



PYDRAUL F-9...

***tailor-made
straight synthetic
fire-resistant
hydraulic fluid***

After a successful test program, Monsanto introduced Pydraul F-9 in 1951 as industry's first tailor-made straight synthetic fire-resistant hydraulic fluid. Pydraul F-9 rapidly became the standard against which all other synthetic hydraulic fluids were judged; today, Pydraul F-9 is still considered the basis for comparison.

Most of the 500,000,000 machine hours Pydraul fluids have served industry have been accumulated on Pydraul F-9. Pydraul F-9 is now in use in every major type of die-casting machine plus a wide variety of other types of equipment found in the metal-working industry. Pydraul F-9 is the most performance-proven fire-resistant fluid now in use in industrial applications.

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*Pydraul, Monsanto trademark. Reg. U.S. Pat. Off.

TOWOLDMON0022129

WATER_PCB-00006598

PYDRAUL F-9 HAS DOUBLE-ACTION FIRE RESISTANCE...

Pydraul F-9 protects equipment and personnel in the event of contact with ignition sources and remains fire resistant in use . . . contains no water to evaporate and leave a flammable residue. During its long use by industry, Pydraul F-9 has been accidentally discharged over molten metal, red-hot ingots, arcs, open flames and sparks . . . without causing fire. Pydraul F-9 has never caused or contributed to hydraulic fire in any type of equipment. Pydraul F-9 is the only fire-resistant hydraulic fluid to be listed by Underwriter's Laboratories.

Here are the results of the important laboratory tests for fire resistance:

HOT-MANIFOLD TEST (per MIL-F-7100) Pydraul F-9 exposed to the surface of a manifold, 1300° F. **FLUID DID NOT FLASH OR IGNITE**

HIGH-PRESSURE IGNITION TEST (AMS-3150B, 4.9.3.2, and MIL-F-7100) Pydraul F-9 sprayed through a small orifice at 1000 psi, passing through the flame of an oxyacetylene torch, 6000° F. **FLUID DID NOT FLASH OR IGNITE**

LOW-PRESSURE SPRAY TEST (AMS-3150B) Pydraul F-9 sprayed through an orifice at low pressure, the mist passing over an ignited oil-soaked rag. **FLUID DID NOT INCREASE INTENSITY OF FLAME**

MOLTEN-METAL IGNITION TEST Pydraul F-9 poured on the surface of a molten alloy, exceeding 1100° F. **FLUID DID NOT FLASH OR IGNITE**

PYDRAUL F-9 IS PERFORMANCE PROVEN...

Pydraul F-9 has compiled an excellent performance record in a wide variety of equipment in many industries. This list shows typical applications.

DIECASTING MACHINES
HYDRAULIC PRESSES
FURNACE TILTERS
FURNACE-DOOR OPENERS
INCOY LOADERS
ROTARY FURNACES

MOLTEN-SALT BATHS
EXTRUSION PRESSES
FORGES
PLATING MACHINES
PERMANENT MOLD CASTING

ELECTRIC FURNACES
ELEVATORS AND HOISTS
SCARFERS
STAMPERS
HYDRAULIC JIGS

Its unique combination of properties recommend Pydraul F-9 for uses even more diversified than the current applications in which it has proved so successful.

PYDRAUL F-9 HAS PREVENTIVE-MAINTENANCE PROPERTIES...

Pydraul F-9 is known throughout industry for its quality and dependability . . . wherever machines have been converted from water based fluid to Pydraul F-9, users report maintenance tasks drop off sharply. The reason is this: Pydraul F-9 was especially designed to give the excellent performance of a premium petroleum oil with the added protection of fire resistance. These properties of Pydraul F-9 make it a true preventive-maintenance fluid . . .

OUTSTANDING STABILITY Pydraul F-9 doesn't wear out in use. Systems have operated on Pydraul F-9 since it was introduced in 1951 without a single fluid change . . . you don't have to inspect it monthly or plan any fluid changes other than normal make-up requirements.

PREMIUM LUBRICITY Pydraul F-9 has exceptional film strength and load-carrying capacity. In this respect, it outperforms even the best petroleum oils. Parts show very little wear when operated on Pydraul F-9.

GOOD ANTI-RUST PROPERTIES Pydraul F-9 does not cause rusting of metals; does not lose anti-rust properties with use.

NONTHICKENING Pydraul F-9 does not thicken or form sludge with use. Pydraul F-9 systems run cleaner than even those on premium petroleum oil.

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HYDRAULIC FLUID LUBRICANTS

Timken Load (Passing)

45 lbs., 18,000 psi

Almen Wear

2.0 mg. at 4000 psi

Almen Load

48 lbs., 25,000 psi

Steel-on-Steel

10 Kg. 40 Kg.

Steel-on-Bronze

10 Kg. 40 Kg.

(1.27 x 10⁻³ in. x 0.01 in. x 0.01 in.)

0.28 0.67

1:18 1:28

HYDRAULIC F-8 SPECIFICATIONS

Cloudy liquid

1,270 — 1,300

Add, 0.18 maximum

0.20% maximum

HYDRAULIC F-8 TYPICAL PROPERTIES

Viscosity

155 cSt

Flash point

340 F

Fire point

350

Cloud point

187 F

Demulsibility

1.25% water

Corrosion

0.1% water

Thermal stability

0.1% water

Calorific value

11,000 Btu/lb

Vapor pressure

0.1 lb./sq. in.

Pour point

-35 F

Acid number

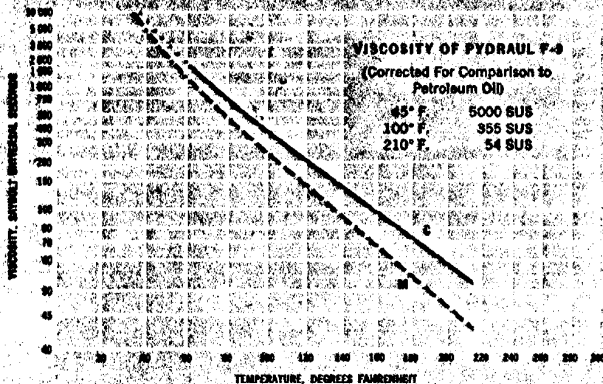
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In the graph below, curve "M" is the laboratory-measured viscosity of Pydraul F-9. "C" shows the viscosity-temperature relationship modified for the differences in density of oil and Pydraul F-9. By comparing curve "C" with a viscosity curve of a medium-weight-petroleum hydraulic oil, you can see that the two are essentially equivalent at normal operating temperatures.



Pydraul F-9 can be stored at sub-zero or high temperatures without freezing or heat damage to the fluid. Drums stored outside should be tightly sealed to prevent entry of moisture. Inside or sheltered storage is preferred.

Monsanto

The information contained in this bulletin is, to our best knowledge, true and accurate. All recommendations or suggestions are made without guarantee. Use the information at your own risk. We are not responsible for any damage or loss that may result from the use of this data or suggestions.

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