Supplementary requirements for sour service pipes according to API 5L

Pipe material should be X52, PSL 2.

The pipe material should qualify on API 5L requirements.

The steel should be fully killed.

Steel casting method for strip or plate used for the manufacture shall be rolled from continuously cast, or pressure cast slabs.

The plate used for manufacture shall be ultrasonic inspected to the requirements of Annex H from API 5L

Chemical composition according to table H1.

Frequency of hardness testing according to table H3

SSC test for manufacturing procedure qualification according to table H3

HIC/SSW test shall meet the following acceptance criteria:

- crack sensitivity ratio < 2%;
- crack length ratio < 15%
- crack thickness ratio < 5%

Magnetic particle inspection for laminar imperfections at each pipe end and face / bevel. Defects will be removed by cutting

Verification of laminar size / density will be made of 25% of the surface

Defects, exceeding the acceptance limits in table K1, shall be removed

Table K.1 — Acceptance criteria for laminar imperfections

Service condition	Maximum individual imperfection		Minimum imperfection size considered			Maximum population density [a]
	Area mm² (in²)	Length mm (in)	Area mm² (in²)	Length mm (in)	Width mm (in)	
Pipe body (or strip/plate body)						
Offshore	1 000 (1.6)	Not specified	300 (0.5)	35 (1.4)	8 (0.3)	10 [per 1,0 m (3.3 ft) × 1,0 m (3.3 ft) square] [b]
Sour	500 (0.8)		150 (0.2)	15 (0.6)	8 (0.3)	10 [per 500 mm (1.6 ft) × 500 mm (1.6 ft) square] [c]
Sour, if agreed	100 (0.16)		30 (0.05)	5 (0.2)	5 (0.2)	5 [per 500 mm (1.6 ft) × 500 mm (1.6 ft) square] [c]
Strip/plate edges or areas adjacent to the weld seam [d]						
Sour or offshore	100 (0.16)	20 (0.8)		10 (0.4)		3 [per 1,0 m (3.3 ft) length]

NOTE 1   For an imperfection to be larger than the minimum imperfection size, the minimum area, minimum length and minimum width given for the pipe body (or strip/plate body) all have to be exceeded.

NOTE 2   For the purpose of determining the extent of suspect area, adjacent suspect areas separated by less than the smaller of two minor axes of the areas shall be considered as one area.

[a]   Number of imperfections smaller than the maximum and greater than the minimum imperfection size.

[b]   For pipe with D < 323,9 mm (12.375 in) or strip/plate widths less than 1 000 mm (39.4 in), the maximum population density is referred to 1,0 m² (10.8 ft²).

[c]   For pipe with D < 168,3 mm (6.625 in) or strip/plate widths less than 500 mm (19.7 in), the maximum population density is referred to 0,25 m² (2.7 ft²).

[d]   The maximum imperfection area of edges is the product of the maximum imperfection length, where length is the dimension parallel to the material edge and the transverse dimension. An imperfection is considered to be larger than the maximum imperfection size if either the length or the transverse dimension is exceeded.

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