



Grease, Molybdenum Disulfide Containing, Initial Engine Assembly

1 Scope

1.1 Material Description. This specification covers molybdenum disulfide greases which contains a minimum 10% molybdenum disulfide by mass.

1.2 Symbols. Not applicable.

1.3 Applicability. The approved grease is used to lubricate engine components during initial assembly.

2 References

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

2.1 External Standards/Specifications.

ASTM D97
ASTM D217

ASTM D445

ASTM D566

FTM 791C

2.2 GM Standards/Specifications.

GMW3059

2.3 Additional References.

TMC003 Material Safety Data Sheet guidance documents (available at www.gmsupplypower.com).

3 Requirements

3.1 Physical Properties. See Table 1.

Table 1: Physical Properties

Properties	Values	Test Methods
Worked Penetration (60 strokes)	310 to 340	ASTM D217
Oil Separation, percent by mass	6 maximum	Federal Test Method (FTM) 791C Method 321.3
Dropping Point, °C	177 minimum	ASTM D566
Oil Viscosity, mm ² /s (cSt) at 40 °C	60 to 130	ASTM D445
Oil Pour Point, °C	-18 maximum	ASTM D97
Molybdenum Disulfide, percent by mass	10 minimum	Atomic Absorption, Inductively Coupled Plasma, X-Ray Fluorescence, X-Ray Diffraction, or FTM 791C, Method 3710.1.
Elemental Molybdenum, percent by mass ^{Note 1}	6 minimum	

Note 1: Molybdenum disulfide particle size shall be Technical Grade Fine, Fisher 0.6 µm to 0.8 µm.

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. In addition, product MSDS/SDS submissions must be in compliance with specific country General Motors TMC003 Material Safety Data Sheet/Safety Data Sheet guidance documents where available.

5.6 All materials supplied to this standard must comply with the requirements of GMW3059, **Restricted and Reportable Substances for Parts.**

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.

7 Notes

7.1 Glossary.

7.2 Acronyms, Abbreviations, and Symbols.

FTM	Federal Test Method
GHS	Globally Harmonized System of Classification and Labeling of Chemicals
GSSLT	Global Subsystem Leadership Team
MSDS	Material Safety Data Sheet
PPAP	Production Part Approval Process
SDS	Safety Data Sheet