



# Oil Viscometer Kit



## *Features*

- Rugged
- Portable
- Armor-cased thermometer

## *Benefits*

- Inexpensive
- Easy to use
- Convenient



Hauck's Oil Viscometer Kit provides an easy, convenient and inexpensive way to rapidly determine the temperature to which oil should be heated to arrive at the proper viscosity for atomization. Kit includes viscometer and 0 - 300 °F scaled armor-cased thermometer.

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**Combustion Excellence Since 1888**



Hauck Manufacturing Company

# Oil Viscometer Kit



## ADVANTAGES OF THE OIL VISCOMETER KIT

Inexpensive

Convenient

Simple to Use

Portable

The viscosity of a fluid is a measure of its internal resistance to flow. The higher the viscosity, the more the oil approaches a solid state. The lower the viscosity, the more easily the oil flows.

The viscosity of an oil can be altered by heating. Viscosity decreases with increases in temperature. When heavy oils are used, it is necessary to reduce the viscosity of the oil by raising the oil temperature. Two questions immediately come to mind. What viscosity is best for burner operation and what temperature must the oil be heated to so as to reduce its viscosity to this required level?

For proper burner operation, the oil must be efficiently atomized. That is, the oil must be mixed with air. If the oil droplets are too large, i.e. the viscosity is too high, they will not properly mix with air. This will result in reduced fuel efficiency and an increased probability of carbon formation in the burner tiles and furnaces. The proper viscosity for low pressure air atomization is between 80 and 90 seconds, Saybolt Universal. Seconds, Saybolt Universal (SSU), is a commonly used measure of viscosity. Using this scale, viscosity is expressed in terms of the number of seconds required for a specified amount of oil to flow through an orifice, hence, the larger the number in seconds (SSU), the higher the viscosity.

The question of what temperature is required to attain a viscosity of 80-90 SSU is not easily answered.

It used to be a good rule of thumb to heat No. 6 oil to 210°–220°F. This is no longer true. Most of the residual oils now require much higher temperatures. In fact, the proper temperature for blends and the heavy residual oils can range from 180° to 270°F. To complicate matters even more, the temperature needed to achieve a viscosity of 80–90 SSU changes, sometimes substantially, from one delivery to another.

An oil viscometer kit, specifically designed for field use, allows the operator to quickly determine the viscosity of an oil sample at a particular temperature, even under the most adverse conditions. This is accomplished by heating a ½ gallon sample of oil to a known temperature, as read on a thermometer supplied with a viscometer, and then timing the flow of a specified amount of the oil through an orifice in the base of a meter cup. The number of seconds required to drain the viscometer equals the SSU of the oil. No conversion is necessary. The SSU value is immediately known to an accuracy of 5% within the 40 to 180 SSU range.

The use of a viscometer kit can aid in the efficient, complete atomization of the oil supplied to the burner, regardless of the viscosity at which it was originally delivered to the plant.

Hauck Manufacturing Company offers an oil viscometer kit that contains a viscometer with chain, and an armor cased thermometer. The operator must supply a ½ to 1 gallon container, a heat source, and a watch or clock with a sweep second hand to complete a proper viscosity test.

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