CHEMICAL COMPOSITION & MECHANICAL PROPERTIES

Specification	Type	Grade	Chemical Composition										Mechanical Properties									Impact Energy J (Ft.lb) (min.)	Hydrostatic Test Pressure
			C %	Mn %	P %	S %	Si %	V %	Nb %	Ti %	C.E. PCM	C.E. IIW	Yield Strength Min PSI	Yield Strength Min MPa	Yield Strength Max PSI	Yield Strength Max MPa	Tensile Strength Min PSI	Tensile Strength Min MPa	Tensile Strength Max PSI	Tensile Strength Max MPa	% Elongation e		
API 5L	E & S PSL - 1	L210 or A	0.22	0.90	0.030	0.030	-	-	-	-	-	-	30500	210	-	-	48600	335	-	-	U.S Customary Unit	-	U.S Customary Unit, P = 2ST / D
		L245 or B	0.26	1.20	0.030	0.030	-	-	-	-	-	-	35500	245	-	-	60200	415	-	-	$e = 625{,}000\ A^{0.2} / U^{0.9}$	-	S.I Unit P = 2000 ST/D
		L290 or X-42	0.26	1.30	0.030	0.030	-	-	-	-	-	-	42100	290	-	-	60200	415	-	-		-	
		L320 or X-46	0.26	1.40	0.030	0.030	-	-	-	-	-	-	46400	320	-	-	63100	435	-	-	S.I Unit	-	S = Fibre Stress in PSI (MPa)
		L360 or X-52	0.26	1.40	0.030	0.030	-	-	-	-	-	-	52200	360	-	-	66700	460	-	-	$e = 1940\ A^{0.2} / U^{0.9}$	-	= 60% of Min. Y.S for all sizes for
		L390 or X-56	0.26	1.40	0.030	0.030	-	-	-	-	-	-	56600	390	-	-	71100	490	-	-	Legend :	-	Grade A & B
		L415 or X-60	0.26	1.40	0.030	0.030	-	-	-	-	-	-	60200	415	-	-	75400	520	-	-	e = specified min. elongation	-	= 60% of Min.Y.S for all sizes <5 9/16" for
		L450 or X-65	0.26	1.45	0.030	0.030	-	-	-	-	-	-	65300	450	-	-	77600	535	-	-	A=Tensile test piece cross	-	Grade X-42 and above
		L485 or X-70	0.26	1.65	0.030	0.030	-	-	-	-	-	-	70300	485	-	-	82700	570	-	-	sectional area.	-	= 75% of Min. Y.S for size > 5 9/16" &
	Note : For Seamless `C' will be 0.28 for Gr. B to X-70 Mn for Gr. X-65 to X-70 will be 1.40																				U=Specified min. tensile strength.		< 8 5/8" for Grade X-42 and above =85% of Min. Y.S for size >8 5/8" & <20" for Gr X-42 and above
API 5L	E & S PSL - 2	L245R or BR	0.24	1.20	0.025	0.015	0.40	-	-	0.040	0.25	0.43	35500	245	65300	450	60200	415	110200	760		27/20	= 90% of Min. Y.S for size >20" for Grade X-42 and above
		L245N or BN	0.24	1.20	0.025	0.015	0.40	-	-	0.040	0.25	0.43											
		L245Q or BQ	0.18	1.40	0.025	0.015	0.45	0.050	0.050	0.040	0.25	0.43											
		L245M or BM	0.22	1.20	0.025	0.015	0.45	0.050	0.050	0.040	0.25	0.43											
		L290R or X42R	0.24	1.20	0.025	0.015	0.40	0.060	0.050	0.040	0.25	0.43	42100	290	71800	495	60200	415	110200	760		27 (20)	Std. Test pressure limited to 3000 PSI (20700 kpa) for Grade X-42 and above
		L290N or X42N	0.24	1.20	0.025	0.015	0.40	0.060	0.050	0.040	0.25	0.43											
		L290Q or X42Q	0.18	1.40	0.025	0.015	0.45	0.050	0.050	0.040	0.25	0.43											
		L290M or X42M	0.22	1.3	0.025	0.015	0.45	0.050	0.050	0.040	0.25	0.43											
		L320N or X46N	0.24	1.40	0.025	0.015	0.40	0.070	0.050	0.040	0.25	0.43	46400	320	76100	525	63100	435	110200	760		27 (20)	
		L320Q or X46Q	0.18	1.40	0.025	0.015	0.45	0.050	0.050	0.040	0.25	0.43											
		L320M or X46M	0.22	1.3	0.025	0.015	0.45	0.050	0.050	0.040	0.25	0.43											
		L360N or X52N	0.24	1.40	0.025	0.015	0.45	0.100	0.050	0.040	0.25	0.43	52200	360	76900	530	66700	460	110200	760		27 (20)	Alternate test pressure limited to 7260 PSI (50000 kpa) for size <16" and 3630 PSI (25000 kpa) for size >16" for Gr. X-42 and above
		L360Q or X52Q	0.18	1.50	0.025	0.015	0.45	0.050	0.050	0.040	0.25	0.43											
		L360M or X52M	0.22	1.4	0.025	0.015	0.45	-	-	-	0.25	0.43											
		L390N or X56N	0.24	1.40	0.025	0.015	0.45	0.100	0.050	0.040	0.25	0.43	56600	390	79000	545	71100	490	110200	760		27 (20)	
		L390Q or X56Q	0.18	1.50	0.025	0.015	0.45	0.070	0.050	0.040	0.25	0.43											
		L390M or X56M	0.22	1.4	0.025	0.015	0.45	-	-	-	0.25	0.43											
		L415N or X60N	0.24	1.40	0.025	0.015	0.45	0.100	0.050	0.040	As Agreed		60200	415	81900	565	75400	520	110200	760		27 (20)	
		L415Q or X60Q	0.18	1.70	0.025	0.015	0.45	-	-	-	0.25	0.43											
		L415M or X60M	0.12	1.6	0.025	0.015	0.45	-	-	-	0.25	0.43											
		L450Q or X65Q	0.18	1.70	0.025	0.015	0.45	-	-	-	0.25	0.43	65300	450	87000	600	77600	535	110200	760		27 (20)	
		L450M or X65M	0.12	1.6	0.025	0.015	0.45	-	-	-	0.25	0.43											
		L485Q or X70Q	0.18	1.80	0.025	0.015	0.45	-	-	-	0.25	0.43	70300	485	92100	635	82700	570	110200	760		27 (20)	
		L485M or X70M	0.12	1.7	0.025	0.015	0.45	-	-	-	0.25	0.43											
		L555Q or X80Q	0.18	1.90	0.025	0.015	0.45	-	-	-	As Agreed		80500	555	102300	705	90600	625	119700	825		40 (30)	
		L555M or X80M	0.12	1.85	0.025	0.015	0.45	-	-	-	0.25	0.43											