

The densities of different kinds of oils are about as follows:—

Water	10	deg. Beaume.
Cylinder oil	24.5	deg. Beaume.
Heavy engine oil	25.5	deg. Beaume.
Light engine oil	27	deg. Beaume.

A simple and accurate method of determining the specific gravity of oil is as follows: Take a clean bottle and weigh it. Then fill the bottle with water and weigh it again to find out the net weight of water it will contain. Empty again and fill to the same point with the oil to be tested. Then ascertain the net weight of the oil. The weight of the oil divided by the weight of the water gives the specific gravity of the oil.

VISCOSITY is the measure of the fluidity or body of an oil and is usually taken as the time for a given quantity of oil to run through a standard orifice. These tests are usually made in a viscosimeter. As these instruments have different sized orifices the specific viscosity is often taken, which is the ratio of the time for the oil to run out to that of an equal quantity of water at 60 degrees. The viscosity of engine oil is usually rated at 70 deg. F., and of cylinder 212 deg.

THE FLASH POINT is determined by slowly heating a given sample of the oil in an open cup and noting the temperature at which a spark applied to the vapor will ignite it. As the effect of heat on oil is always to lessen its body, therefore decreasing its ability to keep two rubbing surfaces separated, flash test is of considerable importance.

The standards usually used for flash test are as follows:—

High pressure cylinder oil	600 deg.	610 deg.
General cylinder oil	550 deg.	585 deg.
Heavy engine oil	400 deg.	
Refrigerating oils		300 deg.
Gas engine cylinder oil		500 deg.

The fire test can be made if the heating be continued till the surface of the oil ignites and continues to burn. The temperature at which it ignites is the burning point, and will be found to be 45 to 75 degrees higher than the flash test.

THE COLD TEST is the temperature at which the oil will just flow. This is usually taken at 30 deg., except in the case of refrigerating oils, in which the figure is 0 deg.

A simple test for determining whether an oil is compounded with animal fat can be made as follows:—

Pour a small quantity of oil into a bottle with about an