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Cooperative Engineering Program

SAE J1536 OCT88

Two-Stroke-Cycle Engine Oil Miscibility/Fluidity Classification

SAE Recommended Practice
Issued October 1988

Submitted for Recognition as
an American National Standard

SAE J301 - EFFECTIVE DATES OF NEW OR REVISED TECHNICAL REPORTS

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400 COMMONWEALTH DRIVE, WARRENDALE, PA 15096

FUELS AND LUBRICANTS PRACTICE

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TWO-STROKE-CYCLE ENGINE OIL MISCIBILITY/ FLUIDITY CLASSIFICATION

The SAE Miscibility/Fluidity Grades defined in Table 1 constitute a classification for two-stroke-cycle engine lubricating oils in rheological terms only. Other oil characteristics are not considered or included. This recommended practice is intended for use by engine manufacturers in determining the Miscibility/Fluidity Grades to be recommended for use in their engines, and by oil marketers in formulating and labeling their products.

TABLE 1 - SAE Miscibility/Fluidity Grades for Two-Stroke-Cycle Engine Oils

Grade	Test Temperature °C(1)	Reference(2) Oil
1	0	VI-GG
2	-10	VI-FF
3	-25	VI-D
4	-40	VI-II

Note: (1) Both Miscibility and Brookfield tests must be run on a candidate oil at the temperature intended for qualification.

(2) Miscibility revolutions and Brookfield centipoise on the candidate oil must not exceed those on the reference oil by more than 10% to qualify under a grade.

Miscibility and Fluidity are measured according to test procedures described in ASTM D 4682-87, Standard Specification for Miscibility with Gasoline and Fluidity of Two-Stroke-Cycle Gasoline Engine Lubricants. These test procedures relate to the two common methods for introducing lubricating oils into two-stroke-cycle engines.

Test Procedure	Lubricating Oil Introduction By	Location
Miscibility	Mixture with fuel	In fuel tank or fuel line
Fluidity	Lube injection	Into air/fuel or fuel stream or at other points

Most oils will meet the requirements of one of the grades. In labeling an oil with its Miscibility/Fluidity Grade, only the highest grade may be referred to on the label.