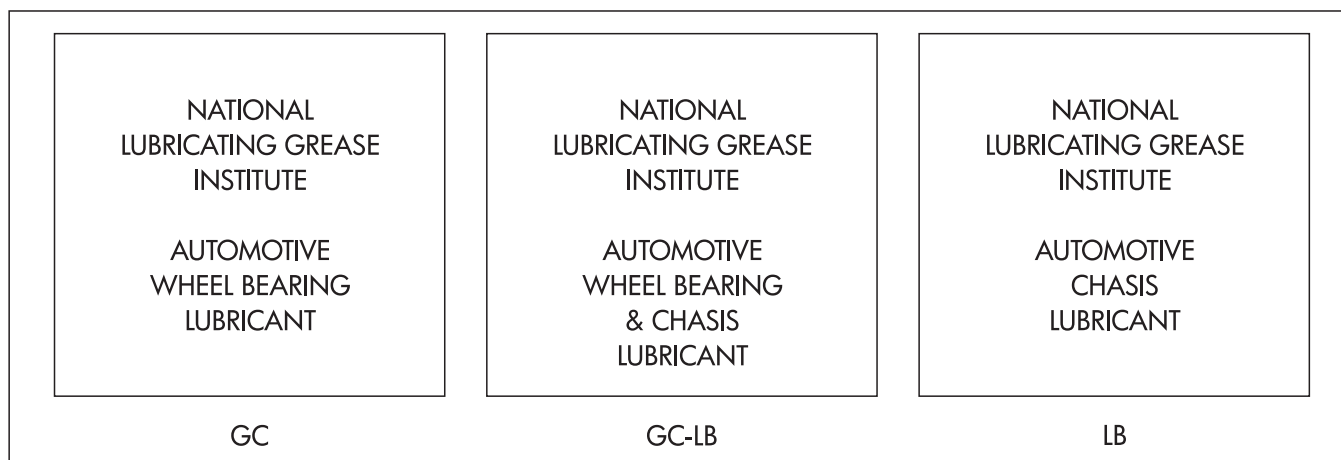


Greases

Thickener	Structure	Dropping Point (°F)	Max Service Temperature (°F)	Other Properties
Sodium Soap	Fibrous	350	200-275	Natural rust resistance, high water resistance, poor low-temperature properties
Calcium Soap				
Simple	Smooth	270-290	250	Excellent water resistance Inherent extreme pressure load-carrying buttery properties, good water resistance.
Complex	Smooth,	>450	300	
Lithium Soap				
Simple	Smooth	390	325	Good water resistance, good mechanical stability
Complex	Smooth, slightly stringy	>450	350	Same as above
Aluminum Complex	Smooth gel	>450	300	Excellent water resistance, shear stability, and pumpability
Clay	Smooth	>500	350	Non-melting, very water resistant, marginal shear stability
Polyurea	Opaque, slightly mealy	>450	350	Good oxidation resistance and water resistance
Application	NLGI Classification		Service	
Chassis	LA		Mild duty, frequent relubrication	
	LB		Infrequent relubrication, high loads, water exposure	
Wheel Bearings	GA		Mild duty	
	GB		Moderate duty, typical of most vehicles	
	GC		Severe duty, high temperatures, frequent stop and go service	

The NLGI has developed certification marks to identify greases:

Greases bearing the NLGI Mark have been tested in accordance with ASTM D 4950.



They comply with that standard's higher performance categories for wheel bearings (GC), chassis (LB), and dual-service (GC-LB) greases.

Tests for Characterizing Greases

Property	Test Method	Description
Shear Stability	ASTM D 217 ASTM D 1831 ASTM D 4290	Multistroke penetration Roll stability Wheel bearing leakage
Oxidation Resistance	ASTM D 942 ASTM D 3527 ASTM D 3336	Bomb oxidation Wheel bearing life High-temperature performance
Water Resistance	ASTM D 1264 ASTM D 4049	Water washout Water spray-off
Bleed Resistance	FTM 321.3 ASTM D 1742	Oil separation (static) Pressure Oil separation
Extreme-Pressure/Antiwear	ASTM D 2596 ASTM D 2509 ASTM D 2266	Four-ball Timken method Four-ball wear
Corrosion	ASTM D 1743 — ASTM D 4048	Rust test Emcor Copper corrosion
Pumpability	ASTM D 4693 US Steel LT37	Low-temperature torque Mobility
Identification & Quality Control	ASTM D 2265	Dropping Point