

NNL 690G

Boundary Lubricant

TECHNICAL DATA

Typical Properties			Test Data		
Property	Method	Result	Property	Method	Result
Appearance		Clear, light amber liquid	Copper Strip corrosion (1300C x 2hours)	ASTM D130	1a
Colour	ASTM D1500	Less than 1.5	Rust Preventing characteristics	ASTM D665	
Viscosity @40°C (104°F)			NNL 690G		Pass
@100°C (212°F)	ASTM D445	67.5cSt	5% NNL 690G in ISO 220 Gear Oil		Pass
Viscosity Index		9.9cSt	Foaming Tendency		
Specific Gravity @ 15.6°C (60°F)	ASTM D941	130	5% NNL 690G in ISO Gear Oil		
Pour Point	ASTM D97	0.96 (H ₂ O = 1)	Sequence 1		Nil
Flash Point	ASTM D92	-35°C (-31°F)	Sequence 2		Nil
Acid Number	ASTM D664	170°C (338°F)	Sequence 3		Nil
Zinc Content ppm		1.5 mg KOH/g			
Lead Content ppm		Nil			
Colloidal Suspension (solid particles, PTFE, graphite, MoS ₂)		Nil			
		None			

Special Notations:

- Viscosity:** A 5% application of **NNL 690G** in typical 90 weight gear oil results in little or no change in viscosity or viscosity index of the oil.
- Pour Point:** **NNL 690G** is formulated to have a negligible effect on the pour point of typical gear oils.
- Ash Content:** **Power Up NNL 690G** has a very low total ash content (less than 0.2%). It is therefore suitable for use in the crankcase of engines that require a low ash or ashless oil.
- Application:** **NNL 690G** is intended for use in gearboxes using extreme pressure (API GL-3 or greater) oils. It should be added with each oil change at a 5% of the gear oil volume. In engine crankcases, **NNL 690G** should be added at 3% of the oil volume each time the oil is changed. It can also be used in automatic transmissions at an application rate of 1%, power shift transmissions at 3% and in circulating systems at 3% to 5%, depending upon operating conditions. **NNL 690G** is compatible with all mineral oils and polyalphaolefin and diester based synthetic oils. **NNL 690G** is not recommended for use with water based fluids, phosphate esters or polyglycol fluids.

POWER UP[®]

LUBRICANTS

For additional technical support call 1-800-661-7777

NNL 690G is specially formulated for use in all types of mobile and industrial equipment where Extreme Pressure (EP) oils are called for API GL-3 or greater). Specific applications include gear reducers, bearing housings, differentials (except posi-trac or limited slip), cone and jaw crushers, pulverizing equipment, final drives, conveyor drive gear boxes, standard transmissions, drop boxes, rotary tables, tube and ball mills, chain drives, mud pumps, bull gear and pinion sets, etc.

Primary Benefit of NNL 690G:

The primary benefit of **NNL 690G** is to reduce the friction caused by asperity (metal to metal) contact in the boundary lubrication regime. It is designed for lubricated systems which call for extreme pressure (EP) oils and engines requiring low ash content oils.

Secondary Benefits of NNL 690G:

- ◆ Reduces ultrasonic wear noise which relates directly to component wear.
- ◆ Reduces dry start-ups.
- ◆ Lowers operating temperatures and slows oil degradation.
- ◆ Decreases wear in cold temperature applications (conventional EP additives are very dependent upon temperature to chemically react with the wear surfaces). The high film strength protection provided by NNL 690G is less dependent on temperature.
- ◆ Reduces fuel and/or electrical power consumption in many applications.
- ◆ Improves filtration efficiency by reducing the generation of large wear particles.
- ◆ Increases equipment availability and extends equipment life.

Product Application and Availability:

NNL 690G is intended for use in all types of mobile and industrial equipment where EP oils are called for. **NNL 690G** should be applied with each oil change at 5% of the gearbox capacity. With gear oils heavier than ISO 320, **NNL 690G** should be used at 3%. In internal combustion engine crankcases using low ash or ashless oils, **NNL 690G** should be used at 3% of the oil volume with each oil change. It is also suitable for use in automatic transmissions at an application rate of 1%, in power shift transmissions at 3% and in circulating systems at 3% to 5%, depending on the severity of service. **NNL 690G** is compatible with mineral based oils and with synthetic oils based on polyalphaolefins and diesters. At recommended application rates, it will not affect typical gear or engine oil viscosity ratings or seal materials.

NNL 690G is available in 1L, 5L, 10L, 20L containers and 205L drums.

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