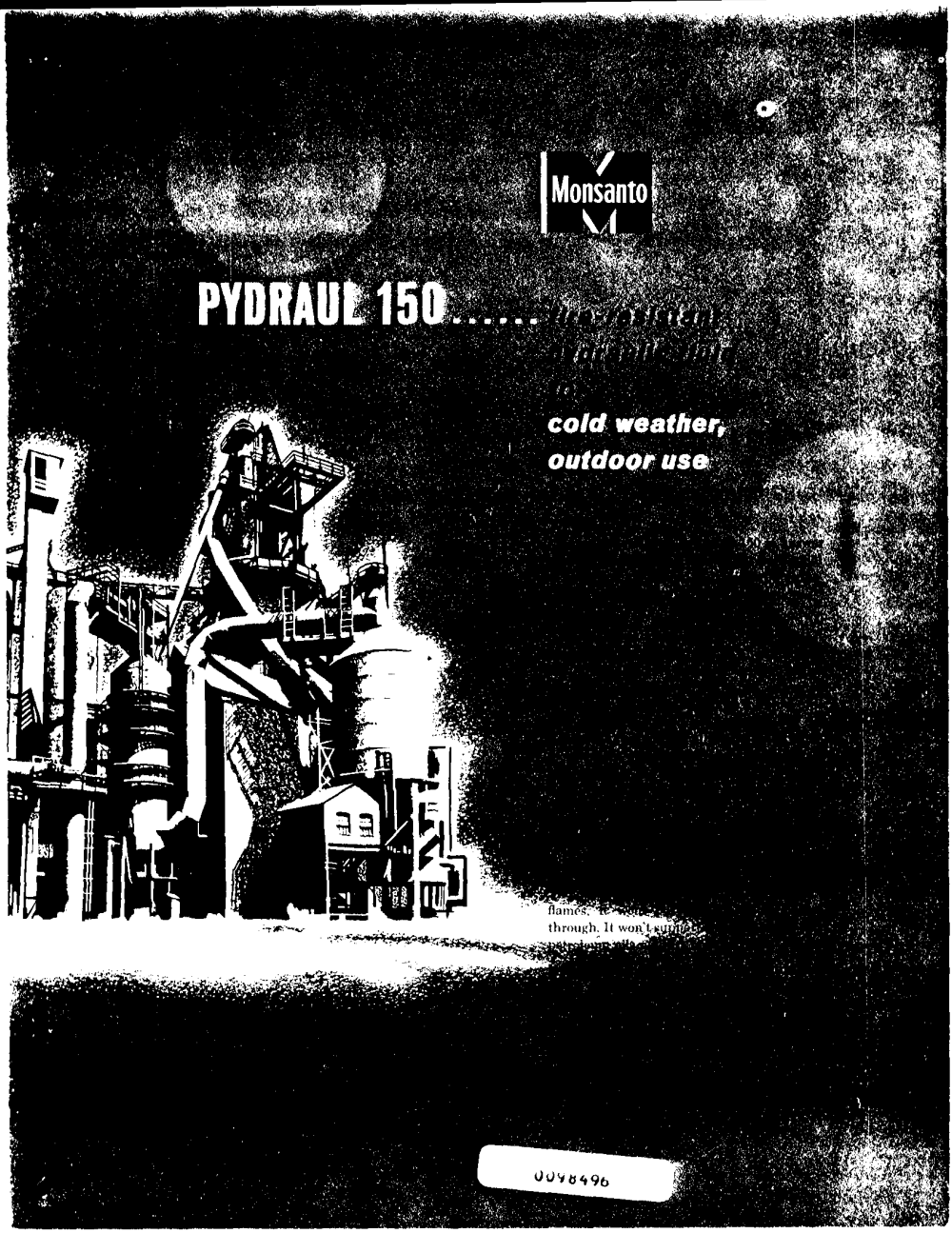

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PYDRAUL 150 has double-action fire resistance...

Pydraul 150 — like all Pydraul fluids — has built-in, permanent fire resistance. Pydraul 150 passes all the important ignition tests for fluid fire resistance and, in addition, does not lose fire resistance through evaporation. Here are the results of fire-resistance tests:

HIGH-PRESSURE IGNITION TEST (AMS-3150B, 4.9.3.2., and MIL-F-7100) Pydraul 150 sprayed through a small orifice at 1000 psi, passing through the flame of an oxy-acetylene torch, 6000° F.—

FLUID DID NOT FLASH OR BURN

LOW-PRESSURE SPRAY TEST (AMS-3150B) Pydraul 150 sprayed through an orifice at low pressure, the mist passing over an ignited, oil-soaked rag—

SLIGHT INCREASE IN FLAME INTENSITY

MOLTEN-METAL IGNITION TEST—Pydraul 150 exposed to the surface of an aluminum alloy at 1150° to 1200°F.—

FLUID DID NOT SPONTANEOUSLY IGNITE

In all these tests, a light oil flashed and burned readily with self-sustaining flames.

PYDRAUL 150 has preventive maintenance properties...

You expect safety from a fire-resistant fluid, and Pydraul 150 gives you double-action fire safety built into a low-viscosity fluid without sacrificing other important fluid properties. Pydraul 150 lubricates as well as comparable lightweight petroleum oils . . . has higher film strength and good antiwear properties which protect your equipment and costly components.

Pydraul 150 is unique . . . in a class by itself! No other industrial fire-resistant fluid matches its performance in outdoor, cold-weather applications.

PYDRAUL 150 has proven reliability...

Service experience in over 700 Askania Regulator systems, steam-turbine governors, and boiler-control systems in steel industry operations has proved that Pydraul 150 gives performance you can depend on. Years of field use in many outdoor hydraulic applications have shown that Pydraul 150 does not thicken in use, handles tough lubricating jobs, does not cause rusting, remains stable in use.

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PYDRAUL 150 *is an excellent lubricant...*

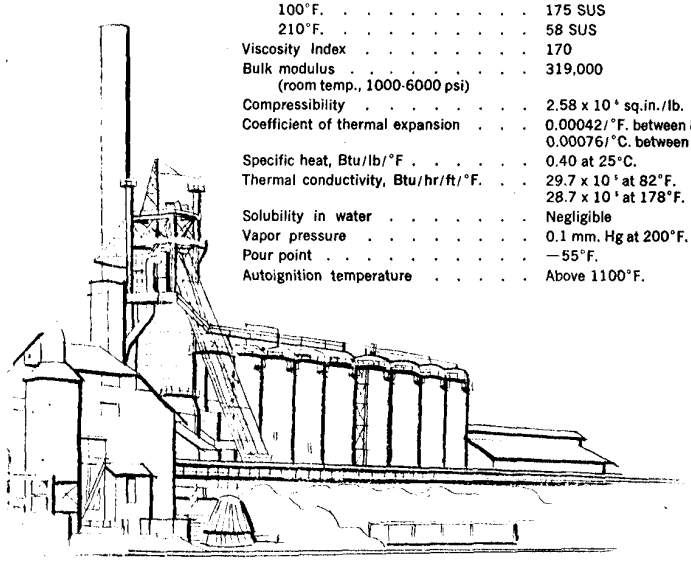
Timken Load (Passing)	40 lbs., 17,100 psi			
Almen Wear	3.9 mg. at 4000 psi			
Almen Load	46 lbs., 23,000 psi			
Shell Four-Ball	Steel-on-Steel		Steel-on-Bronze	
(167°F., 1 hr.: mm scar) 630 rpm	10 Kg. 0.36	40 Kg. 0.51	10 Kg. 0.80	40 Kg. 1.58

PYDRAUL 150 specifications...

Appearance	Hazy liquid free of sediment
Specific Gravity, 25°/25°C	1.119 — 1.135
Neutralization number	Acid 0.17 maximum
Moisture	0.15% maximum

PYDRAUL 150 typical properties...

Viscosity (See curve next page.)	
100°F.	175 SUS
210°F.	58 SUS
Viscosity Index	170
Bulk modulus (room temp., 1000-6000 psi)	319,000
Compressibility	2.58 x 10^{-6} sq.in./lb.
Coefficient of thermal expansion	0.00042/°F. between 80° and 400°F. 0.00076/°C. between 25° and 200°C.
Specific heat, Btu/lb/°F	0.40 at 25°C.
Thermal conductivity, Btu/hr/ft/°F.	29.7 x 10^{-4} at 82°F. 28.7 x 10^{-4} at 178°F.
Solubility in water	Negligible
Vapor pressure	0.1 mm. Hg at 200°F.
Pour point	—55°F.
Autoignition temperature	Above 1100°F.



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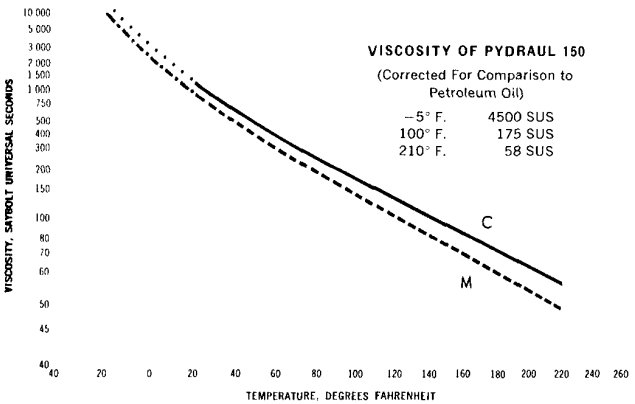
Laboratory viscosity measurements are affected by fluid density. Because all petroleum oils have similar densities, their measured viscosities can be compared. The densities of synthetic fluids vary, however, so the measured viscosities must be corrected in order to compare them.

In the graph below, curve "M" is the laboratory-measured viscosity of Pydraul 150. Curve "C" shows the viscosity-temperature relationship modified for the differences in density of oil and Pydraul 150. By comparing curve "C" with a viscosity curve of a light-weight-petroleum hydraulic oil, you can see that the two are essentially equivalent at normal operating temperatures.



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Animal toxicity studies and human experience indicate that the Pydraul fluids may be used safely if a few reasonable precautions are taken. Repeated or prolonged skin contact should be avoided since the fluids are excellent solvents for the normal skin oils. When splashed or sprayed into the eyes, the Pydraul fluids cause painful smarting. There is no evidence, however, of any permanent eye injury. In the event of accidental contact with the eyes, the eyes should be flushed with plenty of water for 15 minutes and the workman referred to a physician. Physicians have used a 1% pontocaine solution and opthalmic cortisone acetate solution to relieve irritation.

Respiratory protection or mechanical exhaust ventilation should be provided if there is repeated and prolonged contact of the fluid with heated surfaces with resulting volatilization or possible decomposition of the fluid. For short periods, such as might arise in turning off equipment following the rupture of hydraulic lines or other mechanical failure, no such protection is necessary. Toxicity studies demonstrate that the Pydraul fluids are generally comparable to petroleum-based hydraulic fluids with respect to short-term massive exposures. The details of animal toxicity studies are available from Monsanto's Medical Department.

Pydraul 150 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.

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