



Vallourec Tubos do Brasil S.A.
 BARREIRO PLANT - Belo Horizonte - MG - Brazil
 CEP: 30161-970 - PO BOX: 1453



Inspection Certificate
 (According to DIN EN 10204.3.1)
 No.: 0030031880

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Country: USA

Material Number: 410275
 Work Order: 363949 / 90
 Customer Order: 21005121

Inspection: Vallourec Tubos do Brasil S.A.

PRODUCT: SEAMLESS STEEL PIPE, HOT FINISHED, PLAIN ENDS, NORMALIZED
 DIMENSIONS: 1.315" X 0.358" GRADE: GR 6 # GR 1
 STANDARD: ASTM A 333 - 13 ASTM A 999 - 14
 IN ACCORDANCE ALSO TO THE STANDARDS: ASME SA-333 - 13
 SURFACE PROTECTION: EXTERNAL: OILED PIPE ENDS PROTECTOR: NO PROTECTOR
 TOLERANCES: OUTSIDE DIAMETER (PIPE BODY): -0.031 " / + 0.016 " WALL THICKNESS: -0.045 " / + 0.072 "
 LENGTH: RANDOM 17.00 FT - 24.00 FT
 STANDARD MARKING: Paint stenciled in the pipe body: MANUFACTURER ASTM A/ASME SA-333 6 1 S CD XXS LT -60F HEAT NUMBER 1.315" X 0.358 NACE MR 0175/NR0103
 SHIPPING MARKING: P.O. 8405 * VLR 21005121 * HOUSTON * * MADE IN BRAZIL.

Heat	Collector Lot	Pieces
130271	423887	102
	423888	51
	424711	124
Total		277

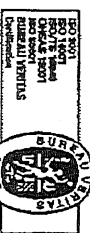
THE PRODUCT IS SATISFACTORY IN THE FOLLOWING TESTS / INSPECTIONS: DIMENSIONAL # VISUAL # FLATTENING TEST # EDDY-CURRENT TEST ACC. E309 : EDDY-CURRENT ACC. ASTM E 309 #

Chemical Composition (%) Process: Basic Oxygen Furnace, heats fully killed

Ceq: C+ Mn/6+ (Cr+ Mo+ V)/5 + (Ni+ Cu)/15

Heat	Control Lot	Chemical Composition (%)														
		C	Mn	P	S	Si	Ni	Cr	Mo	Cu	V	Nb	Ceq			
		Heat Analysis														
		Min	0.400			0.100				0.400	0.300	0.120	0.400	0.080	0.020	0.400
		Max	0.220	1.350	0.025	0.025				0.400	0.300	0.120	0.400	0.080	0.020	0.400
		Min	0.400			0.100				0.400	0.300	0.120	0.400	0.080	0.020	0.400
		Max	0.220	1.350	0.025	0.025				0.400	0.300	0.120	0.400	0.080	0.020	0.400
		Product Analysis														
		Min	0.400			0.100				0.400	0.300	0.120	0.400	0.080	0.020	0.400
		Max	0.220	1.350	0.025	0.025				0.400	0.300	0.120	0.400	0.080	0.020	0.400
		Heat Control Lot														
130271	030002414589	0.12	1.31	0.012	0.003	0.32	0.01	0.04	0.01	0.010	0.010	0.006	0.016	0.351		
	Check 1	0.13	1.29	0.011	0.001	0.30	0.01	0.04	0.00	0.004	0.007	0.016	0.355			
	Check 2	0.13	1.29	0.011	0.001	0.30	0.01	0.04	0.00	0.004	0.007	0.015	0.353			
	030002414590	0.12	1.31	0.012	0.003	0.32	0.01	0.04	0.01	0.010	0.010	0.006	0.016	0.351		
	Check 1	0.13	1.30	0.011	0.002	0.32	0.01	0.04	0.01	0.006	0.005	0.014	0.356			
	Check 2	0.13	1.30	0.011	0.002	0.32	0.01	0.04	0.01	0.006	0.005	0.014	0.356			

ASTM E



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Chemical Composition (%)

Process: Basic Oxygen Furnace, heats fully killed

Ceq: Cr+Mn/6+ (Cr+Mn+V)/5 + (Ni+Cu)/13

	C	Mn	P	S	SI	Ni	Cr	Mo	Cu	V	Nb	Ceq
Heat Analysis	Min	0.400			0.100							
	Max	0.220	1.350	0.025	0.025	0.400	0.300	0.120	0.400	0.080	0.020	0.400
Product Analysis	Min	0.400			0.100							
	Max	0.220	1.350	0.025	0.025	0.400	0.300	0.120	0.400	0.080	0.020	0.400

Heat	Control Lot	030002421954	0.12	1.31	0.012	0.003	0.32	0.01	0.04	0.01	0.010	0.006	0.016	0.351
	Check 1		0.12	1.29	0.011	0.001	0.30	0.01	0.04	0.00	0.005	0.007	0.015	0.344
	Check 2		0.13	1.29	0.011	0.001	0.30	0.01	0.04	0.00	0.005	0.006	0.014	0.330

Ceq: Carbon Equivalent:

Tensile Test

Specimen Direction: Longitudinal

Temperature: Room Temperature	Gage Length: L ₀ =2"	YS Method: 0.50 %		
Type of Specimen	Area (sqin)	YS (PSI)	TS (PSI)	E (%)
Required: Min		35000	60000	35
Max				

Heat	Control Lot	030002414589	030002414590	030002421954
		FULL SECTION	FULL SECTION	FULL SECTION
		1.1	1.1	1.1
		53562	53516	51844
		74067	74003	72999
		50	50	49

YS-Yield Strength; TS-Tensile Strength; E-Elongation;

Hardness Test

Scale HV

Heat	Control Lot	030002414589	030002414590	030002421954
		133,0	150,0	152,0
		151,0	151,0	152,0
		246,0		
		Max		



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Impact Test

Test Specimen: CHARPY 10X55X7.5 V NOTCH

Heat	Control Lot	Direction: Longitudinal					Temperature: -51°F	Striking tip: 0.315"						
		AE1 (Fub)	AE2 (Fub)	AE3 (Fub)	AE4 (Fub)	AE5 (Fub)		AE Avg (Fub)	SA1 (%)	SA2 (%)	SA3 (%)	SA4 (%)	SA5 (%)	SA Avg (%)
130271	030002414589	125	118	133	122	100	100	100	100	100	100	100	100	100
	030002414590	128	137	133	133	100	100	100	100	100	100	100	100	100
	030002421954	122	115	130	122	100	100	100	100	100	100	100	100	100

AE - Absorbed Energy; SA - Shear Area;

Remarks:

VMU order e item_VMU:3000303/90

We hereby certify that this product has been manufactured and examined in accordance with all requirements of the standards and specifications and all the results are found to be satisfactory. This testimonial and certificate respectively is recorded by a computer system and is valid without signature. Alteration or use for others products are regarded as falsification of documents and will be subject to criminal jurisdiction.

QUALITY CONTROL DEPARTMENT

FAKX (55-31) 3328-2987

e-mail: assislencia.auroch@vallourec.com

RONALDO DE FARIA ANDRÉS - CREA-MG 82.943
TECHNICAL RESPONSIBLE

DATE
10.22.2014

ECO TUBES: The tubes from Vallourec do Brasil S.A. are manufactured with steel which uses charcoal as a source of energy in its production. This coal comes from more than 100,000 ha of forest planted by Vallourec Florestal Ltda.. With the acquisition of 9,5 ton(t) of steel tubes from Vallourec do Brasil S.A., your company contributed to the reduction of the greenhouse effect, avoiding the accumulation of 17,1 ton(t) of Carbon Dioxide CO2 in the atmosphere.