

# Cat<sup>®</sup> HYDO<sup>™</sup> Advanced 20



## 6,000 Hour Extended Drain Intervals

Cat<sup>®</sup> HYDO<sup>™</sup> Advanced 20 complements the previously introduced Cat HYDO Advanced 10 and 30. Hydo Advanced 20 is an ISO 68 (SAE 20) viscosity that combines premium additives along with specially selected and controlled high quality base oil designed to provide extended drain intervals and extra protection to hydraulic system components.

Cat HYDO Advanced 20 represents a significant performance breakthrough in hydraulic oil technology. This oil has been developed with an optimized formulation that has been subjected to severe qualification testing in the field and laboratory for thousands of hours. This results in the best product available for Cat machine hydraulic systems.



# Cat HYDO™ Advanced 20



## Improved Oil Stability

Oxidation is detrimental to oil life and performance and contributes to oil darkening. Cat HYDO Advanced has improved oxidation stability, which means longer oil life and fewer deposits from oil breakdown.

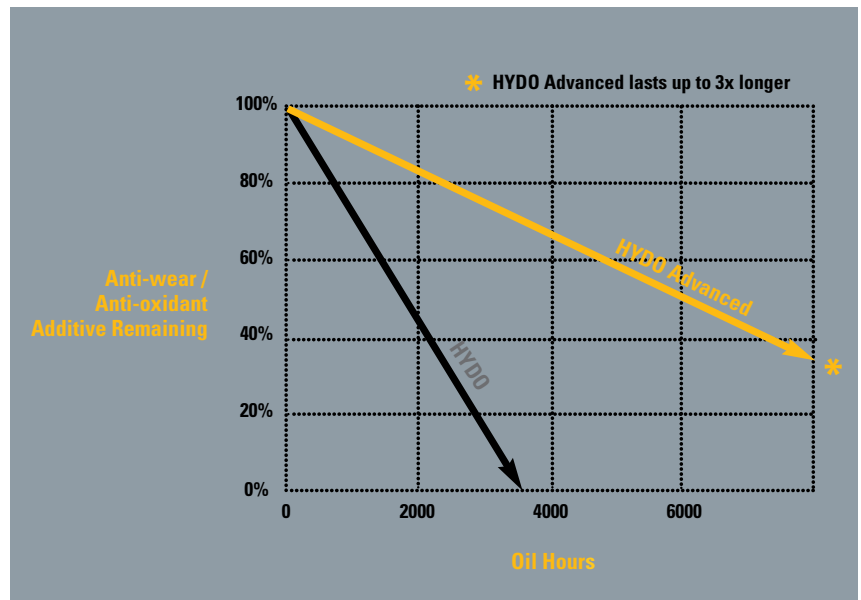


## Destructive Pump Test

Cat HYDO Advanced is the best product for Cat machine hydraulic systems. Tested side-by-side under severe wear application conditions, simulated with Caterpillar's proprietary destructive piston pump test, Cat HYDO Advanced clearly out-performed HYDO. Proof of performance? Significantly less visible wear. With Cat HYDO Advanced, the piston pump is in excellent condition after 200 hours. The piston pump with HYDO failed after 178 hours. (Note: test was run with Cat HYDO Advanced 10 and Cat HYDO 10W.)

## Features & Benefits

- **6,000 hour extended drain intervals** – when monitored with Caterpillar S•O•S<sup>SM</sup> Services oil analysis program – every 500 hours. Reduces owning and operating costs and increases uptime.
- **Enhances, 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 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.
- **Wide temperature range protection** – maintains consistent wear protection at both cold and hot temperatures. Designed to flow readily at cold temperature start up, 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.



## Longer Lasting Protection

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

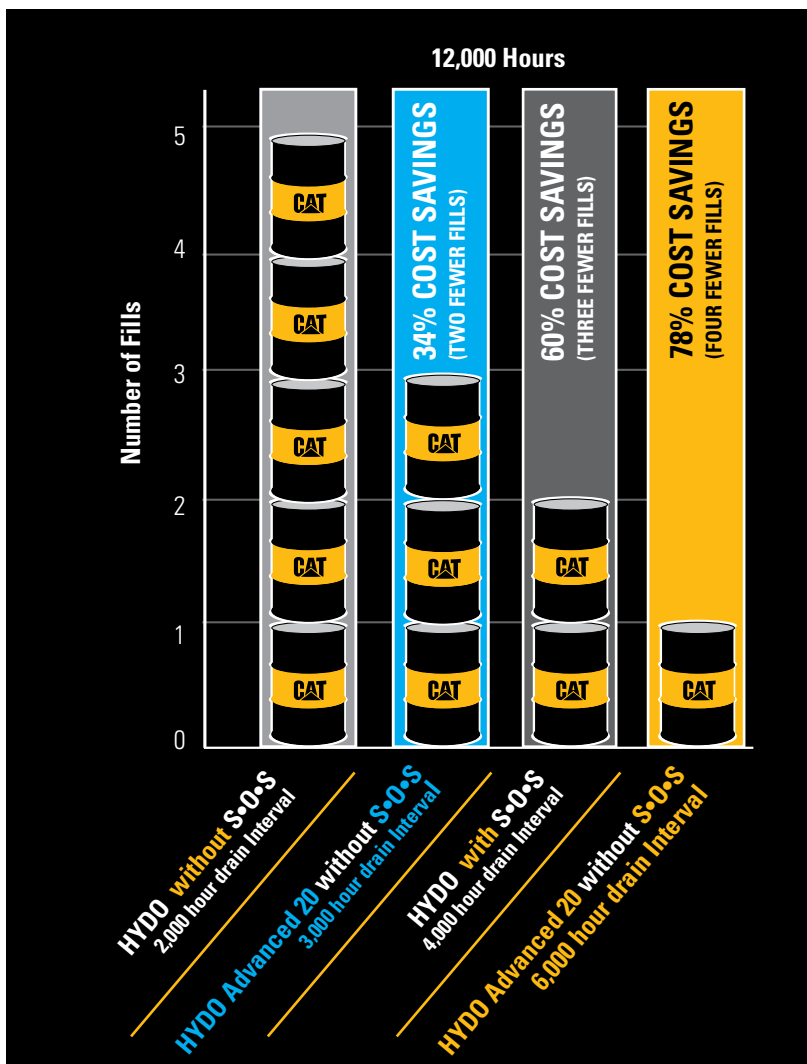
## 6,000 Hour Extended Drain Intervals

Caterpillar has increased the recommended oil drain interval for hydraulic systems using Cat HYDO Advanced 20 and Caterpillar S•O•S Services oil analysis program.

Hydraulic Oil	Standard	Extended <sup>1</sup>
Cat HYDO	2,000 hours	4,000 hours
Cat HYDO Advanced 20	3,000 hours	6,000 hours

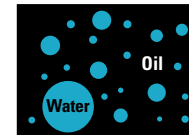
<sup>1</sup>Recommendations:

- Monitored with Caterpillar S•O•S Services oil analysis program every 500 hours.
- Hydraulic Filter change interval is the same.
- Cat hydraulic filters are strongly recommended.

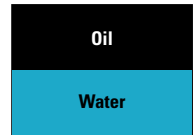


### Less Hydraulic Oil Used = Cost Savings

The benefits add up. 6,000-hour extended drain intervals—up to triple the hours of Cat. HYDO 20W when monitored with Caterpillar S•O•S Services oil analysis program.



Cat® HYDO™



Industrial Hydraulic Oil

Typical industrial hydraulic oils separate water and oil, which can cause valve sticking or excessive wear on your hydraulic system. Cat HYDO disperses small amounts of water throughout the oil to ensure proper lubrication.

**Emulsifiers** – are formulated to hold and disperse water so that it does not harm mobile hydraulic systems. Cat Hydo Advanced has emulsifiers which are specifically designed to separate water as shown above. Separated water drawn through the system can damage pumps and other components. If this water freezes, it can cause even more serious damage. Avoid oils whose specifications indicate that they “separate,” “shed” or “release” water.

Metric Volume	
Package Size	Part Number
4L	422-6709
5L	422-6711
20L	422-6712
208L	422-6714
1000L	422-6715
Bulk	422-6708

English Volume	
Package Size	Part Number
1 Gallon	422-6704
5 Gallon	422-6705
55 Gallon	422-6706

**Cat Filters: Complete protection for your machine.**

Combine Cat Fluids with Cat Filters for the highest level of contamination control and protection for your machine. We recommend Cat Filters for all Cat machine application.



# Cat HYDO™ Advanced 20

Typical Characteristics <sup>1</sup>	HYDO Advanced 20	HYDO Advanced 20 Advantages
SAE Viscosity Grade	20	Better wear protection, wider operating temperature range
Viscosity cSt @ 40° (ASTM D445)	68	
cSt @ 100° (ASTM D445)	9	
Viscosity Index (ASTM D2270)	110	
Viscosity after Shear <sup>2</sup> (cSt, during use)	9	
FZG (ASTM D5182)	12	
Vickers Vane Pump Test (35VQ25)	Pass	
Pour Point, °C (ASTM D97)	-33	
Brookfield Viscosity @ -20°C (ASTM D2983) mPaS	<9000	
Zinc, %wt (ASTM D4951)	0.094	
Copper Strip Corrosion <sup>3</sup> (ASTM D130)	1A	Corrosion protection
Rust Protection (ASTM D665 A and B)	Pass	
Oxidation Stability (ASTM D943)	>5000	Longer drain interval; lower owning and operating costs
Long Drain Interval, confirmed by field testing	Yes	
Filterability, Wet, E DIN ISO 13357-1	Pass	Reduced filter plugging; improves contamination control due to better filtration
Air Release @ 50°C (ASTM D3427)	<9 min	Reduces foaming
Foam Test <sup>4</sup>		
Seq. 1 ml. (ASTM D892)	0/0	
Seq. 2 ml. (ASTM D892)	0/0	
Seq. 3 ml. (ASTM D892)	0/0	
Cleanliness	No interference with optical particle counters	Accurate contamination control
Ability to keep water in emulsion	Yes	Sludge control and water damage prevention

<sup>1</sup> 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.

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

<sup>3</sup> 1A is better than 1B, 1A at 150° C is better than 1A at 100° C.

<sup>4</sup> New oil, as received, with 0.1% water by volume added.

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