



Heavy Duty Hydraulic Oils

TENA-FILM HEAVY DUTY HYDRAULIC OILS are high gravity oils of 100% paraffin extraction dewaxed in the refining process to prevent gumming. This special oil is compounded with a unique additive system to make a premium anti-wear hydraulic oil for both high and low pressure systems for industrial mobile applications.

PERFORMANCE: CASTORINE TENA-FILM TH HYDRAULIC OILS meet or exceed the requirements for the following industrial and mobile hydraulic systems.

Sperry Vickers I-286-S, M-2950-S

Denison HF-1, HF-2, HF-0

Cincinnati Milacron P-68, P-69, P-70

DIN 51524, Part 2

Lee-Norse 100-1

Jeffrey No. 87

Ford M-6C 32

U.S. Steel 136, 127

B.F. Goodrich 0152

Racine Model S, variable volume vane pump

General Motors LH-0-1, LH-06-1, LH-15-1

BENEFITS:

- Proven field performance
- Superior hydrolytic stability
- Excellent rust protection
- Outstanding thermal and oxidation stability
- Good Demulsifiability
- Low filter blockage tendency

SPECIFICATIONS

	75-TH	100-TH	150-TH	300-LTH	300-MTH	300-HTH	400-TH	500-TH	600-TH	2500-TH
ISO Grade	15	22	32	46	68	100	150	220	320	460
Viscosity Index, Min.	95	95	95	95	95	95	95	95	95	95
Viscosity @ 100° F, SUS	70/75	100/110	145/155	215/225	325/385	450/550	775	1100	1400	2600
Viscosity @ 210° F, SUS	39	40	43	48	56	61	77	93	107	150/160
A.S.T.M. Color	1.0	1.0	1.5	2.0	2.0	3	3.5	4	5	5
Flash ° F	318	380	380	460	430	450	490	535	550	580
Fire ° F		430	450	510	480	500	535	595	605	630
Pour Point, ° F	-30	-25	-25	-25	-25	-15	+5	+5	+5	+5
A.P.I. Gravity	30.5	33	32.0	31.0	29.3	28.4	27.7	27.1	26.8	26
Carbon Res. % Base Stock	.05	.05	.09	.09	.15	.18	.18	.19	.19	.19
Zinc, % wt.	.06	.06	.06	.06	.06	.06	.06	.06	.06	.06

Additive Treatment: Oxidation inhibitor – Rust inhibitor – Anti-Foam agent-Special non-gumming Castor Lubricity Additive – Anti-wear additive – Pour Point Depressant

PERFORMANCE DATA

PUMP PERFORMANCE

SPECIFICATION

Denison

T5D Vane	HF – 0	PASS
P-46 Piston	HF – 0	PASS

Vickers

35VQ – 25 Pump (3000 psi, 2400 rpm, 200° F.)	M-2950-S	PASS
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Vickers V-104C Vane

	ASTM D-2882	PASS
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Racine, Vane

	S SERIES Variable Volume	PASS
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Turbine Oil Rust Test

Procedure A – Distilled Water	ASTM D-665	PASS
Procedure B – Synthetic Sea Water		PASS

Foam Test

Allowable Foam after 10 minutes – none	ASTM D-892	PASS
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Turbine Oil Oxidation

Hours to 2.0 NNA	ASTM D-943	2600+
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Sludge and Metal Corrosion Test

	ASTM D-943 (1000 HR)	
	<u>HF – 2</u>	<u>HF – 0</u>
NNA	2.0 Max.	2.0 Max.
Insoluble Sludge, mg	400 Max.	200 Max.
Total Copper, mg	200 Max	.50 Max.
Total Iron, mg	100 Max.	50 Max.

Hydrolytic Stability

	<u>HF – 2</u>	<u>HF – 0</u>
Copper Weight Loss, mg/cm ²	.05 Max.	0.2 Max.
Copper Appearance	ASTM D-130	1A
Acidity of Water Layer mg KOH	6.0 Max.	4.0 Max.

Cincinnati Milacron Thermal Stability CM Spec Limit

(169 hr., 275° F., copper - steel catalyst		
Sludge, mg/100 ml	25 Max.	5
Condition of Copper Rod (CM color)	5 Max.	3
Condition of Steel Rod (CM color)	5 Max.	2

Turbine Oil Demulsibility

(130° F.) ml: oil – water – cuff (minutes)	ASTM D-1401	40 – 40 – 0 (30)
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Denison Filterability

1.2 Micron Filter	<u>HF - 0</u>	
A No Water, S	600 Max.	150
B 2% Water, S	2 x A Max.	165