



Tarbiat Modares University

Faculty of Engineering

T.M.U

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www.modares.ac.ir

ACCELERATED LIFE TEST REPORT

Type Of Material	Ti-MMO Tubular Anode
Owner	Petro Omid Asia Co.
Contractor	Behbood Sanat Pars Co. (The Selection Of The Testing Sample Has Been Done By The Contractor In The Present Of The Corrosion & Protection Laboratory Representative)
Manufacturer	Borna Godaz Co.
Date	29 Aug 2018
Report Number	97060705
Anode Size	25 mm Diameter × 1000 mm Length
Anode Surface Area	0.079 m ²
Anode Output Current	8 A
Anode Current Density	100 A/m ²
Anode Design life	25 years
Anode Charge Density	21900000 A-h/m ²
Anode Accelerated Life	313 h

Accelerated Life Of MMO Tubular Anode Coating	
Sample Number	Accelerated Life (h)
01	335
Total Charge Density (A-h/m ²)	Lifetime (yr)
23450000	26.4

Acceptance Criteria According To NACE TM0108 Standard	
Accelerated Life	Total Charge Density
Equal or more than the anode accelerated life	Equal or more than the anode charge density

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Test Condition	
Coating Area	56 mm ²
Current	3.92 A
Current Density	70000 A/m ²
Electrolyte	1.0 M H ₂ SO ₄ Solution
Temperature	30±5 °C
Initial Cell Voltage	6.8 V
Final Cell Voltage	8.3 V
The accelerated time of anode is recorded when the potential increases by 1.5 V above its initial value	

Corrosion & Protection Lab
Dr. T. Shahrabi

T. SHAHRABI
Manager Of Corrosion
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CHEMICAL ANALYSIS TEST REPORT

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Date	29 Aug 2018
Report Number	97060706

Chemical Composition of Titanium Substrate			
Sample Number	Fe	C	N
01	0.08 %	0.01 %	0.013 %
H	O	Ti	
0.005 %	0.11 %	99.78 %	

Acceptance Criteria According To ASTM B 338 Grade 1 Standard		
Fe	C	N
0.20 % Max.	0.08 % Max.	0.03 % Max.
H	O	Ti
0.015 % Max.	0.18 % Max.	Rem.

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THICKNESS TEST REPORT

Type Of Material	Ti-MMO Tubular Anode
Owner	Petro Omid Asia Co.
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Manufacturer	Borna Godaz Co.
Date	29 Aug 2018
Report Number	97060707

Thickness Measurement of MMO Tubular Anode Coating

Sample Number	Thickness of Coating	Uniformity of Coating
01	8.3 μm	94 %

Acceptance Criteria According To IGS-M-TP-22(0) Standard

Thickness of Coating	Uniformity of Coating
7 μm Min.	85 % Min.

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