



## PRODUCT INFORMATION SHEET

### WYNN'S CHARGE! MOTOR OIL SUPPLEMENT

Product Number: 56901 2 x 5 litre

WYNN'S CHARGE! MOTOR OIL SUPPLEMENT is chemically formulated to reduce engine oil consumption through excessive burning, and oil loss through leakage. As a result, Wynn's Charge! Motor Oil Supplement reduces blue smoke significantly. Wynn's Charge! Motor Oil Supplement also replenishes the additive package found in modern engine oils thereby extending oil drain periods. The unique Wynn's Friction Proofing formula will help extend life due to reduced wear.

#### Advantages

- **REDUCED OIL CONSUMPTION**

The chemical polymers and viscosity index improvers combine to increase the resultant oil viscosity and its ability to withstand a broad range of operating temperatures. This improves sealing between the piston ring and cylinder wall as well as taking up slight wear between valves and guides, the most common oil loss areas. Due to the feature of high temperature viscosity improvement, leakage loss around main oil seals is reduced also.

- **EXTENDED ENGINE LIFE**

Achieved as a result of overcoming severe abrasion and metal-to-metal contact. The Wynn's Friction Proofing package actually forms a molecular bond to the surface of the metal particularly when heat, velocity and rubbing friction occurs.

- **EXTENDED OIL DRAIN PERIODS**

As Wynn's Charge! Motor Oil Supplement replenishes the depleted additives found in modern petrol and diesel engines, it is possible to use oil longer. With regular oil filter changes to ensure oil cleanliness, many fleet users have generated up to 100% longer crankcase oil life, plus the increase protection reserve of the Wynn's Charge! Motor Oil Supplement additive package. The use of Wynn's OILSCAN Oil Analysis Programme to verify these savings, is highly recommended.

- DECREASED EXHAUST SMOKE

By controlling oil consumption, visible exhaust gases are reduced.

- DECREASED ENGINE NOISES

Wynn~~§~~ Charge! Motor Oil Supplement provides a cushion between worn parts, helping to reduce engine noises and friction.

- REDUCED WEAR

Wynn~~§~~ Charge! Motor Oil Supplement helps reduce engine wear resulting from direct metal-to-metal contact under extreme operating conditions such as sustained high speed and trailer haulage.

- IMPROVED COMPRESSION

Wynn~~§~~ Charge! Motor Oil Supplement improves the oil viscosity at high temperatures, thereby improving the ring sealing actions and engine compression.

- IMPROVED OIL STABILITY

Wynn~~§~~ Charge! Motor Oil Supplement retards the oxidation and breakdown of motor oil at high operating temperatures.

Wynn~~§~~ Charge! Motor Oil Supplement is a complex formulation of chemical polymers, viscosity index improvers, anti-oxidants, corrosion-inhibitors, anti-foamants and detergent/dispersants. These compounds combine to produce the following additional benefits:

- MAINTAINED OIL PRESSURE AT HIGH TEMPERATURES
- IMPROVED PERFORMANCE IN WORN ENGINES
- IMPROVED FUEL COMBUSTION
- IMPROVED LUBRICATION
- REDUCED SLUDGE AND VARNISH FORMATION
- INHIBITED CORROSION
- ACID NEUTRALISATION
- CLEANER ENGINE COMPONENTS

## Applications

The efficient operation of any engine depends on an adequate and properly directed supply of lubricating oil. Motor oils do much more than lubricate and reduce friction. Various additives incorporated in motor oils, such as corrosion inhibitors, viscosity improvers and detergent/dispersants, provide extra protection. However, with time and use, motor oil breaks down and the additives deplete. The rate at which additive depletion and oil breakdown occur is affected by several factors. Extensive idling in traffic jams, frequent short trips, mechanical condition of the engine and neglected general maintenance can all speed up oil contamination and breakdown.

To combat these problems, use WynnØ Charge! Motor Oil Supplement which is suitable for all four-stroke engines, both petrol and diesel.

WynnØ Charge! Motor Oil Supplement is not suitable for two-stroke diesel engines.

At operating temperatures, or while engine is warm, add WynnØ Charge! Motor Oil Supplement to the engine oil with engine turned off. Use at each oil change or as needed between oil changes.

For larger engines, add bulk WynnØ Charge! Motor Oil Supplement at 10% of motor oil capacity.

## Typical Characteristics

Appearance	Clear Thick Liquid
Colour (Visual)	Amber
Colour (ASTM D1500)	2.0
Density @ 15°C	0.870 (ASTM D 4052)
Viscosity @ 100°C (cSt)	515.3 (ASTM D 445)
Viscosity @ 40°C (cSt)	5208 (ASTM D 445)
Viscosity Index	284 (ASTM D 2270)
Flash Point (°C) COC	193 (ASTM D 92)
Boiling Point (°C)	>288
Volatiles (% Vol)	Nil

Compression/Emissions

The effect of Wynn's Charge! Motor Oil Supplement on compression was measured in employee and company vehicles at idle speed.

Each vehicle was tested as received (without any tune-up or mechanical adjustments) and then the same way after addition of 8-10% Wynn's Charge! Motor Oil Supplement to the engine oil.

The data indicate compression improvements with Wynn's Charge! Motor Oil Supplement, particularly in cylinders initially showing significantly lower compression than the average of the other cylinders. The overall spread of individual cylinder compressions is significantly reduced with Wynn's Charge! Motor Oil Supplement in cars that have a wide spread of compressions to start with. Not all cylinders wear equally, so it is not surprising to find some cylinders with lower compression than others. When all cylinder compressions are more similar, engine operation is smoother, power is optimal, and HC and CO exhaust emissions are minimised.

**COMPRESSION (PSI)**

**VEHICLE: 1978 Chevrolet 3.8L, V6**

<u>CYLINDER</u>	<u>WITHOUT WYNN'S CHARGE!</u>	<u>WITH WYNN'S CHARGE!</u>	<u>% CHANGE</u>
1	160	160	-
2	156	157	+0.64
3	160	161	+0.63
4	145	156	+7.59
5	160	161	+0.63
6	155	155	-
AVERAGE	156.0	158.3	+1.47
CYLINDER RANGE	145-160	155-161	-

**VEHICLE: 1979 FORD 5.0L, V8**

<u>CYLINDER</u>	<u>WITHOUT WYNN'S CHARGE!</u>	<u>WITH WYNN'S CHARGE!</u>	<u>% CHANGE</u>
1	150	150	-
2	138	145	+5.07
3	154	154	-
4	158	158	-
5	159	165	+3.77
6	161	161	-
7	165	168	+1.82
8	170	172	+1.16
AVERAGE	156.9	159.1	+1.40
CYLINDER RANGE	138-170	145-172	-

**VEHICLE: 1977 BUICK 6.6L, V8**

<u>CYLINDER</u>	<u>WITHOUT WYNN'S CHARGE!</u>	<u>WITH WYNN'S CHARGE!</u>	<u>% CHANGE</u>
1	160	168	+5.0
2	160	164	+2.5
3	166	168	+1.2
4	166	174	+4.8
5	174	175	+0.6
6	159	168	+5.7
7	165	174	+5.5
8	155	170	+9.7
AVERAGE	163.1	170.1	+4.3
CYLINDER RANGE	155-174	164-175	-

**VEHICLE: 1976 DATSUN 1.4L, 4**

<u>CYLINDER</u>	<u>WITHOUT WYNN'S CHARGE!</u>	<u>WITH WYNN'S CHARGE!</u>	<u>% CHANGE</u>
1	160	163	+1.88
2	160	164	+2.50
3	156	159	+1.92
4	156	158	+1.28
AVERAGE	158.0	161.0	+1.90
CYLINDER RANGE	156-160	158-164	-

To help quantify the effect of equalising compression, exhaust emissions (HC and CO) were measured at idle before and after addition of Wynn's Charge! Motor Oil Supplement to the crankcase of the 1978 Chevrolet and the 1979 Ford. The averages shown are the mean of eight readings.

**AVERAGE IDLE EMISSIONS**

<u>VEHICLE</u>	<u>WITHOUT WYNN'S CHARGE!</u>		<u>WITH WYNN'S CHARGE!</u>	
	<u>ppm HC</u>	<u>% CO</u>	<u>ppm HC</u>	<u>% CO</u>
1978 CHEVROLET	168.5	2.05	151	1.51
1979 FORD	16.3	Nil	12.1	Nil

This emission data provides further support to the overall positive effects noted for Wynn's Charge! Motor Oil Supplement cylinder compression.

**OIL PRESSURE**

Engine oil pressure is directly dependent on oil viscosity, when temperature and all mechanical variables are held constant. Since Wynn's Charge! Motor Oil Supplement increases engine oil viscosity, higher oil pressures would be anticipated. This was directionally verified in vehicles as shown. It should be noted that it is very difficult to measure any large change in oil pressure since the oil pressure relief valve in the lubrication system always maintains pressure below a designated maximum.

WITHOUT WYNN'S CHARGE!			WITH WYNN'S CHARGE!		
<u>RPM</u>	<u>OIL TEMP (°C)</u>	<u>OIL PRESSURE (psi)</u>	<u>RPM</u>	<u>OIL TEMP (°C)</u>	<u>OIL PRESSURE (psi)</u>
<b>VEHICLE: 1979 FORD</b>					
2500	82	52.5	2500	82	59.0
1500	82	49.0	1500	82	51.5
1100	82	47.5	1100	82	50.0
<b>VEHICLE: 1977 BUICK</b>					
2000	97	49.5	2000	97	49.5
1500	97	45.0	1500	97	46.0
1024	84	43.0	1014	84	45.0

### CORROSION CONTROL

Combustion in an engine produces water and acidic compounds as by-products. Sulphur in fuel combines with oxygen and water to form sulphurous and sulphuric acid. A wide variety of organic acids also form due to incomplete combustion of fuel. These acids can attack metal, causing corrosion in the engine.

Wynn's Charge! Motor Oil Supplement contains an ashless, surface active anti-corrosion additive to help prevent water and acids from attacking the metal parts in the engine.

The corrosion inhibitor additive used in Wynn's Charge! Motor Oil Supplement was evaluated in the ASTM D-665B Rust Test where a steel spindle was immersed in isooctane and synthetic sea water for 20 hours at 38°C. At the end of the test, the spindle was rated for rust coverage.

### ASTM D-665B RUST TEST

(10% Synthetic Sea Water, Isooctane, 20 Hours, 38°C)

<u>% Mass Corrosion Inhibitor</u>	<u>Observed Spindle Rust, %</u>
0.0000	100
0.0032	1-2
0.0036	Trace
0.0040	0
0.0060	0

Wynn's Charge! Motor Oil Supplement contains 200 times the minimum concentration of corrosion inhibitor that gave no rust in this test.

### OXIDATION CONTROL

Wynn~~®~~ Charge! Motor Oil Supplement was evaluated for engine oil oxidation control enhancement by Differential Scanning Calorimetry (DSC). In this test, the oil samples were heated at atmospheric pressure until a sharp exotherm was noted. The exotherm indicates the onset of oxidation. The size of the exotherm (the integrated area under the exotherm peak), quantifies the heat released during the oxidation reaction of the sample. Less heat release (a smaller exotherm), is an indication of inhibition of the oxidation chain reaction, once oxidation has started.

An API SF/CC, SAE 10W-30 oil was tested by DSC in this way, with and without Wynn~~®~~ Charge! Motor Oil Supplement at 8%. For both samples, the onset of oxidation occurred at about 255°C, but the exotherm without Wynn~~®~~ Charge! Motor Oil Supplement was 1,963 mJ and with Wynn~~®~~ Charge! Motor Oil Supplement was 1,319 mJ. Wynn~~®~~ Charge! Motor Oil Supplement reduced the size of the exotherm by about 33%.

### SHELL FOUR-BALL WEAR TEST

The Shell 4-Ball Test is widely used in the petroleum industry to screen lubricants for antiwear and antiweld capabilities. In this test, a rotating half inch diameter steel top ball is pressed against 3 stationary half inch diameter steel balls (arranged in a tetrahedron) at a fixed speed and load condition for a given time. The test measures the average wear scar diameters on the bottom three stationary balls. The test reported here were run at 1200 RPM, 75°C, and 40 Kg load for one hour. A commercial API SF/CC SAE 10W-30 engine oil was tested with and without 8% Wynn~~®~~ Charge! Motor Oil Supplement added. Without Wynn~~®~~ Charge! Motor Oil Supplement, the average wear scar size was 0.46mm. With Wynn~~®~~ Charge! Motor Oil Supplement, the average wear scar size was 0.44mm, indicating 4.3% directionally less wear with Wynn~~®~~ Charge! Motor Oil Supplement in this short screening test.