

Chemical composition for API 5L PSL2 pipe with t ≤ 25.0 mm (0.984 in)

Steel Grade (Steel Name)	Mass fraction, based upon heat and product analyses									Carbon	
	C ^b	Si	Mn ^b	% maximum			Nb	Ti	Other	% maximum	
				P	S	V				CE _{IIW}	CE _{Pcm}
Seamless and welded pipes											
L245R or BR	0.24	0.40	1.20	0.025	0.015	c	c	0.04	e,l	0.43	0.25
L290R or X42R	0.24	0.4	1.20	0.025	0.015	0.06	0.05	0.04	e,l	0.43	0.25
L245N or BN	0.24	0.40	1.20	0.025	0.015	c	c	0.04	e,l	0.43	0.25
L290N or X42N	0.24	0.4	1.20	0.025	0.015	0.06	0.05	0.04	e,l	0.43	0.25
L320N or X46N	0.24	0.40	1.40	0.025	0.015	0.07	0.05	0.04	d,e,l	0.43	0.25
L360N or X52N	0.24	0.45	1.40	0.025	0.015	0.10	0.05	0.04	d,e,l	0.43	0.25
L390N or X56N	0.24	0.45	1.40	0.025	0.015	0.10	0.05	0.04	d,e,l	0.43	0.25
L415N or X60N	0.24 ^f	0.45 ^f	1.4 ^f	0.025	0.015	0.10	0.05	0.04	g,h,l	as agreed	
L245Q or BQ	0.18	0.45	1.40	0.025	0.015	0.05	0.05	0.04	e,l	0.43	0.25
L290Q or X42Q	0.18	0.45	1.4 ^f	0.025	0.015	0.05	0.05	0.04	e,l	0.43	0.25
L320Q or X46Q	0.18	0.45	1.40	0.025	0.015	0.05	0.05	0.04	e,l	0.43	0.25
L360Q or X52Q	0.18	0.45	1.50	0.025	0.015	0.05	0.05	0.04	e,l	0.43	0.25
L390Q or X56Q	0.18	0.45	1.50	0.025	0.015	0.07	0.05	0.04	d,e,l	0.43	0.25
L415Q or X60Q	0.18 ^f	0.45 ^f	1.7 ^f	0.025	0.015	g	g	g	h,l	0.43	0.25
L450Q or X65Q	0.18 ^f	0.45 ^f	1.7 ^f	0.025	0.015	g	g	g	h,l	0.43	0.25
L485Q or X70Q	0.18 ^f	0.45 ^f	1.8 ^f	0.025	0.015	g	g	g	h,l	0.43	0.25
L555Q or X80Q	0.18 ^f	0.45 ^f	1.9 ^f	0.025	0.015	g	g	g	i,j	as agreed	
L625Q or X90Q	0.16	0.45	1.90	0.020	0.010	g	g	g	j,k	as agreed	
L690Q or X100Q	0.16	0.45	1.90	0.020	0.010	g	g	g	j,k	as agreed	
Welded pipe											
L245M or BM	0.22	0.45	1.20	0.025	0.015	0.05	0.05	0.04	e,l	0.43	0.25
L290M or X42M	0.22	0.45	1.30	0.025	0.015	0.05	0.05	0.04	e,l	0.43	0.25
L320M or X46M	0.22	0.45	1.30	0.025	0.015	0.05	0.05	0.04	e,l	0.43	0.25
L360M or X52M	0.22	0.45	1.40	0.025	0.015	d	d	d	e,l	0.43	0.25
L390 or X56M	0.22	0.45	1.40	0.025	0.015	d	d	d	e,l	0.43	0.25
L415 or X60M	0.12 ^f	0.45 ^f	1.6 ^f	0.025	0.015	g	g	g	h,l	0.43	0.25
L450 or X65M	0.12 ^f	0.45 ^f	1.6 ^f	0.025	0.015	g	g	g	h,l	0.43	0.25
L485M or X70M	0.12 ^f	0.45 ^f	1.7 ^f	0.025	0.015	g	g	g	h,l	0.43	0.25
L555M or X80M	0.12 ^f	0.45 ^f	1.85 ^f	0.025	0.015	g	g	g	i,l	0.43	0.25
L625 or X90M	0.10	0.55 ^f	2.1 ^f	0.02	0.010	g	g	g	i,l	—	0.25
L690M or X100M	0.10	0.55 ^f	2.1 ^f	0.020	0.010	g	g	g	i,j		0.25
L830M or X120M	0.10	0.55 ^f	2.1 ^f	0.02	0.010	g	g	g	i,j		0.25

a. Based upon product analysis. For seamless pipe with t > 20,0 mm (0.787 in), the CE limits shall be as agreed.

The CEIIW limits apply if C > 0,12 % and the CEPcm limits apply if C ≤ 0,12 %.

b. For each reduction of 0,01 % below the specified maximum for C, an increase of 0,05 % above the specified maximum for permissible, up to a maximum of 1,65 % for grades ≥ L245 or B, but ≤ L360 or X52; up to a maximum of 1,75 % for grades > X52, but < L485 or X70; up to a maximum of 2,00 % for grades ≥ L485 or X70, but ≤ L555 or X80; and up to a maximum of grades > L555 or X80.

c. Unless otherwise agreed, Nb + V ≤ 0,06 %.

d. Nb + V + Ti ≤ 0,15 %.

e. Unless otherwise agreed, Cu ≤ 0,50 %; Ni ≤ 0,30 %; Cr ≤ 0,30% and Mo ≤ 0,15 %.

f. Unless otherwise agreed.

g. Unless otherwise agreed, Nb + V + Ti ≤ 0,15 %.

h. Unless otherwise agreed, Cu ≤ 0,50 %; Ni ≤ 0,50 %; Cr ≤ 0,50% and Mo ≤ 0, 50 %.

- i. Unless otherwise agreed, Cu \leq 0,50 %; Ni \leq 1,00 %; Cr \leq 0,50% and Mo \leq 0, 50 %.
- j. B \leq 0,004 %.
- k. Unless otherwise agreed, Cu \leq 0,50 %; Ni \leq 1,00 %; Cr \leq 0,55% and Mo \leq 0, 80 %.
- l. For all PSL 2 pipe grades except those grades to which footnote j already applies, the following applies.
Unless otherwise agreed no intentional addition of B is permitted and residual B \leq 0,001%.

For more info please visit <http://www.octalsteel.com/api-5l-pipe-specification>