



PRODUCT INFORMATION SHEET

WYNN'S HIGH PERFORMANCE LUBRICANT SUPPLEMENT

Product Number: 59401 6 x 3.8 litre 59414 205 litre 59419 24 x 125 ml
59402 2 x 5 litre

WYNN'S HIGH PERFORMANCE LUBRICANT SUPPLEMENT is formulated to improve the performance and service life of extreme pressure gear oils. The multi-function formula contains viscosity index improvers, anti-foamants, anti-oxidants, corrosion inhibitors and the unique Wynn's Friction Proofing package of anti-wear agents.

Benefits

The multi-functional additives present in Wynn's High Performance Lubricant Supplement provide the following benefits:-

EXTREME PRESSURE (EP) CHEMICALS

- Control and reduce wear resulting from direct metal to metal contact under extreme loads.
- Control and reduce temperature build-up resulting from direct metal to metal contact under extreme loads.
- Control and reduce frictional horsepower loss resulting from direct metal to metal contact and high unit loads.
- Increase the load-carrying capacity of commercially available gear lubricants.
- Supplement and replace gear oil extreme pressure additives lost through depletion.
- Prevent welding and galling of gear surfaces under high load conditions.
- Quieten gear and bearing noises by improving high load conditions.

- Improve lubricant anti-scoring resistance.
- Compatible with brass components and does not cause synchroniser glazing.

ANTI-RUST ADDITIVES

- Provide increased anti-rust control to commercially available gear lubricants.
- Provide increased anti-rust protection to units subjected to direct water contamination or humid conditions.
- Reduce metal pitting, etching and staining resulting from gear oil water contamination.

OXIDATION INHIBITORS

- Increase the oxidation stability of the lubricant to which it is added.
- Control and reduce oil oxidation.
- Retard lubricant thickening.
- Prevent the formation of acidic by-products resulting from lubricant oxidation.
- Retard the formation of lacquer, tars and sludges which can cause reduced heat transfer and lubricant flow.

ANTI-FOAMANTS

- Control lubricant foaming to ensure proper gear lubrication.
- Reduce gear lubrication oxidation.
- Control gear lubrication volume increase, preventing lubricant loss and contamination of brake components.
- Assure maximum lubricant film protection on opposing gear surfaces.

FRICTIONAL MODIFIERS

- Prevent and correct differential limited slip chatter and noise.
- Assure smooth operation of limited slip differentials.
- Compatible with conventional as well as limited-slip differential gear oils.
- Reduce and control vehicle vibrations resulting from improper limited-slip differential operation.

VISCOSITY INDEX IMPROVERS

- Reduce differential noise resulting from high temperature lubricant thin-out.
- Reduce differential noise resulting from mechanical wear by providing an increased lubricant film thickness on opposing surfaces.
- Improve lubricant adhesion to mechanical components during equipment shutdown.
- Improve broad temperature range oil stability thereby ensuring "Stay-in-grade" performance from the lubricant.
- Provide additional limited-slip benefits.
- Lower oil pour point ensuring superior lubricant at cold start-up and in colder climates.

Applications

Wynn's High Performance Lubricant Supplement is particularly suited to most heavily loaded automotive transmissions, differentials, final drives and oil filled hubs of heavy duty fleet/transport vehicles and trailers. Wynn's High Performance Lubricant Supplement can also be used in industrial gearboxes using extreme pressure or industrial gear oils.

In addition, its use in manual transmissions, where the manufacturer recommends the use of GL-3 through GL-5 gear lubricants, will result in improved shifting and greatly extended synchroniser life, since the product, when applied as directed, does not cause what is known as synchroniser glazing.

Normally, a concentration of 10% in conventional EP (extreme pressure) lubricants, sometimes referred to as HD (heavy duty) lubricants, will provide exceptional performance. This concentration may be varied either way, depending on the relative severity of service.

The composition of Wynn's High Performance Lubricant Supplement is safe for use with all metals found in both hypoid and spur gear applications.

While Wynn's High Performance Lubricant Supplement is generally compatible with all industry-approved automotive, as well as the majority of industrial, gear lubricants, it may not be compatible with certain gear boxes and/or mechanical components.

Basically, the product, when used at a 13% treat rate in a compounded gear oil meeting a GL-4 (MIL-L-2105) classification, will raise the lubricant's classification to a GL-5 (MIL-L-2105B) level.

The use of the product in GL-4 and GL-5 lubricants, in the majority of cases, will enhance lubricant performance, without adversely affecting mechanical operation. The product, however, is not recommended for use in GL-1, GL-2 or GL-3 classification lubricants, since these gear oils are of the non or low extreme pressure type, and the use of Wynn's High Performance Lubricant Supplement can, in some cases, adversely affect transmission operation.

While the product can be safely added to all conventional automotive differentials, including limited lip units and, when used in these applications, will provide increased benefits as listed above, its use in standard transmissions should be based on parent lubricant chemistry and the equipment manufacturers recommended lubricant classification, so as to avoid potential mechanical component and parent lubricant incompatibility problems.

Many domestic, as well as foreign, automobile and truck transmissions use other than conventional automotive EP gear oils. Some units use a GL-1, GL-2 or GL-3 classification gear oil, to which extreme pressure additives, such as used in Wynn's High Performance Lubricant Supplement, should not be added since the synchronisers in these units, in order to function properly, have certain frictional characteristics which the addition of extreme pressure chemistry can adversely affect.

In addition, many automotive, as well as truck, gear boxes are lubricated by conventional motor oils and/or automatic transmissions fluids of the Dexron type, and the chemistry used in Wynn's High Performance Lubricant Supplement, is not compatible in many cases with these lubricants or with the transmissions these lubricants are used in.

It is also not recommended for use in oil immersed brakes and/or clutch packs.

Wynn's High Performance Lubricant Supplement can be used in the differentials and manual transmissions where the vehicle manufacturer recommends the use of MIL-L-2105B (GL-5) gear oil.

Wynn's High Performance Lubricant Supplement should not be used in any application where the equipment manufacturer specifies the use of non-EP lubricants, motor oils, automatic transmission fluids and/or special non-EP lubricants.

Prior to the addition of this product to any manual transmissions, including automotive and truck units, the equipment manufacturers recommended lubricant should be determined so as to avoid these potential problems.

Wynn's High Performance Lubricant Supplement is recommended for assembly of all mechanical components in which typical mineral based oils (refined and synthetic) are used as lubricants. This product may be used to assemble engines, manual transmissions, industrial gear boxes and even automatic transmissions O-rings and seals.

This product is approved for use in these areas due to its anti-score and anti-wear characteristics and the limited volume used during the assembly procedure even though it is not normally recommended as a supplement for use in units not using conventional EP gear oils.

Typical Characteristics

Appearance	Clear Liquid
Colour (Visual)	Brown
Colour (ASTM D 1500)	2.0
Density @ 15°C	0.881 (ASTM D 4052)
Flash Point (°C) COC	132 (ASTM D 92)
Viscosity @ 100°C (cSt)	122.2 (ASTM D 445)
Viscosity @ 40°C (cSt)	1,141 (ASTM D 445)
Viscosity Index	211 (ASTM D 2270)
Volatiles (% Vol)	Nil
Boiling Point (°C)	288

FOUR BALL WEAR TEST

An independent research laboratory conducted Mean Hertz Load determinations on an API GL-5 gear oil, with and without the addition of 6% Wynn's High Performance Lubricant Supplement.

The following test results, according to ASTM D2783 - Measurement of Extreme - Pressure Properties of Lubricating Fluids (Four-Ball Method), show the improvement in load characteristics with the addition of Wynn's High Performance Lubricant Supplement (Wynn's HPLS).

ASTM D2783	<u>API GL-5 GEAR OIL</u>	
	<u>WITHOUT WYNN'S HPLS</u>	<u>WITH 6% WYNN'S HPLS</u>
WELD POINT (Kg)	250	315
LOAD-WEAR INDEX	58.82	58.94

MIL-L-2105C SPECIFICATION

The following data was based on formulating a MIL-L-2105C SAE 80W-90 gear oil with Wynn's High Performance Lubricant Supplement additive.

A. PHYSICAL CHARACTERISTICS

	<u>RESULT</u>	<u>MIL-L-2105C REQUIREMENT</u>
Viscosity @ 100°C (cSt)	14.25	13.5 TO 24.0
Viscosity @ 40°C (cSt)	125.7	
Viscosity Index	106	
Brookfield Viscosity @ -25°C (cP)	135,000	150,000 max
Pour Point (°C)	-35	
Flash Point (°C)	213	165 min
Channel Point @ -35°C	Pass	Pass
Pentane Insolubles (% mass)	Nil	

B. PERFORMANCE TESTS

MIL-L-2105C Performance Tests:

<u>TEST</u>	<u>DESIGNATION</u>	<u>RESULT</u>	<u>MIL-L-2105C REQUIREMENT</u>
High Speed Shock (rig test)	CRC L-47	Pass	Pass
High Torque Endurance (rig test)	CRC L-37	Pass	Pass
7-Day Moisture Corrosion (rig test)	CRC L-33	Pass (less than 1% rust on cover. All other parts clean)	Pass (1% rust allowed on cover. No rust permitted on gears or bearings)
Thermal Oxidation Stability (Bench test)	FTM 2504	Pass	Pass
Viscosity Increase (%)		49	100 max
Pentane Insolubles (mass)		0.22	3 max
Benzene Insolubles (mass)		0.15	2 max
Foaming Characteristics (Bench test)	ASTM D-892	Pass	Pass
Sequence I (ml)		0	20 max
Sequence II (ml)		0	50 max
Sequence III (ml)		0	20 max
Solubility & Compatibility (Bench test)	ASTM 3455.1	Pass	Pass
Copper Corrosion, 3 hrs @ 121°C (Bench test)	ASTM D-130	Pass Less than 2c	Pass 3 max

API GL-6 PERFORMANCE

The following data was based on formulating a MIL-L-2105C SAE 80W-90 gear oil with Wynn's High Performance Lubricant Supplement additive.

A. EXTREME PRESSURE/ANTI-WEAR TESTS

Timken OK Load Test

OK Load (kg)	23,23 (2 tests)
Unit Pressure (MPa)	166.7 - 159.1

Timken Abrasion Test

Weight Loss (mg)	5.2
Unit Pressure (MPa)	55.2

High Speed Timken (3600 RPM) (kg) 4.1-4.5

SAE @ 1000 RPM (kg) 116

Shell 4 Ball Wear Test (40 kg, 600 RPM 2 hrs., 93°C)

Avg. Friction Coefficient	0.086
Avg. Scar Diameter (mm)	0.87

Shell 4 Ball EP Test

Seizure (kg)	126
Weld (kg)	400
Load Wear Index	61.5

Ford Falex EP Test

	<u>Run 1</u>	<u>Run 2</u>
Failure Load (kg)	1361	1247
Type	Torque	Torque
Wear Teeth	45	31

Falex Wear Test

	<u>Run 1</u>	<u>Run 2</u>
Load (kg)	454	454
Wear Teeth	4	6

B. CORROSION TESTS

L-33 Moisture Corrosion (Seven Day)	Pass
Copper Corrosion (ASTM D-130) 3 hours @ 121°C	1a
Clamped Bearing Corrosion Test	0
Falex Corrosion Test, Ford BJ5-1	Clean
Timken Nail Rust Test	Clean, no corrosion
Turbine Oil Rust Test (ASTM D-665) With Distilled Water	Clean
With Synthetic Sea Water	Clean
International Harvester BT-9 Humidity Cabinet Test (40 hrs @ 32°C)	Pass, 3 panels
Volkswagen Corrosion Test	Pass
Ford Water Tolerance Test BJ10-3	Pass Cup = 9 rating Strip - 9 rating (10 = clean)