements.

6 Approved Sources

Materials supplied to this specification must be approved by General Motors.

The appropriate GM Materials Engineering department(s) must confirm material as meeting the requirements of this specification. Any test data sheets of material submitted to General Motors for such confirmation (e.g., during Production Part Approval Process (PPAP)) under this material specification must list all properties and must apply corresponding test methods of this material specification.

For other GM locations, the responsible engineering group should be contacted to obtain the approved source in that individual country.

6.1 Engineering qualifications of an approved source are required for this standard. Only sources listed in the GM Materials File (i.e., GM SupplyPower) under this standard number have been qualified by engineering as meeting the requirements of this standard. To access this list, reference GMW14270 for latest location.

7 Notes

7.1 Glossary. Not applicable.

7.2 Acronyms, Abbreviations, and Symbols.

°C	Degrees Celsius
%	percent(age)
EPDM	Ethylene Propylene Diene Monomer (M-class)
GHS	Globally Harmonized System of Classification and Labeling of Chemicals
GSSLT	Global Subsystem Leadership Team
IMDS	International Material Data System
mbar	millibar(s)
mm	millimeter(s)
MSDS	Material Safety Data Sheet
N	Newton(s)
N·m	Newton meter(s)
NLGI	National Lubricating Grease Institute
PAO	Polyalphaolefin
PLD	Performance Level Designation(s)
PPAP	Production Part Approval Process
SDS	Safety Data Sheet

8 Coding System

8.1 This standard shall be referenced in other documents, drawings, etc., per the Callout column in Cross Reference of Regional Specifications table.