

Status of API CJ-4 (PC-10)

December 6th 2005





Successful B Ballots On Test Limits

- **API CI-4: Limits Cummins M11-EGR to ISM**
- **API CH-4: Limits Mack T-10 to Mack T-9**
- **API CF-4: Limits Mack T-10 to Mack T-6**



Agreements on API CJ-4 tests

- **Cat IP added**
- **Seq.IIF at API CI-4 limits or**
- **Seq IIIG at limits to be defined**



Three piston deposit tests in API CJ-4

- Caterpillar IN
- Caterpillar IP and
-
- Caterpillar C13

Three valve-train wear tests in API CJ-4

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- **Cummins ISM**
- **Cummins ISB, and**
- **Roller Follower wear test**



10 Engine Tests and 6 Bench Tests

Performance Criteria	Fuel Sulfur, Wt %/ppm	Test	PC-10 2006
Engine Tests			
Aluminum Piston Deposits, Oil Consumption	0.05	Caterpillar 1N ASTM D 6750	1
Forged Steel Piston Oil Consumption / Deposits	0.05	Caterpillar 1P ASTM D 6681	2
Oil Consumption and Piston Deposit	15 ppm	Caterpillar C-13	3
Viscosity Increase Due to Soot at 6.0%*	0.05	Mack T-11 ASTM D 7156	4
Ring, Liner Bearing Wear & Oil Consumption	15 ppm	MackT-12	5
Valve Train Wear, Filter ΔP and Sludge	.05	Cummins ISM	6
Valve Train Wear	15 ppm	Cummins ISB	7
Roller-Follower Valve Train Wear	0.05	GM 6.5-L RFWT ASTM D 5966	8
Aeration	0.05	Navistar EOAT ASTM D 6894	9
Oil Oxidation	0.10	See III G (CI-4) or IIIF(D 6984)	10
Bench Tests			
Foam Sequence I, II, III	–	ASTM D 892 (non opt. A)	1
Volatility	–	Noack D 5800	2
Elastomer Compatibility		EOEC (DXXXX) plus Vamac	3
High Temperature/High Shear		Viscosity After Shear D 4683	4
Corrosion		HTCBT 135°C D 6594	5
Shear Stability – 90 Cycles	–	Bosch Injector ASTM D 7109	6
Total Number of Engine and Bench Tests			16

Changes In last 6 months

- **Sulfated ash limit changed to non-critical at 1.0%**