



Lubricant for Thread Forming Fasteners

1 Scope

This specification describes the performance requirements of a lubricating material applied to thread forming fasteners used to reduce assembly thread forming drive torque.

1.1 Material Description. Fastener lubricant.

1.2 Symbols. Not applicable.

1.3 Applicability. Used on fastener threads to reduce drive torque. It is primarily used on thread forming fasteners.

2 References

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

2.1 External Standards/Specifications.

None

2.2 GM Standards/Specifications.

GMW3059

GMW3221

GMW15170

3 Requirements

3.1 Requirements on Test Specimens. Reference GMW3221.

3.2 Requirements on Delivery. Fastener shall meet the requirements of this specification when stored in the shipping container under normal plant conditions for 12 months.

3.2.1 Physical Requirements. Lubricant may exhibit some flaking during shipping and handling but, in any case, the fasteners must still conform to the requirements of this specification.

3.3 Processing Requirements.

3.3.1 Chemical Requirements. Not applicable.

3.3.2 Mechanical Requirements. Not applicable.

3.3.3 Physical Requirements. Lubricant may be applied:

- Locally to the lead threads in the case of a thick film, or
- Uniformly over the entire fastener in the case of a thin film bulk process.

In either case, films must not affect acceptance of the fastener drive features.

Lubricant Dry to Touch requirement does not permit the transfer of lubricant to any contacting material which would result in soiling or discoloration of the material within the temperature values.

3.4 Performance Requirements.

3.4.1 Chemical Requirements. Lubricant must not reduce the corrosion resistance of the fastener base finish.

3.4.2 Mechanical Requirements. Perform drive tests per GMW15170, except set thread forming test speed to 30 rpm $\pm$ 5% free speed.

A test of 30 samples must produce a drive torque statistical spread with $+3\sigma$ value not to exceed values as indicated in Table 1.

Table 1: Fastener Maximum Drive Torque

Thread Size	Maximum Torque
M12	35 Nm

3.4.3 Performance Properties. Lubricants applied to fasteners must meet the chemical performance property values as specified in Table 2.

Table 2: Chemical Performance Properties

Properties	Values
Melting Point	130 °F minimum
Flash Point	200 °F minimum
Dry to Touch	-40 to 100 °F
Odor	No sour smell

3.5 Additional Requirements.

3.5.1 Seat Belt Applications and Testing. In seat belt applications where thread forming bolts with lubricant are used and shipped and attached to the belt assembly, assembly temperature testing is required. No bolt lubricant transfer to the belt webbing is allowed.

Required testing is as follows:

Place belt assemblies with bolt attached and in shipping container into an oven at 160 F. Heat soak for 1 h. Remove the shipping container and let it return to ambient temperature. Examine assemblies for lubricant transfer. If lubricant transfer has occurred, isolation of fastener from webbing is required. The isolation method will be at the supplier's discretion.

3.5.1.1 Stability Requirements.

3.5.1.1.1 Shelf Life. Not applicable.

3.5.1.1.2 High/Low Temperature Stability in Storage. Refer to 3.4.3.

Fastener lubricant must not degrade in performance while in storage. Temperature values should not exceed slash point temperatures listed in 3.4.3, Table 2. Reference GMW3221.

4 Manufacturing Process

All materials must be manufactured using the same techniques and processes as were used to manufacture the originally approved materials. Any deviation in the manufacture of later material shipments will be cause for a new material approval.

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. Samples of components or materials released to a GM material specification shall be tested for conformity with the requirements of this material specification and approved by the responsible Engineering department prior to commencement of delivery of bulk supplies.

A new approval must be received for any changes, e.g., properties, manufacturing process, location of manufacture, etc. If not otherwise agreed, all testing and documentation normally required for initial release must be completed.

It is the responsibility of the supplier to inform the customer in a timely manner, without solicitation, and to include documentation of all modifications of materials and/or processes and to apply for a new release.

5.4 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