

Chemical composition for API 5L Sour Service Pipe with wall thickness ≤ 25.0 mm (0.984 in)

Steel Grade (Steel Name)	Mass fraction, based upon heat and product analyses									Carbon equivalent % maximum	
	% maximum										
	C ^a	Si	Mn ^b	P	S	V	Nb	Ti	other ^{c,d}	CE _{min}	CE _{nom}
Seamless and welded pipes											
L245NS or BNS	0.14	0.40	1.35	0.020	0.003 ^e	-	-	0.04	g	0.36	0.19 ^h
L290NS or X42NS	0.14	0.40	1.35	0.020	0.003 ^e	0.05	0.05	0.04	-	0.36	0.19 ^h
L320NS or X46NS	0.14	0.40	1.40	0.020	0.003 ^e	0.07	0.05	0.04	g	0.38	0.20 ^h
L360NS or X52NS	0.16	0.45	1.65	0.020	0.003 ^e	0.10	0.05	0.04	g	0.43	0.22 ^h
L245QS or XQBS	0.14	0.40	1.35	0.020	0.003 ^e	0.04	0.04	0.04	-	0.34	0.19 ^h
L290QS or X42QS	0.14	0.40	1.35	0.020	0.003 ^e	0.04	0.04	0.04	-	0.34	0.19 ^h
L320QS or X46QS	0.15	0.45	1.40	0.020	0.003 ^e	0.05	0.05	0.04	-	0.36	0.20 ^h
L360QS or X52QS	0.16	0.45	1.65	0.020	0.003 ^e	0.07	0.05	0.04	g	0.39	0.20 ^h
L390QS or X56QS	0.16	0.45	1.65	0.020	0.003 ^e	0.07	0.05	0.04	g	0.40	0.21 ^h
L415QS or X60QS	0.16	0.45	1.65	0.020	0.003 ^e	0.08	0.05	0.04	g,i,k	0.41	0.22 ^h
L450QS or X65QS	0.16	0.45	1.65	0.020	0.003 ^e	0.09	0.05	0.06	g,i,k	0.42	0.22 ^h
L485QS or X70QS	0.16	0.45	1.65	0.020	0.003 ^e	0.09	0.05	0.06	g,i,k	0.42	0.22 ^h
Welded pipe											
L245MS or BMS	0.10	0.40	1.25	0.020	0.002 ^e	0.04	0.04	0.04	-	-	0.19
L290MS or X42MS	0.10	0.40	1.25	0.020	0.002 ^e	0.04	0.04	0.04	-	-	0.19
L320MS or X46MS	0.10	0.45	1.35	0.020	0.002 ^e	0.05	0.05	0.04	-	-	0.20
L360MS or X52MS	0.10	0.45	1.45	0.020	0.002 ^e	0.05	0.06	0.04	-	-	0.20
L390MS or X56MS	0.10	0.45	1.45	0.020	0.002 ^e	0.06	0.08	0.04	g	-	0.21
L415MS or X60MS	0.10	0.45	1.45	0.020	0.002 ^e	0.08	0.08	0.06	g,i	-	0.21
L450MS or X65MS	0.10	0.45	1.60	0.020	0.002 ^e	0.10	0.08	0.06	g,i,k	-	0.22
L485MS or X70MS	0.10	0.45	1.60	0.020	0.002 ^e	0.10	0.08	0.06	g,i,k	-	0.22

Api 5l 44th Edition

D Keegan



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Arctic Pipeline Planning Ramesh Singh, 2013-08-08 Utilize the most recent developments to combat challenges such as ice mechanics The perfect companion for engineers wishing to learn state of the art methods or further develop their knowledge of best practice techniques Arctic Pipeline Planning provides a working knowledge of the technology and techniques for laying pipelines in the coldest regions of the world Arctic Pipeline Planning provides must have elements that can be utilized through all phases of arctic pipeline planning and construction This includes information on how to Solve challenges in designing arctic pipelines Protect pipelines from

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Phosphorus Recovery and Recycling Hisao Ohtake,Satoshi Tsuneda,2018-05-25 This book focuses on the engineering aspects of phosphorus P recovery and recycling presenting recent research advances and applications of technologies in this important and challenging area of engineering It highlights full scale applications to illustrate the performance and effectiveness of the new technologies As an essential element for all living organisms P cannot be replaced by any other element in biochemical processes humans ultimately rely its availability Today P is mostly obtained from mined rock phosphate Pi However natural reserves of high grade rock Pi are limited and dwindling on a global scale As such there have been increased efforts to recycle P from secondary sources including sewage sludge animal manure food waste and steelmaking slag and so close the anthropogenic P cycle In addition to various aspects of phosphorus covered by other literature including chemistry biochemistry ecology soil plant systems and sustainable management this book is a valuable and comprehensive source of information on the rapidly evolving field of P recovery and recycling engineering for students researchers and professionals responsible for sustainable use of phosphorus **Code of**

Federal Regulations, Title 49, Transportation, PT. 178-199, Revised as of October 1, 2014 U S Office of the Federal Register,2015-02-20 Code of Federal Regulations, Title 49, Transportation, Pt. 178-199, Revised as of October 1 2011
Office of the Federal Register (U.S.) Staff,U S Office of the Federal Register,2012-02-22

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