PRODUCT INFORMATION SHEET

WYNN'S HYDRAULIC SYSTEMS CONCENTRATE

Product Number: 58701A 5 litre 58702 205 litre 58720 20 litre

WYNN'S HYDRAULIC SYSTEMS CONCENTRATE is a hydraulic oil supplement formulated to prevent and correct fluid leakage and improve pump life of hydraulic fluids, while it revitalises seals and O-rings.

Wynn's Hydraulic Systems Concentrate is a unique blend of anti-wear agents, corrosion inhibitors, dispersants, anti-oxidants and anti-foamants, combined with seal and O-ring conditioners.

Advantages

Wynn's Hydraulic Systems Concentrate will reduce friction, pump wear and heat, and will minimise cavitation and spongy operation. Additionally, this product helps prevent rust, gum, varnish, and sludge formation, preserves hydraulic system cleanliness and minimises maintenance costs.

Wynn's Hydraulic Systems Concentrate was developed to meet the specific requirements of industrial hydraulic systems using petroleum based hydraulic fluids.

Benefits

The unique formulation of Wynn's Hydraulic Systems Concentrate provides the following benefits:-

- PREVENTS AND CORRECTS LEAKS, IMPROVES SEAL AND O-RING LIFE

  The seals and O-rings of hydraulic systems using petroleum base fluids, are normally composed of synthetic rubber-like materials, such as Neoprene, nitrile, acrylic, Buna-N, Viton, Adiprene, Vulcolan or similar synthetic elastomers. These materials tend to lose their plasticisers, shrink, oxidise, harden and become brittle with age. As a result, they take a "compression set" and are quite susceptible to cracking and excessive wear.

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The higher the operating temperature of the system, the more serious are these effects. Seals which have taken a "compression set" or otherwise deteriorated, shrink away from the surfaces they are intended to seal, resulting in high leakage or seepage rates, especially at low temperatures and during startup.

Even though permanently deformed, when treated with Wynn's Hydraulic Systems Concentrate, seals expand so that they again contact the surfaces of rods, cylinders, pistons and glands. Wynn's Hydraulic Systems Concentrate can control leakage from static seals such as tubing joints equipped with SAE Straight Thread O-Ring Boss Fittings.

Spilled hydraulic fluids cause numerous problems and erode profits. First, they create an annoying maintenance chore, both for the cleanup and the replacement of fluid. They have been identified as a major source of Machine Tool Environmental Pollution. Next, oil on factory floors may cause employees to slip, fall and incur injuries. Liability insurance carriers take particular note of this condition during periodic safety checks. Also of considerable concern is the fire hazard associated with fluids. They may leak at high flow rates from pressurised systems. The toll taken when merchandise is soiled or stained with fluids can also be considerable. And, finally, there is the cost of the replacement fluid.

Leakage past piston seals does not result in external loss of fluid, but does cause system instability and "creep". These effects can be a nuisance, and they may create a serious personal hazard.

When treated with Wynn's Hydraulic Systems Concentrate, leakage is usually controlled within a few hours, depending upon operating temperature, pressure and the condition of the seals. Any seals which have failed due to rupture or breakage should be replaced prior to the introduction of Wynn's Hydraulic Systems Concentrate.

The continued use of Wynn's Hydraulic Systems Concentrate not only corrects existing leaks, but the elastomer anti-oxidants present in this fluid help to preserve the elasticity of all seals.

- INCREASES PUMP LIFE AND IMPROVES PUMP PERFORMANCE, REDUCES HEAT AND WEAR

Wynn's Hydraulic Systems Concentrate smooths and seals sliding metal surfaces, reduces friction and ensures free operation of pumps, motors, actuators and valves. Components operate with minimum wear, friction and heat. These surfaces are not subject to "stick-slip" motion.

Surfaces treated with Wynn's Hydraulic Systems Concentrate have greatly reduced adhesion for seals. As a result, the risk of spiral failures is reduced.

Wynn's Hydraulic Systems Concentrate substantially increases the life and improves the performance of hydraulic pumps and motors. In many cases, incipient failures of pumps can be arrested, so that manufacturing operations may continue until a maintenance shutdown can be affected without interrupting production. In cases where hydraulic system overheating is caused by mechanical friction, Wynn's Hydraulic Systems Concentrate is instrumental in reducing operating temperatures. Temperature drops of 15^{o}C to 30^{o}C have been reported after treatment with 5% of this product.

By controlling system leakage, Wynn's Hydraulic Systems Concentrate reduces the risk of pump damage due to operation with insufficient system fluid.

- INCREASES LIFE OF HYDRAULIC FLUIDS, REDUCES OR ELIMINATES GUMS, VARNISH AND SLUDGE

  The anti-oxidants contained in Wynn's Hydraulic Systems Concentrate prevent the formation of gums and varnish. The increased life of the hydraulic fluids substantially reduce fluid and maintenance costs, more than compensating for the modest cost of this product.

  Wynn's Hydraulic Systems Concentrate contains detergents and dispersants which prevent the deposition of contaminants on critical surfaces. Environmental conditions and high operating temperatures often cause the formation of sludge and varnish. These deposits can cause a loss of annular clearance in critical components, resulting in locked or frozen valves, actuators and pump components. In extreme cases, they can also clog pilot orifices, resulting in catastrophic or "hard-over" failures.

  Wynn's detergent-dispersant action keeps those impurities suspended in sub-microscopic particles which will not "plate out" or deposit throughout the system. They remain suspended until they reach the systems' depth filters or are removed when the systems are drained. Although a different detergent-dispersant is employed, this is the same basic principle which is used in heavy duty motor oils.

- PRESERVES SYSTEM CLEANLINESS, REPLENISHES DEPLETED ADDITIVES

  Operating exposure and certain filtration media deplete or remove a portion of the additives from premium quality hydraulic fluids.

A complete system drain raises fluid and maintenance costs, affects production scheduling and subjects the system to the risk of contamination. The addition of 2% of Wynn's Hydraulic Systems Concentrate every 2,000 to 5,000 hours can replenish the additive content without any of these disadvantages. However, in no case should the concentration of Wynn's Hydraulic Systems Concentrate be allowed to exceed 10%. Excessive levels may adversely affect some seal compounds.

- PREVENTS RUST AND CORROSION

  Even a trace of etching or corrosion on actuator rods seriously accelerates the rate of seal wear.

  Under some conditions, even rods which are protected with hard chrome are etched. This effect is a major cause of kibbling, scuffing abrasion and "spiral failure" of dynamic O-rings.

  Condensation and operating conditions often introduce water into hydraulic systems. Corrosion from entrapped water is substantially reduced when the system is protected with Wynn's Hydraulic Systems Concentrate.

  Under certain conditions, extended rods or rams of actuators on mobile equipment are unavoidably exposed to rain and condensation. While long term exposure of these components is to be avoided wherever possible, the regular use of Wynn's Hydraulic Systems Concentrate will minimise the resultant risk of corrosion.

  Where possible, the system should be operated regularly to assure the maintenance of an adequate preservative film on these critical surfaces. When equipment breakdown makes it impossible to operate the system, rods should be sprayed or brushed with a mixture of 25% Wynn's Hydraulic Systems Concentrate in petroleum solvent, base oil or hydraulic fluid.

- MINIMISES CAVITATION AND SPONGY OPERATION

  Wynn's Hydraulic Systems Concentrate contains anti-foamants especially selected for hydraulic systems. These assure rapid de-aeration of the fluid when it returns to the reservoir. As a result, cavitation erosion of pump surfaces is minimised. In addition, high bulk modulus and system "stiffness" are maintained and "spongy" operation is minimised.

- COMPATIBLE WITH HYDRAULIC SYSTEM MATERIALS

  Wynn's Hydraulic Systems Concentrate is compatible with mild steel alloys, stainless steels, aluminium, brass and all other alloys normally employed in industrial hydraulic systems.

  It is also compatible with all seals, elastomers, plastics and organic coatings (epoxy, paint, etc.) commonly used in industrial hydraulic systems.

Applications

Add 2% to 5% Wynn's Hydraulic Systems Concentrate to conventional or compounded petroleum base hydraulic fluid, depending upon severity of leakage or operating conditions (high temperature operation will necessitate the introduction of higher concentrations). When uncompounded hydraulic fluids or "base oils" are being used, 5% to 8% of Wynn's Hydraulic Systems Concentrate should be added for full protection.

Wynn's Hydraulic Systems Concentrate should be added to the hydraulic system in such a manner that it will be properly blended with the fluid. It should not be poured into a cold, static reservoir.

- SPECIAL PRECAUTIONS

  Wynn's Hydraulic Systems Concentrate is designed for use in petroleum (refined or synthetic) base hydraulic fluids only. It must not be blended with synthetic (vegetable oil based) or water-glycol fluids. It must not be used in automotive brake fluids.

  Since high concentrations of conditioners may cause excessive swelling of seals, no more than 10% Wynn's Hydraulic Systems Concentrate should be used in any hydraulic system.

- EXTENDED OIL LIFE

  Over time, the standard additive package within even premium grade hydraulic oils becomes depleted, necessitating a system oil change. As Wynn's Hydraulic Systems Concentrate replenishes all required additives, existing system oil can be returned to a better than new condition and extend its life (in some cases, as much as 100% or more).

  The use of Wynn's Oil Analysis Programme - OILSCAN - is recommended, to check the system and oil condition.

It is important, of course, to ensure external sources of contamination are avoided.

If the system oil is contaminated by dirt, oxidised oil or water, Wynn's Fluid Recycling Service is recommended.

- TYPICAL USE APPLICATIONS

All powered or manual hydraulic systems using petroleum base fluids:-

Metalworking Equipment
Mills
Automatic Lathes
NC Machines
Tracing Equipment
Presses
Press Brakes
Forging Equipment
Die Casting Equipment
Moulding Equipment
Tubing Bending Equipment

Other Factory Equipment
Tooling and Fixtures
Clamping Equipment
Assembly Systems
Material Handling Equipment
Fork Lift Trucks
Cranes and Hoists
Jacks
Chemical Mixing Equipment
Life Test Equipment
Simulators

Mobile Equipment
Construction Equipment
Earth-moving Equipment
Paving Equipment
Land Levellers
Back Hoes
Concrete Prestressing Equipment
Lift Slab Equipment
Cranes
Snow Removal Equipment
Mining Equipment
Logging Equipment
Tunnel Boring Equipment
Rubbish Disposal Equipment
Rubbish Compactor

Marine Equipment
Winch Drives
Line Tensioners
Motion Compensators
Steering Systems
Bow Thrusters
Hydrofoils
Deep Submergence
Manipulators
Sub-Surface Hand Tools

Farm Implements
Tractors
Harvesting Equipment
Graders
Land Planes
Tree Shakers

Typical Characteristics

Appearance	Clear Liquid
Colour (Visual)	Brown
Colour (ASTM D 1500)	2.0
Density @ 15°C	0.939 (ASTM D 4052)
Flash Point (°C) COC	138 (ASTM D 92)
Viscosity @ 40°C (cSt)	15.67 (ASTM D 445)
Viscosity @ 100°C (cSt)	3.15 (ASTM D 445)
Boiling Point (°C)	>210
Freeze Point (°C)	-29

Performance Testing

- SRV WEAR TEST

  An independent metallurgical laboratory conducted SRV wear tests on two commercial hydraulic oils, with and without the addition of 5% Wynn's Hydraulic Systems Concentrate.

  The following results, at two temperatures, show an appreciable reduction in wear with the use of Wynn's Hydraulic Systems Concentrate (Wynn's HSC).

SRV WEAR TEST
ISO 68 HYDRAULIC OIL

	BRAND A		**BRAND B**	
	Without Wynn's HSC	**With 5% Wynn's HSC**	**Without Wynn's HSC**	**With 5% Wynn's HSC**
Scar Profile @ 50°C Depth (microns) Width (microns) Area (square microns)	 2.9 550 550	 0.8 400 200	 1.1 600 350	 0.8 550 200
Scar Profile @100°C Depth (microns) Width (microns) Area (square microns)	 17.2 1400 7800	 1.2 500 400	 2.2 950 800	 1.1 550 300
Test Conditions	Load: 600N Stroke: 2mm		Frequency: 50 Duration: 60 minutes	