



Designation: D8046 – 21

Standard Guide for Pumpability of Heat Transfer Fluids¹

This standard is issued under the fixed designation D8046; 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.

1. Scope*

1.1 This guide covers general information, without specific limits, for selecting and evaluating pumpability characteristics of heat transfer fluids at both low and high temperature. This guide is a compendium of information and does not recommend a specific course of action. This guide provides additional information on pumpability topics found in companion guides for evaluating heat transfer fluids, Guides [D5372](#) and [D7665](#).

1.2 Pumpability of heat transfer fluids is dependent on both fluid properties and the design of the fluid handling system that stores and transports the fluid, and therefore presents a number of pumping options. This guide is considered particularly useful for identifying pumpability options. The listing of test standards and guides is not all-inclusive and additional standards and guides may be useful.

1.3 The values stated in SI units are to be regarded as standard.

1.3.1 *Exception*—Other units are provided for information only.

1.4 *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, health, and environmental practices and determine the applicability of regulatory limitations prior to use. Users of heat transfer fluids should be especially mindful of potential fire and explosion hazards.*

1.5 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

¹ This guide is under the jurisdiction of ASTM Committee [D02](#) on Petroleum Products, Liquid Fuels, and Lubricants and is the direct responsibility of Subcommittee [D02.L0.06](#) on Non-Lubricating Process Fluids.

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2. Referenced Documents

2.1 ASTM Standards:²

- [D92](#) Test Method for Flash and Fire Points by Cleveland Open Cup Tester
- [D93](#) Test Methods for Flash Point by Pensky-Martens Closed Cup Tester
- [D97](#) Test Method for Pour Point of Petroleum Products
- [D445](#) Test Method for Kinematic Viscosity of Transparent and Opaque Liquids (and Calculation of Dynamic Viscosity)
- [D891](#) Test Methods for Specific Gravity, Apparent, of Liquid Industrial Chemicals
- [D2161](#) Practice for Conversion of Kinematic Viscosity to Saybolt Universal Viscosity or to Saybolt Furol Viscosity
- [D2270](#) Practice for Calculating Viscosity Index from Kinematic Viscosity at 40 °C and 100 °C
- [D2879](#) Test Method for Vapor Pressure-Temperature Relationship and Initial Decomposition Temperature of Liquids by Isoteniscope
- [D2887](#) Test Method for Boiling Range Distribution of Petroleum Fractions by Gas Chromatography
- [D2983](#) Test Method for Low-Temperature Viscosity of Automatic Transmission Fluids, Hydraulic Fluids, and Lubricants using a Rotational Viscometer
- [D4052](#) Test Method for Density, Relative Density, and API Gravity of Liquids by Digital Density Meter
- [D4175](#) Terminology Relating to Petroleum Products, Liquid Fuels, and Lubricants
- [D5372](#) Guide for Evaluation of Hydrocarbon Heat Transfer Fluids
- [D6304](#) Test Method for Determination of Water in Petroleum Products, Lubricating Oils, and Additives by Coulometric Karl Fischer Titration
- [D7042](#) Test Method for Dynamic Viscosity and Density of Liquids by Stabinger Viscometer (and the Calculation of Kinematic Viscosity)

² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

*A Summary of Changes section appears at the end of this standard