


COD QC - 3.1 - Ed. 2 REV 5/2014



**TMK-ARTROM S.A.**

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 J 28/9/1991; VAT No. RO 1510210/1992  
 Subscribed and Paid Share Capital: 291.587.538,34 lei

**INSPECTION CERTIFICATE - EN 10204: 2004 / 3.1**

<b>No.: E21091</b> <b>Date: 18.10.2017</b>		<b>Manufacturer's mark :</b> 		<b>Purchase Order No.:</b> <b>PO#: CI-17-382</b>	
<b>Buyer : Trans Am Piping Products Ltd.</b>					
<b>Specifications:</b> ASTM A333-16; ASME SA333-15; ASTM A999-16; ASME B36.10M-15 Spec. SP-P01 REV.2				<b>Dimensions: 2.375" x 0.218"</b> <b>Steel : Grade 6</b>	
<b>Description:</b> Hot rolled seamless steel pipes with bevelled ends; marking by painting at one end: TMK -ARTROM, manufacturer's mark, NPS 2"XS SCH80, dimensions, standard, SP-P01 REV.2, steel grade, HYDRO TEST PRESSURE 2500 PSI, LENGTH (FT), 5.03 LB/FT, HF, SMLS, LT-45, heat no., LOT, TRANS AM PIPING PRODUCTS LTD PO#CI-17-382, technical control sign, MADE IN ROMANIA					
<b>Heat No.: 48030</b>		<b>Lot No.: 307907</b>	<b>Country of manufacture: Romania</b>		<b>Country of Melt: Romania</b>
<b>Quantity</b>		<b>Pcs</b>	<b>Length m</b>		<b>Weight kg</b>
			2503.8		18776

**Ladle Chemical Analysis (%)**

C	Mn	S	P	Si	Ni	Cr	Mo	Cu	Al	Nb	Ti	V	B	Ca	CEQ
0.18	1.10	0.005	0.010	0.24	0.07	0.05	0.02	0.20	0.029	0.001	0.001	0.003	.0005	0.002	0.396

Mn/C: 6.11

**Mechanical Properties**

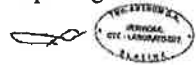
<b>TENSILE TEST (ASTM A370)</b> - at room temperature- Test Specimen/ Strip-longitudinal	<b>Rt0.5</b> MPa	<b>Rm</b> MPa	<b>A</b> %	<b>Reduction of area</b> %
Dimension - Specimen (mm) l. 19.3 x 5.55 / 2. 19.4 x 5.5	1. 391	533	34	64
Section - Specimen (mm) l. 109.36 / 2. 108.95				
Length - Specimen (Lo) (mm) l. 50.8 / 2. 50.8	2. 401	537	33	63

Heat treatment: normalized at 920°C Hydraulic test pressure (ASTM A999): 2500 PSI for 5 sec.: OK Flattening test (ASTM A999): OK	Charpy V- Notch (ASTM A370) KV/Longitudinal 3.33 x 10 [mm] 22 (21; 24; 20) [J] (-55°C)	Process of melting - electric arc furnace, fully killed Hardness BHN: 158-161-158-161 Hardness HRC max 22 (acc to NACE MR01.75/ ISO 15156-2) NACE MR01.03/ISO 17495-1
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Visual and dimensional inspection of the tubes were performed and the results were satisfactory  
 The manufacturer of pipes is certified in acc. with ISO 9001: 2008, 14001:2004 and ISO 18001:2007  
 " NO REPAIR BY WELDING HAS BEEN CARRIED OUT "  
 The material "not contain intentional additions of elements such as lead, selenium, or sulphur to improve machinability"

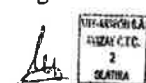
**QC & LABORATORIES CHIEF**

Dipl. Eng. Silviu Barbulescu



**MILL INSPECTOR**

Eng. Iulian Andrei



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