

ATIEL develops a new base oil group in Europe

ATIEL (Association Technique de L'Industrie Européenne des Lubrifiants) acts as a European focal point for technical issues relating to the performance and environmental demands of engine oils. ATIEL's membership encompasses all of the major European oil companies. Further information and the list of member companies can be found at www.atiel.org.

ATIEL has an important role in agreeing quality standards for engine oils that meet ACEA (Association des Constructeurs Européens d'Automobiles) requirements. The ATIEL Code of Practice represents a key element in these quality standards and is accepted industry-wide as best practice for the development and manufacture of engine oils marketed as complying with ACEA Oil Sequences. The ATIEL Technical Council is responsible for the contents of the Code of Practice.

Part of the ATIEL Code of Practice provides guidelines on base stock quality assurance and on base oil interchange. Until recently, ATIEL divided base stocks into five groups identical to those defined by the American Petroleum Institute (API). In June 2003, however, ATIEL defined a new base stock group to accommodate polyinternalolefins (PIOs). This resulted from a request in 2000 from SASOL, Inc., the single worldwide manufacturer of PIOs, that PIOs be classified in Group IV, which both ATIEL and API define as being limited to polyalphaolefins (PAO).

In support of its request, SASOL presented engine test data on oils formulated by using a 6 mm²/s PIO grade in fully-approved SAE 5W-40 API SJ/CF and ACEA A3/B3 formulations using two different additive technologies. This data demonstrated that, for passenger car motor oil (PCMO) applications, PAOs and PIOs were equivalent for the 6 mm²/s grades. ATIEL considered that whilst they accepted that SASOL had demonstrated

equivalency between PIOs and PAOs for the 6 mm²/s grades, there was insufficient test data to prove interchangeability between PIOs and PAOs for the 4mm²/s grades. ATIEL requested, therefore, that SASOL carry out a full ACEA test program for an SAE 0W-30 oil conforming to ACEA A1/B1 and A3/B4 requirements for passenger car and light-duty diesel engine oils. Back-to-back testing was carried out replacing the 4 mm²/s PAO with a 4 mm²/s PIO, with all other parameters remaining unchanged.

The following 9-test matrix was carried out:

- OM602A, CEC-L-51-A-98 (viscosity increase and cylinder wear)
- OM441LA, CEC L-52-T-97 (bore polishing, piston cleanliness and turbocharger deposits)
- ASTM Sequence VG (sludge)
- M111FE, CEC-L-54-T-96 (fuel economy)
- M111, CEC-L-53-T-95 (sludge)
- Peugeot TU3MS, CEC-L-38-A-94 (valve-train wear)
- Peugeot TU3MH, CEC-L-55-T-95 (high-temperature oxidation)
- VW DI, CEC-L-78-T-99 (piston cleanliness)
- Peugeot XUD11BTE, CEC-L-56-T-98 (absolute viscosity increase and soot).

All tests were performed under the protocols laid down in the ATIEL Code of Practice, including the same registration requirements and rules for modifying a formulation during the testing process as a candidate or reference oil test run.

ATIEL's Base Oil Interchange, Viscosity Grade Read-Across, and Viscosity Modifier Committee reviewed all the data and recommended to the Technical Council that a new Group VI for PIOs be established, with full interchangeability with existing Group IV for PAOs. ATIEL preferred the introduction of a new Group VI, rather than the incorporation of PIOs in Group IV, because it retained the alignment between ATIEL and API for the existing Group I to V base stock definitions.

The ATIEL Code of Practice was duly revised in June 2003. API, which had been kept informed throughout, was formally advised of the situation. ♦

low pour points you expect in a PAO.

Differential PAO



This means more opportunity. Develop superior lubricants. Or gain valuable base oil blending flexibility to improve your current formulations. For tomorrow's biggest challenges and today's toughest specs, start with SpectraSyn Plus™.

ExxonMobil
Chemical

1 42 • Houston 800 682 6342 • Shanghai 86 21 5454 4583 ext. 5157 • Singapore 65 6885 2419
exxonmobilchemical.com