

Cat[®] Fluids

INTRODUCING CAT[®] HYDO[™] ADVANCED 10 OIL

Introduction

Caterpillar[®] will be adding new hydraulic oil to the fluid product line, Cat[®] HYDO[™] Advanced 10. This new oil is a combination of premium additives and base stock designed to provide extended drain intervals and extra protection to hydraulic system components. Cat HYDO Advanced 10 will be released in China on July 1, 2007, in the United States on September 1, 2007, and worldwide on February 1, 2008.

Cat HYDO Advanced 10 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 requirements in order to provide superior protection and life for Cat hydraulic systems.



For Dealer Sales Personnel

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Features & Benefits

Due to the specially selected base stock and superior additive package, Cat HYDO Advanced 10 outperforms Cat HYDO™ in the following areas:

- 6,000-hour change intervals when used in conjunction with S•O•SSM Services oil analysis. (Reference Recommended Service Interval Section)
- Improved filtration properties
- Enhanced wear protection for piston hydraulic pumps
- Superior thermal stability
- Increased corrosion protection
- Higher oxidation resistance
- Significantly reduced oil darkening
- Eliminates interference with optical particle counters

As a result of this new product release, Cat HYDO will be discontinued in early 2008. Cat HYDO Advanced 10 improves upon all of the advantages of the previous product while extending the drain interval. Cat HYDO Advanced 10 offers enhanced value to the customer and can be recommended in any application where Cat HYDO has been used in the past.

Cat-HYDO Advanced 10 Characteristics*

SAE Viscosity Grade	10W
Density (ASTM D4052).....	0.863
Vickers Vane Pump Test (35VQ25)	Pass
FZG (ASTM D5182)	12
4 Ball (40kg/30min/600rpm/93°C)(ASTM D4172).....	0.37mm
Flash Point, °C (ASTM D92).....	227
Pour Point, °C (ASTM D97)	-39
Pumping @ -30°C mPaS (ASTM D4684).....	15,000
Brookfield @ -20°C cP (ASTM D2983)	2,900
<u>Viscosity</u>	
cSt @ 40°C (ASTM D445).....	42.0
cSt @ 100°C (ASTM D445).....	6.7
Viscosity Index (ASTM D2270).....	114

Foam Test **

Seq. 1 ml. (ASTM D892).....	0/0
Seq. 2 ml. (ASTM D892).....	5/0
Seq. 3 ml. (ASTM D892).....	0/0
Zinc, % wt. (ASTM D4951).....	0.090
Phosphorus, % wt. (ASTM D4951).....	0.073
Air Release @ 50°C (ASTM D3427).....	4 min
Rust Protection (ASTM D665A).....	Pass
Copper Strip Corrosion 3 hr @ 100°C (ASTM D130).....	1A
Oxidation stability, hours (ASTM D943).....	>5,000

* 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.

** New oil, as received, with 0.1% water by volume added.

Cat-HYDO Advanced 10 Part Numbers available in China July 1, 2007

Package Size	Cat HYDO Advanced 10 Part Number
Metric (Liters)	
1,000 Liter	309-6937
200 Liter	309-6940
18 Liter	309-6944

Cat-HYDO Advanced 10 Part Numbers available in U.S. September 1, 2007

Package Size	Cat HYDO Advanced 10 Part Number
Standard (Gallons)	
55 Gal	309-6930
5 Gal	309-6931
1 Gal x 4	309-6932

Cat-HYDO Advanced 10 Part Numbers available World Wide February 1, 2008**Package Size Cat HYDO Advanced 10 Part Number****Metric (Liters)**

Bulk Liter	314-5169
15,000 Liter	309-6934
10,000 Liter	309-6935
2,000 Liter	309-6936
1,000 Liter	309-6937
208 Liter	309-6938
205 Liter	309-6939
200 Liter	309-6940
60 Liter	309-6941
20 Liter	309-6942
19 Liter	309-6943
18 Liter	309-6944
5 Liter	309-6945

Standard (Gallons)

Bulk Gallon	314-5168
Bulk Railcar	309-6929
55 Gal	309-6930
5 Gal	309-6931
1 Gal x 4	309-6932

Distribution

Cat HYDO Advanced 10 will be available worldwide 1st Qtr. 2008. Ordering and delivery will be the same as current Cat oil products.

New Recommended Service Intervals for Cat® HYDO™ Advanced 10

Caterpillar is increasing the recommended oil drain interval for hydraulic systems using Cat HYDO Advanced 10. During extended field and lab evaluation, Cat HYDO Advanced 10 demonstrated extended drain capability due to the fluid's premium additives and base stock. The standard drain interval is currently 3,000 hours for Cat HYDO Advanced 10. Provided that the oil is monitored every 500 hours using Caterpillar's S•O•S Services oil analysis, or an equivalent program, and the conditions below are met, the drain interval can be increased to 6,000 hours for all machine hydraulic systems components.

Note: Cat HYDO Advanced 10 is NOT recommended for service brakes (oil immersed), clutches, drive axles, final drives or differentials.

Note: Cat HYDO Advanced 10 is NOT recommended for use in machine compartments that include friction material (e.g. "Hoist, Torque Converter, and Brake System" for off-highway trucks).

Note: Cat HYDO Advanced 10 is NOT recommended for use in machine compartments where Cat TDTO, Cat TDTO-TMS or commercial oils that meet Cat TO-4 or TO-4M specifications are the primary recommendation. Refer to the machine specific Operation and Maintenance Manual for guidance.

The following conditions should be met for best results

- **Hydraulic Oil Filters**

The Caterpillar hydraulic oil filter change interval will remain at the current 500 hours except in the applications for which a longer interval has been approved. Caterpillar filters are strongly recommended.

- **Monitoring Hydraulic Oil Condition**

Monitor the oil every 500 hours (same as currently prescribed) by Caterpillar's standard S•O•S Services oil sampling and test procedures (see "Measured Data"), or an equivalent oil-sampling program.

Observe current oil cleanliness level guidelines as stated in "Particle Count" under "Measured Data".

If Caterpillar's S•O•S Services oil analysis monitoring or equivalent (including interpretation) is not available, the traditional 3,000-hour drain interval should be retained.

- **Measured Data**

The following data should be monitored using Cat's S•O•S Services oil analysis testing techniques (measured, trended, analyzed and reported). Oil management* and condemnation** guidelines for contaminants and particle count are as follows:

Wear Metals - Oil management: trended for significant changes (iron, copper, chromium, lead, aluminum and tin);

Additive metals trended for significant changes - Oil management: zinc, calcium, magnesium and phosphorous;

Contaminants - Coolant: based on S•O•S Services guidelines and trend analysis for Na (sodium) and K (potassium), Water: 0.5% maximum, Dirt: based on S•O•S Services guidelines and trend analysis for Si (silicon) and Al (aluminum);

Particle Count - Oil management: The recommended cleanliness target for Caterpillar machines operating in the field is ISO 18/15 or cleaner. Trending particle count oil analysis should monitor system cleanliness. If contamination levels trend upward by more than two (2) ISO codes, action should be taken to determine cause and to return the system to the desired level. (Note: Some older-technology machines in the field might not be able to maintain cleanliness levels as good as those of newer models. However, the same contamination control service and maintenance procedures should be used on all Caterpillar Inc. products.);

Oxidation – The Condemnation guideline is 40% allowable (0.12 Abs units) for the differential scan FT-IR method. S•O•S Services now recommends using the Unsubtracted FT-IR Method (UFM) for measuring Oxidation. The general UFM guideline for hydraulic oils is 17. A specific UFM guideline is not currently available for this new hydraulic oil.

The new Cat HYDO Advanced 10 formulation will have an FT-IR fingerprint different from Cat HYDO. To assist your S•O•S Services analysis program in making the transition, it will be necessary to deplete the oil in bulk tanks to the lowest safe level and then refill to avoid oil analysis inconsistencies. S•O•S laboratory personnel and your oil analysis interpreters must be made aware of this change. A new FT-IR reference sample must be established at your location. The reference sample must be taken directly from your bulk tank after the first shipment of the new oil is transferred to that tank.

Kinematic Viscosity at 100° C - Condemnation guideline: no greater than a 2 cSt change from new.

- **The following data are highly desirable, but are optional:**

Total Acid Number (TAN is not required if FT-IR oxidation is run.) - Condemnation limit:

TAN of New Oil

<0.5

0.5 < TAN < 1.0

>1.0

Max. Permissible TAN of Used Oil

4 X TAN of New Oil

3 X TAN of New Oil

3.0

* Oil management guideline: Use S•O•S oil analysis; rectify any problem, filter oil, or change oil and filter.

** Condemnation limit guideline: Rectify problem, change oil and filter.

Additional Material

Cat HYDO Advanced Datasheet (available 7/07)
Caterpillar Machine Fluids Recommendations

Media Number – PEHJ0182
Media Number – SEBU6250

Contact Information

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