



ENGINEERING STANDARDS

Material Specification

9985313

Grease Polyurea, No. 2

1 Scope

1.1 Material Description. Grease shall be a smooth homogeneous mixture of petroleum oil and a polyurea thickener. Additives to improve oxidation stability, rust inhibition, mechanical stability, and wear resistance may be included.

1.2 Symbols. Not applicable.

1.3 Applicability. Grease described in this specification is intended for use in anti-friction bearings operating at a broad range of speeds and temperatures from -30 °C to 150 °C.

2 References

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

2.1 External Standards/Specifications.

ASTM D88	ASTM D1743	FED-STD-791-321	FED-STD-791-5309
ASTM D217	ASTM D2270	FED-STD-791-3005	NDH-ESA-1225
ASTM D566			

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

Polyurea content	8.2% ± 0.5%
Mineral oil properties	-
Viscosity SSU at 37.8 °C (ASTM D88)	540 to 595
Viscosity index (ASTM D2270)	88 minimum
Penetration (ASTM D217) -18 °C, 12 h	130 minimum
Worked	255 to 295
Dropping point (ASTM D566)	220 °C minimum
Copper strip corrosion (FED-STD-791-5309)	Negative
Oil separation, 30 h @ 100 °C (FED-STD-791-321)	5% maximum
Rust protection (ASTM D1743) ^{Note 1}	Pass
Particle count (FED-STD-791-3005). Particles per milliliter:	
10 µm or larger	10 000 maximum
25 µm or larger	2000 maximum
50 µm or larger	100 maximum
75 µm or larger	None

Note 1: Modified as follows:

- Use solution consisting of 95% distilled water and 5% synthetic sea water.
- Time of test: 24 h.
- Temperature: 52 °C.

SSU = Saybolt Seconds Universal

3.2 Roughness and Sound Level. There must be no gritty feeling when a 3202 electric motor fitted with NDH 1225 quality bearings and filled with 0.8 g of the test grease is turned slowly by hand. Reference the NDH-ESA-1225 electric motor bearing specifications. A minimum of three bearings must be tested.

3.3 Identification. The following information shall appear on each container:

- GM part number.
- Manufacturer's identification.
- Part number.
- Batch number.
- Date of manufacture.
- Quantity and mass of material.

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.

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