



Designation: D 3117 – 96^{ε1}

An American National Standard

Standard Test Method for Wax Appearance Point of Distillate Fuels¹

This standard is issued under the fixed designation D 3117; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

^{ε1} NOTE— Figure was corrected editorially in October 1997.

1. Scope

1.1 This test method covers the detection of wax in burner fuels, diesel fuels, and turbine engine fuels in the range from -26 to $+2^{\circ}\text{C}$. It is applicable to a dark-colored oil if the stirrer can be seen under illumination.

1.2 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.* For specific hazard statements, see Notes 2 through 5.

2. Referenced Documents

2.1 ASTM Standards:

D 2386 Test Method for Freezing Point of Aviation Fuels²

D 2500 Test Method for Cloud Point of Petroleum Oils²

E 1 Specification for ASTM Thermometers³

3. Terminology

3.1 Definition of Term Specific to This Standard:

3.1.1 *wax appearance point*—the temperature at which wax first begins to separate from the liquid when it is cooled under prescribed conditions.

4. Summary of Test Method

4.1 A specimen of distillate fuel is cooled under prescribed conditions while being stirred. The temperature at which wax first appears is recorded as the wax appearance point.

5. Significance and Use

5.1 Wax appearance point is the temperature at which wax crystals begin to precipitate out of a fuel under specified cooling conditions. The presence of wax crystals in the fuel may restrict flow or plug the fuel filter. In critical fuel systems, wax appearance point may define the lower limit of acceptable operability.

6. Apparatus (Fig. 1)

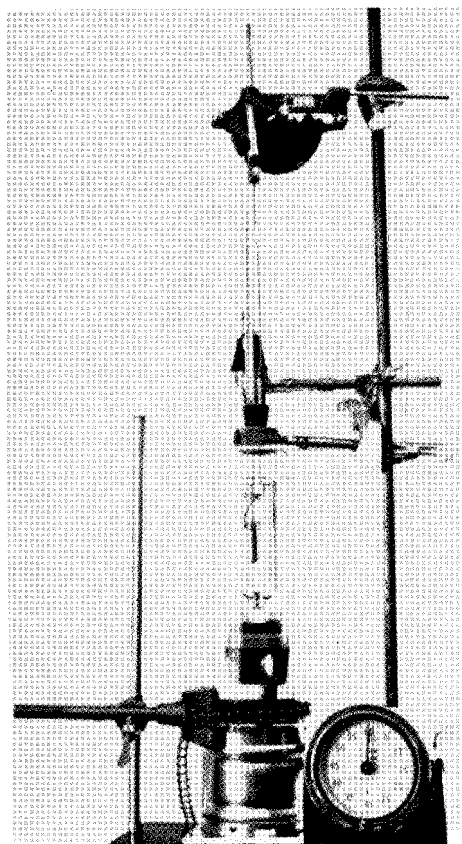


FIG. 1 Complete Assembly

6.1 *Specimen Tube*—A double-walled (Dewar-type) jacketed tube with dimensions shown in Fig. 2.

6.2 *Thermometer*—Conforming to specifications for ASTM Thermometer 62C in accordance with Specification E 1.

6.3 *Stirrer Assembly*—A stainless steel wire configured in the manner described in Fig. 3 and manipulated by a motor or other suitable device in a vertical direction. The frequency of movement shall be 55 ± 5 cycles/min with an amplitude of 50 ± 5 mm. The stirrer shall be concentric with the thermometer and shall be fitted with the moisture proof collar specified

¹ This test method is under the jurisdiction of ASTM Committee D-2 on Petroleum Products and Lubricants and is the direct responsibility of Subcommittee D02.07 on Flow Properties.

Current edition approved Nov. 10, 1996. Published January 1997. Originally published as D3117 – 72. Last previous edition D3117 – 87 (1993)^{ε1}.

² Annual Book of ASTM Standards, Vol 05.01.

³ Annual Book of ASTM Standards, Vol 14.03.