

MECHANICAL & CHEMICAL PROPERTIES OF API 5L-2008



Mechanical Properties

PSL-1	Grade A	Grade B	GradeX42	Gradex46	Gradex52	Gradex56	Gradex60
Yield Strength (Min)	210 Mpa	245 Mpa	290 Mpa	320 Mpa	360 Mpa	390 Mpa	415 Mpa
Tensile Strength (Min)	335 Mpa	415 Mpa	415 Mpa	435 Mpa	460 Mpa	490 Mpa	520 Mpa
Elongation	As per API 5L						

PSL-2	Grade B	Gradex42	Gradex46	Gradex52	Gradex56	Gradex60	Gradex65
	Mpa	Mpa	Mpa	Mpa	Mpa	Mpa	Mpa
Yield Strength (Min)	245-450	290-495	320-525	360-530	390-545	415-565	450-600
Tensile Strength (Min)	415-760	415-760	435-760	460-760	490-760	520-760	535-760
Elongation	As per API 5L						

Chemical Properties

Composition , Max %

PSL-1	Carbon	Maganese	Phosphorus	Sulphur	V	Nb	Titanium
Grade A	0.22	0.90	0.03	0.03	-	-	-
Grade B	0.26	1.20	0.03	0.03	c,d	c,d	d
Grade x 42	0.26	1.30	0.03	0.03	d	d	d
Grade x 46	0.26	1.40	0.03	0.03	d	d	d
Grade x 52	0.26	1.40	0.03	0.03	d	d	d
Grade x 56	0.26	1.40	0.03	0.03	d	d	d
Grade x 60	0.26	1.40	0.03	0.03	f	f	f

c = (Nb+V) ≤ 0.06 %

d = (Nb+V+Ti) ≤ 0.15 %

f = Unless otherwise agreed (Nb+V+Ti) ≤ 0.15 %

Composition, Max %

PSL-2	C	Mn	P	S	Si	V	Nb	Ti
Grade B	0.22	1.20	0.025	0.015	0.450	0.050	0.050	0.04
Grade x 42	0.22	1.30	0.025	0.015	0.450	0.050	0.050	0.04
Grade x 46	0.22	1.30	0.025	0.015	0.450	0.050	0.050	0.04
Grade x 52	0.22	1.40	0.025	0.015	0.450	d	d	d
Grade x 56	0.22	1.40	0.025	0.015	0.450	d	d	d
Grade x 60	0.12	1.60	0.025	0.015	0.450	g	g	g

c = (Nb+V) ≤ 0.06 %

d = (Nb+V+Ti) ≤ 0.15 %

g = Unless otherwise agreed (Nb+V+Ti) ≤ 0.15 %

Destructive & Non-Destructive Testing

Hydrostatic Testing 100% of pipe shall be tested at a pressure specified in above specification.

PSL-1 (NDT) Weld seam of each pipe shall be tested by online Eddy Current Test.

PSL-2 (NDT) Steel skelp and weld seam shall be tested by Ultrasonic Test (after hydro test)

Flattentig

1. Flatten upto 1/2 of OD (no crack in weld)
2. Flalten upto 1/3 of OD (no crack or breaks other than in weld)
3. Full Flattening (No Lamination or Burnt Metal)

