



TRUE CONFIDENCE COMES FROM WITHIN WITH CAT® HYDO™ ADVANCED

Cat® HYDO™ Advanced offers a significant performance breakthrough in hydraulic oil technology.

CATERPILLAR®

6,000-HOUR DRAIN INTERVALS AND EXTRA SYSTEM PROTECTION.

Cat HYDO Advanced monitored with S•O•SSM Services can streamline your operation.

- Cat[®] HYDO[™] Advanced is a heavy-duty, long-life hydraulic oil.
- With a combination of premium additives and specially selected and controlled higher-quality base oils, Cat HYDO Advanced extends drain intervals and provides extra protection to hydraulic system components.
- Increase productivity and lower your owning and operating costs with longer drain intervals. Plus get long-lasting anti-wear and corrosion protection in a wide operating temperature range.



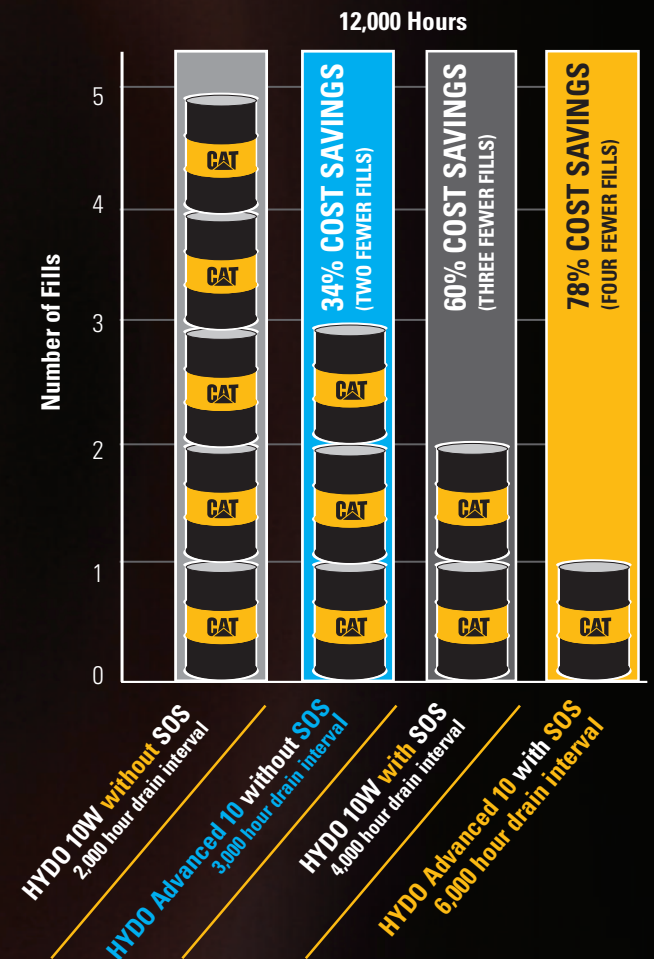
Developed, tested and approved by Caterpillar[®] to meet the same high standards as all Genuine Cat Parts, Cat HYDO Advanced is a significant step forward in hydraulic oil technology. It will help you minimize maintenance time, get greater productivity and lower your costs.



THE BENEFITS ADD UP.

- **6,000-HOUR EXTENDED DRAIN INTERVALS** – up to triple the hours of Cat HYDO 10W when monitored with Caterpillar S•O•SSM Services oil analysis program every 500 hours. Reduces owning and operating costs and increases uptime.

LESS HYDRAULIC OIL USED = COST SAVINGS



* Additional Savings = Oil Disposal • Downtime • Labor • Contamination Accuracy • Filter Clean-out

- **Enhanced, long-lasting anti-wear protection** – specially developed additives form a protective layer on the wear surfaces, reducing component wear in high-pressure piston, vane and gear hydraulic pumps.

- **Holds water in dispersion** – contains emulsifiers specifically designed to disperse water. Caterpillar does not recommend oils that “separate,” “shed” or “release” water. Separated water drawn through the hydraulic system can damage pumps and other components. If this water freezes, it can cause serious damage.

- **Backward compatibility** – the only hydraulic oil you need to stock for your maintenance operations. Preferred fill for Cat equipment.
- **Improved filtration properties** – special detergent and dispersants keep components clean and improve transport of contaminants through the filters. Compatible with Cat[®] Ultra High Efficiency filters.

- **Improved corrosion protection** – protects metal surfaces from rust. Better corrosion protection than most oils in the Cat line-up.
- **Fast air release** – rapid air separation reduces air release time, preventing cavitation. Cat HYDO Advanced 10 air release time of less than 4 minutes is far superior compared to Cat HYDO 10W at 7-10 minutes air release time (per ASTM D3427 testing).

- **Wide temperature range protection** – maintains consistent wear protection at both cold and hot temperatures. Designed to flow readily at cold-temperature startup and maintains excellent wear protection at operating temperatures.

- **Improved oil stability** – 250% increase in oxidation stability (per ASTM D943). Improved oil stability and wear protection make Cat HYDO Advanced last longer.

HEAD-TO-HEAD COMPARISON

Cat HYDO Advanced 10 vs. other hydraulic oils

CHARACTERISTIC ¹	Cat HYDO Advanced 10	Typical Diesel Engine Oil API CF SAE 10W	Typical Premium Industrial Hydraulic Oil, HVLP or HV	Cat HYDO Advanced 10 Advantages
SAE Viscosity Grade	10W	10W	Varies	Better wear protection, wider operating temperature range
Viscosity	42.0	40	46	
<i>cSt @ 40°C (ASTM D445)</i>	6.7	6.3	8.0	
<i>cSt @ 100°C (ASTM D445)</i>	114	105	146	
<i>Viscosity Index (ASTM D2270)</i>				
Viscosity after Shear ²	6.7	6.5	6.6	
<i>cSt, during use</i>				
FZG Gear Test DIN 51534, Fail Stage ³	12	12	11	
35VQ25 Vickers Total Wear Test	33mg	40 –90 mg	< 90mg	
Pour Point	-39	-30	-36	
<i>°C, ASTM D 97</i>				
Zinc	0.090	Varies	< 0.040	Corrosion protection
<i>% wt., ASTM D 4951, Typical</i>				
Copper Strip Corrosion ⁴	1A at 150° C	1 at 100° C	1 at 100° C	
<i>3 hr, ASTM D130</i>				
Rust Protection ⁵	Pass	Varies	Varies	
<i>ASTM D 665B</i>				
Oxidation Stability, Hours	> 5,000 hrs	> 2,000 hrs	> 2,000 hrs	Longer drain interval; lower owning and operating costs
<i>ASTM D943</i>				
Long Drain Interval Confirmed by Field Testing	Yes	No	No	
Filterability	Pass	Fail	Pass	Filter bypass; filter plugging; contamination control
<i>Wet, E DIN ISO 13357-1</i>				
Air Release	4 min	7 –10 min	7 –13 min	Better air release reduces cavitation damage
<i>Air Release @ 50° C (ASTM D3427)</i>				
<i>Lower is better</i>				
Cleanliness	No interference with optical particle counters	Interference with optical particle counters	Varies	Accurate contamination control
Ability to keep water in emulsion	Yes	Yes	No	Sludge control and water damage prevention



1 The values shown are typical values and should not be used as quality control parameters to either accept or reject product. Specifications are subject to change without notice.

2 Oils that contain viscosity modifier additives will become thinner during use in this machine. This will reduce protection level.

3 Higher is typically better but too-active antiwear additives may lead to reduced component life.

4 1A is better than 1B, 1A at 150° C is better than 1A at 100° C.

5 May be difficult to pass with 10W engine oils.

DESTRUCTIVE PUMP TEST

Cat HYDO Advanced 10 vs. Cat HYDO 10W

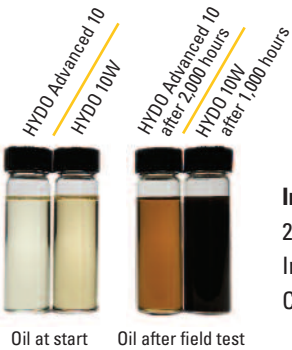
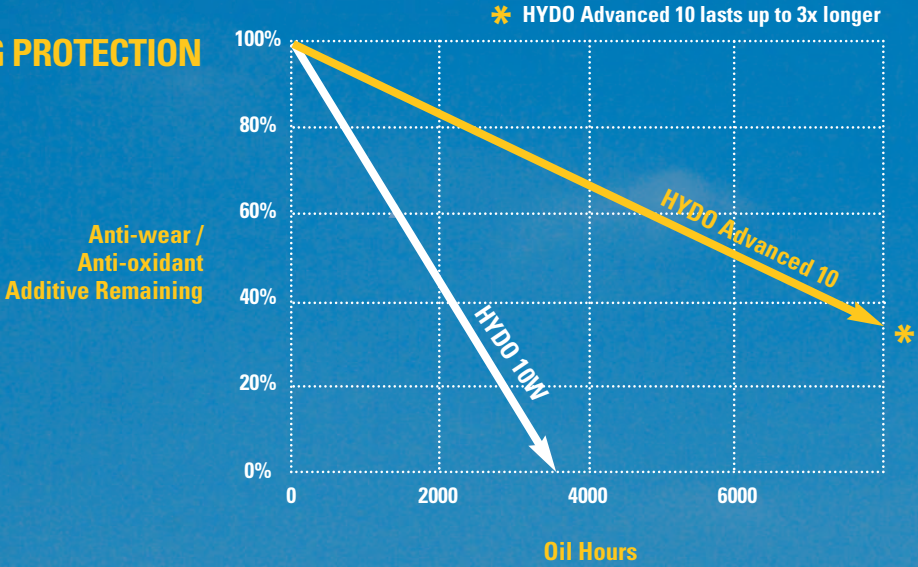
Cat HYDO Advanced 10 is the best product for Cat machine hydraulic systems. Tested side by side under severe wear application conditions, simulated with Cat’s proprietary destructive piston pump test, Cat HYDO Advanced 10 clearly outperformed HYDO 10W. Proof of performance? Significantly less visible wear. With Cat HYDO Advanced 10, the piston pump is in excellent condition after 200 hours. The piston pump with HYDO 10W failed after 178 hours.



6,000-10,000 HOURS
EXTENDED DRAIN INTERVALS

CAT HYDO
ADVANCED

LONGER-LASTING PROTECTION



Improved Oil Stability
250% increase in oxidation stability (per ASTM D943).
Improved oil stability and wear protection make Cat HYDO Advanced last longer.

FIELD TESTS

Cat HYDO Advanced 10 has been subjected to severe qualification testing in the field and laboratory for thousands of hours. Caterpillar field-tested Cat HYDO Advanced 10 in 43 machines over a three-year period in order to perform a thorough performance validation.

The results: Cat HYDO Advanced 10 demonstrated clear real-world anti-wear and

oxidation stability performance improvements over Cat HYDO 10W, lasting up to 9,000 hours in certain applications. In fact, in severe applications, where frequent oil changes were often standard practice, oil life doubled and component wear rates were cut in half. S•O•S Services oil analysis test results confirmed a dramatic reduction of wear-metal particles.

After 2,000 hours of severe field testing in excavators, Cat HYDO Advanced showed clear performance improvements over Cat HYDO 10W with 80% of HYDO Advanced's anti-wear/anti-oxidant additive remaining, compared to 40% for HYDO 10W. At 4,000 hours, HYDO Advanced still showed more than 60% remaining, while HYDO 10W's additive was completely depleted.

A COMPREHENSIVE CONTAMINATION CONTROL PROGRAM DELIVERS BIG BENEFITS.

Entrusting your repair and maintenance needs to your Cat® Dealer can pay big dividends. Your Cat Dealer's investment in contamination control training, practices, processes and equipment has the potential

to maximize component life and improve uptime while lowering your owning and operating costs.
Ask your Cat Dealer about the contamination control programs available to you.



✱ EXAMPLE: A common contamination control practice called “kidney looping” – a process pioneered by Caterpillar – can clean a machine’s hydraulic system oil back to its targeted cleanliness level, increasing component life, extending fluid and filter service life and reducing the overall cost of oil disposal.



CAT S•O•SSM SERVICES MAKE A REAL DIFFERENCE.

All oil analysis is not the same.

There is one clear choice when selecting an oil analysis service – Cat S•O•S Services. While oil companies or independent labs may claim they can analyze used oil from Caterpillar machines or engines, only Caterpillar knows exactly what metallurgical specifications were designed into each part and component.

Oil analysis is similar to medicine. At the end of the day, you want the best recommendations and treatment available, not just the test results. S•O•S Services reports contain a color-coded Alert Level and a detailed recommendation, as well as test results. The Alert Level lets you know, at a glance, the condition of your equipment,

while the recommendation provides an explanation of the test results and a course of action. If a problem is detected, the S•O•S Services report will provide machine-specific areas to inspect.

Contact your Cat Dealer for more information.



SUSTAINABILITY IS BUILT IN.

Cat HYDO Advanced is designed to allow for longer oil change intervals, which means less oil is used. In fact, a 6,000-hour oil drain interval is possible when using Cat HYDO Advanced, Cat oil filters and S•O•S Services oil analysis.



HEALTH AND SAFETY

Under normal conditions of intended use, this product does not pose a risk to health. Excessive exposure may result in eye, skin or respiratory irritation. Always observe good hygiene measures. Read and understand the Material Safety Data Sheet (MSDS) before using this product. For a copy of the MSDS, visit us online at www.catmsds.com

Cat® HYDO Advanced

To find out more, see your Cat Dealer.