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VISCOSITY CONVERSION

Saybolt Universal SSU	Stokes	Centi-Stokes	Poises	Centi-Poises	Engler Seconds	Redwood #1 Seconds	Typical Liquids at Room Temperature
31	.010	1.00	.008	.8	54	29	Water
35	.025	2.56	.020	2.05	59	32.1	Kerosene
50	.074	7.40	.059	5.92	80	44.3	No. 2 Fuel Oil
80	.157	15.7	.126	12.6	125	69.2	No. 4 Fuel Oil
100	.202	20.2	.162	16.2	150	85.6	Transformer Oil
200	.432	43.2	.346	34.6	295	170	Hydraulic Oil
300	.654	65.4	.522	52.2	470	254	SAE 10W Oil
500	1.10	110	.88	88.0	760	423	SAE 10 Oil
1,000	2.16	220	1.73	173	1,500	896	SAE 20 Oil
2,000	4.40	440	3.52	352	3,000	1,690	SAE 30 Oil
5,000	10.8	1,080	8.80	880	7,500	4,230	SAE 50 Oil
10,000	21.6	2,160	17.0	1,760	15,000	8,460	SAE 60-70 Oil
50,000	108	10,800	88	8,800	75,000	46,660	Molasses B
100,000	216	21,600	173	17,300	150,000	88,160	Molasses C

* Poise and Centipoise are given for oil of .8 spec. gravity. Relationship: Centistokes X Specific Gravity = Centipoise. Centipoise = (SSU x Specific Gravity)/ 4.62

PIPE FRICTION - VISCOUS LIQUIDS / PRESSURE LOSS IN PSI PER 100 FEET OF PIPE & TUBE

Gallons Per Minute	Pipe Size Inches	VISCOSITY - SSU (SAYBOLT SECONDS UNIVERSAL)								
		100	500	1,000	2,500	5,000	10,000	25,000	50,000	100,000
3	3/4	3.7	19.1	38.2	96	191	382	-	-	-
	1	1.4	7.3	14.5	36.5	73	145	482	-	-
	1 1/4	.46	2.5	4.8	12.5	25	48	205	418	-
	1 1/2	.25	1.3	2.7	6.8	13.1	27	78	194	388
5	1	2.3	12.1	24.2	61	121	242	-	-	-
	1 1/4	.77	4.1	8.1	20.3	40.6	81	291	-	-
	1 1/2	.42	2.2	4.3	11.4	22	45	164	324	-
	2	.16	.81	1.6	4.0	8.1	15.8	40	80	161
10	1	4.9	24.2	48.5	121	242	485	-	-	-
	1 1/4	1.6	8.1	16.2	40.6	81	162	415	-	-
	1 1/2	.84	4.4	8.8	21.9	43.8	88	322	-	-
	2	.32	1.68	3.3	8.1	16.2	32	81	211	420
20	1 1/4	4.9	16.2	32.5	81	162	325	-	-	-
	1 1/2	2.3	8.8	17.5	43.8	88	175	438	-	-
	2	.64	3.2	6.4	16.1	32.1	64	204	415	-
	2 1/2	.31	1.65	3.3	7.9	16.2	32	88	176	348
50	1 1/2	12.5	21.9	43.8	110	219	438	-	-	-
	2	3.7	8.2	16.1	40.2	80	161	442	-	-
	2 1/2	1.6	4.1	7.9	19.7	39.5	79	209	418	-
	3	.65	1.7	3.3	8.0	16.9	34	107	214	428
100	2 1/2	5.3	8.1	15.8	39.5	79	158	452	-	-
	3	1.9	3.3	6.6	16.6	33.1	66	208	425	-
	4	.52	1.1	2.2	5.6	11.2	22	65	134	263
	6	.12	.21	.45	1.15	2.18	4.4	10.8	21.7	44

PUMPING VISCOUS LIQUIDS WITH FIP PUMPS

S.S.U.	RPM	% Increase	S.S.U.	RPM	% Increase	S.S.U.	RPM	% Increase	S.S.U	RPM	% Increase
50	1750	0	700	1680	15	4,000	1400	86	15,000*	787	315
100	1750	2	800	1645	18	5,000	1312	110	20,000*	700	375
200	1750	4	900	1610	20	6,000	1225	130	30,000*	612	475
300	1750	7	1,000	1574	22	7,000	1138	150	40,000*	525	525
400	1750	9	1,500	1540	33	8,000	1050	175	50,000*	437	575
500	1750	11	2,000	1505	45	9,000	962	200	75,000*	298	675
600	1715	13	3,000	1450	65	10,000	875	220	100,000*	175	725

PUMPING VISCOUS LIQUIDS WITH GEAR PUMPS

Speed Reduction		% Increase In Horsepower						
Viscosity in SSU	Recomm. Speed (RPM)	Pressure PSI	Viscosity in SSU					
			500	1000	5000	10,000	50,000	100,000
50	1725	2	30	60	120	200	300	400
500	1500	20	25	50	100	160	260	350
1000	1300	40	20	40	80	120	220	300
5000	1000	60	15	30	60	105	180	250
10,000	600	80	12	25	50	90	150	200
50,000	400	100	10	20	40	80	120	150
100,000	200	-	-	-	-	-	-	-

PUMPING VISCOUS LIQUIDS WITH CENTRIFUGAL PUMPS

Viscosity SSU	100	250	500	750	1000	1500	2000
Flow Reduction GPM %	3	8	14	19	23	30	40
Head Reduction Feet %	2	5	11	14	18	23	30
Horsepower Increase %	10	20	30	50	65	85	100