

# Caterpillar Engine Oil Specifications

**ASTM SECTION D.02.BO.02  
HEAVY-DUTY ENGINE OIL  
CLASSIFICATION PANELS**

Orlando, Florida

Dec 5, 2006

# Cat Engine Crankcase Fluids (ECF) Specifications

Update

Cat ECF-1-a

Modified ECF-1

Cat ECF-2

New

Cat ECF-3

Released Sep 1, 2006

# Summary of Cat ECF Specs

Cat ECF-1-a

API CH-4 oils (+)

Cat ECF-2

API CI-4/CI-4 PLUS oils (+)

Cat ECF-3

API CJ-4 oils

# Cat ECF-1-a

Replaces cat ECF-1 specification

Now applicable only to API CH-4 oils with no other changes

## Tests and limits

General	API CH-4 program (API Publication No. 1509, ACC Code of practice)
$\leq 1.30$ wt % ash	1 1P SCOTE test (ASTM D6681)
$1.30 < \text{ash} \leq 1.50$	2 1P SCOTE tests (ASTM D6681)
API Base Oil Interchange (BOI) read-across guidelines	Must be followed
API Viscosity Grade Read-Across (VGRA)	Allowed



# Cat ECF-2

Applicable to API CI-4/API CI-4 PLUS oils

## Tests and limits

General	API CI-4 program (API Publication No. 1509, ACC Code of practice)
Testing	Cat C13 500 hour engine test (as defined in the API CJ-4 oil category)
Limits	Ash level $\leq 1.50$ wt% (ASTM D0874)
API Base Oil Interchange (BOI) read-across guidelines	Must be followed
API Viscosity Grade Read-Across (VGRA)	Allowed

# Cat ECF-2

- ❑ Cat C13 Test: Ensures oils that offer advanced piston deposits and oil consumption control as well as protection from engine wear
- ❑ Upper limit on ash:
  - kept the limit from ECF-1 (ECF-1-a)
  - Supports a trend of lower ash oils
- ❑ Oils meeting API oil categories prior to API CI-4 may not claim Cat ECF-2

# Cat ECF-3

Applicable to API CJ-4 oils

Tests and limits

Follows the API CJ-4 Program

# Application

Specification	Application
Cat ECF-1-a	<ul style="list-style-type: none"><li>➤ All 2006 and older Cat on-highway diesel engines</li><li>➤ Cat 3500 Series and smaller commercial and machine diesel engines</li></ul>
Cat ECF-2	<ul style="list-style-type: none"><li>➤ All 2006 and older Cat on-highway diesel engines</li><li>➤ Cat 3500 Series and smaller commercial and machine diesel engines</li></ul>
Cat ECF-3	<ul style="list-style-type: none"><li>➤ Strongly recommended for all Cat 2007 and newer on-highway diesel engines</li><li>➤ All models and years Cat on-highway diesel engines</li><li>➤ Cat 3500 Series and smaller commercial and machine diesel engines</li></ul>



# Implementation

Cat ECF-1-a

March 1, 2007

Cat ECF-2

March 1, 2007

Cat ECF-3

Released Sep 1, 2006

# Questions?

