

VBASE® Base Oils: Fire Resistance

VBASE Base Oils Enable Environmentally Friendly Fire-Resistant Fluids

VBASE base oils offer fire resistance without compromising on lubricating performance or environmental acceptability. VBASE base oils inherent fire resistance allows formulators to produce fire resistant lubricants that can achieve Factory Mutual certification.

Fire resistant lubricants are critical for use in applications with high heat, open flame, or sparking environments. Petroleum oils have long been the workhorse base fluid but can be dangerous in many applications due to their flammability. For example, when hydraulic fluid sprays from a high-pressure leak, oils form a fine mist which increases the likelihood of ignition.

Blenders and formulators must consider the fire risk of an application when choosing a base oil, but they must balance the need for lubricating performance. Oil-in-water or water-in-oil emulsions offer high flame resistance, but these products show poor lubrication, high wear, and increased tendency to rust. Conversely, phosphate esters offer extreme fire resistance, but they are more expensive and dangerous to the environment. VBASE base oils offer flame resistance without compromising on the needs for both excellent lubricating performance and environmental acceptability.

VBASE Base Oil Fire Resistance Data: While all VBASE viscosity grades 32-100 offer high flash points, fire points, and autoignition temperatures, VBASE 46S and 68U have been further tested for fire resistance. These grades performed well on tests for spray flammability per the **Federal Standard 791D (6052) High Temperature- High Pressure Spray Ignition** test. In this test, oil is heated to 100 °F and pressurized to 10 psig. The pressurized oil is then sprayed through a nozzle as an open flame is applied. VBASE base oils **did not ignite** and were rated as **non-flammable**. In tests of flame propagation rate and wick lighting, VBASE base oils exceeded the requirements specified for fire resistant aviation hydraulic fluids (MIL-SPEC 83282). (See vbaseoil.com for data on all viscosity grades.)

	Test Method	VBASE 46S Base Oil	VBASE 68U Base Oil	SPECIFICATION Standard Hydraulic fluid MIL-PRF-5606	SPECIFICATION Fire-Resistant Hydraulic Fluid Aviation MIL-PRF-83282
Flash point (°C)	ASTM D92	235	296	>102	>210
Fire point (°C)	ASTM D92	264	322	>110	>235
Autoignition temperature (°C)	ASTM E659	391	408	>232	>354
Flame propagation rate (cm/sec)	ASTM D5306	0.09	0.09	<0.73	<0.21
Wick Flammability (cycles)	FTM-352	19	40	-	>10
High Temperature-High Pressure Spray Ignition	FTM-6052	Non-flammable, No Ignition	Non-flammable, No Ignition	<i>Not part of specification</i>	Fluid shall not continue to burn when source of ignition removed

EU Ecolabel LuSC-List



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Non-Toxic · Non-bioaccumulating

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