

COD QC-3.1-Ed.2 REV 6/2017



TMK-ARTROM S.A.

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 EUID: ROONRCJ28/9/1991; J28/9/31.01.1991  
 VAT No. RO 1510210/1992  
 Subscribed and Paid Share Capital: 291.587.538,34 lei

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

No.: E27101 Date: 27.12.2017		Manufacturer's mark :		Purchase Order No.: PO#: CI-17-470	
Buyer : Trans Am Piping Products Ltd.					
Specifications: API 5L-13; ASTM A106-15; ASME SA106-15; ASTM A530-12; ASME B36.10M-15 Spec. SP-P01 REV.2/ Spec. CSA Z245 1-14				Dimensions: 2.375" x 0.218" Steel : Gr. B / X42 PSL1 Gr. 241/290 CAT 1 / Gr. B	
Description: Hot rolled seamless steel pipes with bevelled ends: marking by painting at one end: TMK -ARTROM, manufacturer's mark, standard, dimensions, steel grade, SMLS, heat no., LOT. LENGTH (FT), technical control sign // LENGTH (m), manufacturer's mark, Z245.1-14, dimension, steel grade., S, HN, 20.7 MPa, standard, steel grade, SP-P01 REV.2, NPS 2"XS SCH80, 5.03 LB/FT, HYDRO TEST PRESSURE 3000 PSI/NDE, TRANS AM PIPING PRODUCTS LTD PO#CI-17-470, MADE IN ROMANIA					
Heat No.: 48936		Lot No.: 318589		Country of manufacture: TMK-ARTROM Romania	
				Country of Melt: TMK-RESITA Romania	
Quantity		Pcs		Length m	
				Weight kg	

Ladle Chemical Analysis (%)

C	Mn	S	P	Si	Ni	Cr	Mo	Cu	Al	Nb	Ti	N	V	B	Ca
0.19	1.08	0.003	0.009	0.22	0.05	0.04	0.01	0.14	0.031	0.003	0.001	0.009	0.003	0.0005	0.003
Nb+V+Ti: 0.007		Nb+V: 0.006		Mn/C: 5.68		CE acc. to API 5CT=0.393		CEV acc to CSA Z245 1-14=0.398							

Product Chemical Analyse (%)

C	Mn	S	P	Si	Ni	Cr	Mo	Cu	Al	Nb	Ti	V	B	Ca
0.19	1.09	0.002	0.008	0.22	0.05	0.03	0.01	0.14	0.032	0.005	0.001	0.006	0.0005	0.002
0.19	1.08	0.002	0.009	0.22	0.05	0.04	0.01	0.15	0.031	0.004	0.001	0.005	0.0005	0.002

Mechanical Properties

TENSILE TEST (ASTM A370) - at room temperature- Test Specimen/Strip-longitudinal	Rt0.5 MPa	Rm MPa	A %	Reduction of area %
Dimension -Specimen (mm): 19.25 x 5.55	415	547	32	66
Section -Specimen (mm): 109.06				
Length -Specimen (Lo) (mm): 50.8				

Heat treatment: normalized during hot rolling process Hydraulic test pressure (ASTM A530): 3000 PSI for 5 sec: OK Test Eddy Current Acc. ASTM E309/ISO 10893-1 (outside, longitudinal and transversal imperfections) acc CSA Z245 1-14: OK Residual magnetism: max. 30 Gauss: OK	Process of melting - electric arc furnace, fully killed Hardness BHN: 161-164-161-164 Hardness HRC max 22 (acc to NACE MR01.75/ISO 15156-2) NACE: MR01.03/ISO 17495-1 Grain size ASTM E 112: 8.5
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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. Constantin Lupu

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THIS IS FOR CERTIFY THAT THE MATERIAL HEREIN DESCRIBED HAS BEEN MANUFACTURED WITH THE ORDERED SPECIFICATION AND THAT INFORMATION IS CORRECT. THEY MEET THE SPECIFICATION'S REQUIREMENTS AND ARE RECORDS IN FOUR COMPANY DOCUMENTS.