



Material Specification

9985709

Temporary Rubber Lubricant for Use in Tire Mounting

1 Scope

1.1 Material Description. This specification covers the overall material requirements for the lubricant used to facilitate the assembly of tires onto wheels. This material is intended to be used without any further dilution of water. The material meeting this specification can be synthetic or soap based. The material must provide "temporary" lubrication.

1.2 Symbols. Not applicable.

1.3 Applicability. Lubrication for assembly of tire onto wheels.

1.4 Remarks. None.

2 References

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

2.1 External Standards/Specifications.

ASTM D460

ASTM D1882

ASTM E70

2.2 GM Standards/Specifications.

GMW3059

2.3 Additional References.

Safety and Industrial Hygiene (S&IH) Technical Standard (TS), S&IH TS 3.4-160-02

3 Requirements

3.1 The material, as received, shall conform to the requirements listed in Table 1 and Table 2. All tests are to be conducted at 23 °C ± 2 °C, with 50% relative humidity ± 10% relative humidity.

3.2 Synthetic and Soap Based Lubricants for Tire Mounting.

Table 1: Total Solids

Properties	Requirements	Test Method
Synthetic Based Lubricant		
Total Solids, Mass Percent	3% maximum	ASTM D460, Method A
Soap Based		
Total Solids, Mass Percent	9% to12%	ASTM D460, Method A

Table 2: Potential of Hydrogen (pH) Properties

Properties	Requirements	Test Method
pH	7 pH to 9 pH	ASTM E70
Free Alkali		
Mass Percent, Equivalent to Potassium Hydroxide (KOH)	0.05% mass maximum	ASTM D460
Free Acid		
Mass Percent, Equivalent to Oleic Acid	0.05% mass maximum	ASTM D460

3.2.1 Appearance. The lubricant, when placed in a 125 mL glass container, must be a light, transparent liquid.

3.2.2 Stability. The material shall not separate, precipitate or degrade when stored in a clear/transparent glass container at nominal ambient conditions for 168 h.

3.2.3 Freeze/Thaw Stability. The material shall not deteriorate over three (3) freeze/thaw cycles.

3.2.4 Drying Time. A styrene butadiene rubber (SBR) or equivalent tire rubber made into a 150 mm x 150 mm x 1.9 mm test slab shall be dipped into the lubricant solution for 5 s, then placed at a 35 degree angle at which time the drying time shall begin to be measured. The rubber shall retain a water wet surface after 20 minutes and reach a non-slip state after 24 h.

3.2.5 Solubility. Use the rubber test slab from 3.2.4 that has been allowed to dry for over 24 h. The dried residue from the lubricant shall be 100% soluble in water.

3.2.6 Corrosion Resistance. There shall be no pitting, etching or permanent corrosion on the surface of either the 356T-6 aluminum or 1008/1010 steel coupon sample.

3.2.6.1 Corrosion Resistance Test Procedure. Use clean 25 mm x 75 mm strips of the metals. Each strip shall be immersed in a 100 mL test tube containing 25 mL of the lubricant. The test tube shall be lightly stoppered with a cork stopper, supported in a beaker, then placed in a 40 °C ± 2 °C oven for 168 h. The metal strips shall be examined under magnification of 20x and shall show no evidence of corrosion.

3.2.7 Staining. The material shall not permanently stain the vehicles exterior paint surface. Test to be conducted on a freshly painted test panel per ASTM D1882, Part seven (7).

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

4.1 The lubricant shall not foam excessively when applied to the tire or wheel by spraying, rolling transfer or hand applicator.

4.2 The lubricant shall uniformly coat the tire bead area at a minimum film thickness exhibiting no fish eyes, dry spots or craters.

4.3 The lubricant shall not cause any slippage or rotation of the inflated tire on the wheel after assembly.

4.4 A tire-wheel assembly uniformity test shall be run and approved by the Tire and Wheel Engineering Group. The tire and wheel assembly will be evaluated for radial first harmonic force variation (R1H) to ensure the lubricant is working properly to result in optimum bead seating.

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.