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JOB SPECIAL FUNCTION HEAT TRANSFER FLUIDS
-- 4-Page, 2/color Folder
(W. D. Lubic, MICC, BINB - 4-2630)

SPECIAL FUNCTION

Heat Transfer Fluids

Hydraulic Fluids

Traction Lubricants

Fire Resistant Air Compressor & Turbine Lubricants

FOR OIL & GAS RECOVERY, HANDLING, & PROCESSING EQUIPMENT

0107839

Monsanto

TOWOLDMON0022594
WATER_PCB-00007063

* Greater Safety * Higher Efficiency * Lower Maintenance.

Check this list of specialized fluids. You'll find they are special-purpose products -- chemically-designed for the job. They offer unique operating benefits in the kinds of machines, power sources, process equipment, and transport systems you operate. Monsanto functional fluids can increase safety, improve efficiency and cut maintenance in installations ranging from the off-shore rigs or well-heads to the liquefaction plant or refinery.

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TOWOLDMON0022595
WATER_PCB-00007064

HEAT TRANSFER FLUIDS FOR PROCESSING & SPACE HEATING

Therminol fluids transfer heat by liquid heat transfer in closed loop, non-pressurized systems. They are designed for operating temperature ranges up to 700°F. The non-pressurized, liquid systems can usually be designed for lower costs than pressurized systems operating on steam or vaporized heat transfer media. Therminol liquid heat transfer is recommended for: tanker and barge heating; off-shore oil rigs and gas platform heating; waste heat recovery; and refinery operations.

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	Therminol 60	Therminol 66
Appearance	Light yellow liquid	Practically colorless liquid
Density @ 75°F	8.33 lbs./gal.	8.35 lbs./gal.
Fire Point (C.O.C.)	320°F	382°F
Autogenous Ignition Point	835°F (445.8°C)	705°F (374°C)
Viscosity,		
Centistokes @ 0°F	65.0	50,000
Centistokes @ 100°F	4.90	28.0
Centistokes @ 250°F	1.25	2.60
Vapor Pressure		
(mm Hg absolute) @ 250°F	5	< 2
@ 500°F	240	100
Specific Heat @ 250°F	0.470	0.455
B.T.U./lb. @ 500°F	0.593	0.580
Thermal Conductivity		
(B.T.U./hr.ft.,F°) @ 250	0.0718	0.678
@ 500	0.0656	0.637

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TOWOLDMON0022597
WATER_PCB-00007066

FIRE RESISTANT FLUIDS FOR HYDRAULIC SYSTEMS

Pydraul Hydraulic fluids were developed to make pressure-operated equipment safe from fire. Sudden leaks can spurt mists or streams of hydraulic fluid at ignition sources such as electrical contacts, welding torches, light bulbs, hot metal. Seepage from seals and joints can also be a fire hazard. Pydraul 29 E-LT and 50-E fluids are Factory Mutual approved; they pass the spray test (1,000 psi spray through propane flame); channel iron test (spray impacting 1,300°F red hot metal); and the hot manifold test (Federal Standard 791, dripped on 1,300°F Manifold). Pydraul fluids do not foam or corrode; do not "wear out"; are available in viscosity ranges that ensure smooth operation and rapid equipment response.

	Pydraul 10-E*	Pydraul 29 E-LT	Pydraul 50-E
Appearance	Clear Blue Liquid	Clear Blue Liquid	Clear Blue Liquid
Specific Gravity, 25°/25°C	1.088-1.091	1.093-1.113	1.140-1.160
Viscosity,			
Centistokes @ 100°F	10.0	30.9	49
Centistokes @ 210°F	2.4	6.9	5.9
Absolute SSU @ 100°F	60.5	158	262
Pour Point, F°	-70°	-45°	- 5°
Max. Bulk Operating Temp.	175°	175°	225°
Vapor Pressure (mm Hg @ 200°F)	0.002	0.002	0.002

*Not FM approved; passes F.T.M. Std. 791) Hot Manifold Test

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TOWOLDMON0022598
WATER_PCB-00007067

FIRE-SAFE, EXPLOSION-RESISTANT AIR COMPRESSOR LUBRICANTS [ ]

Every analysis of compressor explosions and receiver fires traces the cause to petroleum oil lubrication. Oil mists and films in compressor systems oxidize to a carbon-oxygen complex. Accelerated by heat, pressure or triggered by shock-wave -- oil mists and residues break down into combustible gases that can explode and/or ignite the receiver. Pydraul air compressor lubricants were designed to ensure safer compressor lubrication. Used since 1954, Pydraul lubricants have never caused a compressor fire or explosion. Excellent lubrication, minimum maintenance, maximum safety.

	Pydraul 30-E	Pydraul 90-E	Pydraul 115-E
Appearance	Clear Blue Liquid	Clear Blue Liquid	Clear Blue Liquid
Specific Gravity, 25°/25°C	1.150-1.1770	1.145-1.165	1.145-1.165
Viscosity,			
Centistokes @ 100°F	30-40	85-95	115-125
Centistokes @ 210°F	4.6-5.0	7.7-8.1	8.9-9.3
Absolute SSU @ 100°F	173	473	695
Pour Point, F°	-15°	10°	10°
Max. Exit Air Temp., F°	350°	350°	350°
Boiling Point (air), F°	725°	805°	820°

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TOWOLDMON0022599
WATER_PCB-00007068

FIRE RESISTANT INDUSTRIAL TURBINE LUBRICANTS

Turbinol fluids are chemically-made "oily" liquids with fire resistance built into the molecule. They are inert, oxidation-resistant, and shear stable. Turbinol lubricants maintain lubricity and film integrity at 450-500°F operating temperatures; pass ASTM rust and foam tests; are non-corrosive and compatible with all commonly used metals of construction. Turbinol lubricants are recommended for the high-speed, continuous-operating turbines of the types and scale used by utility companies to power electric generators. They are approved by major turbine manufacturers. Turbinol fluids offer excellent lubricating performance plus the added safety of fire resistance.

	Turbinol 1223	Turbinol 1122
Viscosity,		
Centistokes @ 40°F	750	320
Centistokes @ 210°F	6.02	4.82
Viscosity, SSU		
@ 40°F	3,460	1,480
@ 210°F	45.9	42.1
Pour Point, F°	- 5°	-20°
Specific Gravity,		
25/25°C	1.142	1.173
Vapor Pressure,		
mm Hg @ 200°F	0.002	0.002
Fire Resistance:		
Fire Point, C.O.C., F°	620°	650°
Autogenous Ignition Temp. (ASTM D2155)	910°	1,050°
Hot Manifold Test (FS 791) @ 1,300°F	Flashes, does not propagate	Flashes, does not propagate
Lubricating Performance,		
Four Ball Wear Test, 40 kilo load (625 rpm, 167°F 1 hr.)		
Steel on steel , scar dia., mm.	0.58	0.58
Steel on bronze, scar dia., mm	0.65	1.01

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TOWOLDMON0022600

WATER_PCB-00007069

HIGH TEMPERATURE (Aircraft-type) HOT-GAS GENERATOR LUBRICANT

Skylube 450 is an improved Type II lubricant for jet engine gas generators used as power sources for industrial turbines. It meets in all respects the performance specifications of major manufacturers, such as General Electric's GE-D50TFL and Pratt & Whitney's PWA 521B. It has extreme resistance to high temperatures and oxidation degradation; its Erdco Bearing Rig Test deposit rating of 22-28 is approximately one-half that obtained with the best commercial Type II lubricants. Engines in service operated on Skylube 450 lubricant over the past four years include these classes: JT3D, JT8D, JT12, FT-4, and SPEY; plus Air Research Turbo-compressors & Air Cycle Machines and Sundstrand CSD's.

	Skylube 450	Limits GE D50TF1-S3 Class B	Limits PWA 521B
Viscosity,			
Centistokes @ -40°F	8860	13000 max.	13000 max.
Centistokes @ 400°F	1.3	1.0 min.	1.0 min.
Pour Point, F°	-75°	--	-75° max.
Flash Point, C.O.C., F°	535	400 min.	400 min.
Autogenous Ignition Temp., F°	785	750 min.	--
Evaporation Loss, after 6-1/2 hrs. @ 400°F (Sea Level, 759 mm Hg)	2.7%	10% max.	25% max.
Corrosion-Oxidation Stability After 72 hrs. @ 350°F, 10 L/hr. Dry Air			
Weight Change, $mg./cm^2$			
Steel	0.0	±0.20	±0.30
Copper	+0.01	±0.40	±0.30
Aluminum	+0.01	±0.20	±0.30

TOWOLDMON0022601
WATER_PCB-00007070

HIGH HEAT, HIGH PRESSURE RESISTANT TRACTION LUBRICANTS

Santotrac lubricants were developed for traction drives. They are lubricants with "grip" that increase the traction coefficient between driver and driven rolling surfaces from 40-80%. The film separates metal-to-metal contact at pressures up to 500,000 psi, operates at temperatures up to 300°F. In laboratory wear tests, Santotrac lubricants approximately double the life of standard roller bearings. The synthetic hydrocarbon base has been formulated into four liquid lubricants and two greases. Santotrac 30 has the lowest operating temperature capability; Santotrac 50, the best balance of properties for most uses, medium viscosity, good anti-wear in sliding contact. The Santotrac greases have the highest traction coefficient of any lubricants known to date.

	Santotrac			
	"30"	"40"	"50"	"70"
Viscosity,				
Centistokes @ -40°F	23,400	--	--	--
Centistokes @ -20°F	--	31,600	41,500	--
Centistokes @ 0°F	--	--	5,120	93,904
Centistokes @ 210°F	3.10	3.68	5.61	11.4
Pour Point, F°	-65°	-45°	-35°	-10°
Density, gms/cc @ 100°F	0.891	0.886	0.889	0.957
Vapor Pressure @ 350°F (mm Hg absolute)	12	12	12	10
Autogenous Ignition Temp., F°	605°	600°	620°	675°
Coefficient of Traction	0.084	0.095 (napthenic oil = 0.066)	0.095	0.095
Shell 4-Ball Wear (200°F, 2 hrs., 1260 rpm, 40 kg load, steel-on-steel) Scar Diameter, mm	0.67	0.75 (napthenic oil = 1.10)	0.51	0.54

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TOWOLDMON0022602
WATER_PCB-00007071

Coupon

Check which types of fluids are of interest. Complete technical information will be sent to you. Mail your request addressed to:

Monsanto Industrial Chemicals Co.
Department B1NB
800 N. Lindbergh Blvd.
St. Louis, Mo. 63166

Name _____ Title _____

Company _____

Street Address _____

City _____ State _____ Zip Code _____

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TOWOLDMON0022603
WATER_PCB-00007072

Coupon

Check which types of fluids are of interest. Complete technical information will be sent to you. Mail your request addressed to:

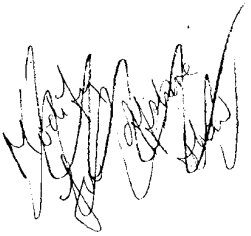
Monsanto Industrial Chemicals Co.
Department B1NB
800 N. Lindbergh Blvd.
St. Louis, Mo. 63166

Name _____ Title _____

Company _____

Street Address _____

City _____ State _____ Zip Code _____



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