

 <p>PG PARS CO. Corrosion control & Cathodic protection مهندسی و مشاوره تخصصی در زمینه خوردگی و حفاظت کاتدی Info@pgpars.com www.pgpars.com</p>	 <p>CBSI CERTIFICATION BODY OF SYSTEM</p>	<p>PG PARS CO. Design , Consultation , Production & Implementation of Cathodic Protection Systems</p>	<p>Client's Logo</p>
<p>Project:</p>			
<p>Document Title:</p>	<p>ITP/QCP for Magnesium Anode</p>		
<p>Document Number:</p>		<p>Rev:01</p>	<p>Page 1 of 12</p>

ITP/QCP For Cathodic Protection Materials Magnesium Anode

	STATUS	
DATE:		APPROVED
		APPROVED WITH COMMENTS
SIGNATURE:		COMMENTED
		REJECTED
Next Issue Description		

REV.	DATE	DESCRIPTION	PREPARED	CHECKED	APPROVED
		<p>PG PARS CO.</p>			





 <p>PG PARS CO. Corrosion control & Cathodic protection مهندسی خوردگی و حفاظت کاتدی Info@pgpars.com www.pgpars.com</p>  <p>CBSI CERTIFICATION BODY OF SYSTEM</p>	<p>PG PARS CO. Design , Consultation , Production & Implementation of Cathodic Protection Systems</p>	<p>Client's Logo</p>	
<p>Project:</p>			
<p>Document Title:</p>	<p>ITP/QCP for Magnesium Anode</p>		
<p>Document Number:</p>		<p>Rev:01</p>	<p>Page 3 of 12</p>

Table of Content

<i>Item</i>	<i>Description</i>	<i>Page</i>
1.	Scope	4
2.	Definitions	4
3.	Responsibilities	5
4.	Inspection Procedure	7
5.	Codes & Standards	7
6.	Inspection	7
7.	Inspection & Test Plan	8
8.	Abbreviations	8
9.	PG Pars Co. Inspection Report	8
10.	Non Conformance Note	9
11.	Inspection Release Note	9
12.	QCP	10

 <p>PG PARS CO. Control & Cathodic protection Info@pgpars.com www.pgpars.com</p> 	<p>PG PARS CO. Design , Consultation , Production & Implementation of Cathodic Protection Systems</p>	<p>Client's Logo</p>
<p>Project:</p>		
<p>Document Title:</p>	<p>ITP/QCP for Zinc Anode</p>	
<p>Document Number:</p>	<p>Rev:01</p>	<p>Page 4 of 12</p>

1. SCOPE

This specification describes general requirements of inspection and test for Cathodic Protection High Silicon Anodes at the manufacturer's plant during the manufacturing process. The procedures outlined in this specification are complementary to any requirements that may also be laid down in individual job Specifications.

These requirements shall be reflected into PG Pars's documents, including the inspection plan and inspection procedure, and submitted to the Contractor for approval. Then, the approved PG Pars's inspection procedure and other documents will be used by Contractor's Engineers for inspection during the shop inspection.

2. DEFINITIONS



Further the definitions which mentioned in the other document attached to the purchased order, the following definitions will be used for this document.

E- EMPLOYER: -----



C- CONTRACTOR: -----

M- PG Pars Co.: Panamgouyan Pars Emertat (PG Pars Co.)

- a) Purchase Order: Means the documents and attachments in which the order is described.*
- b) Works: Means the permanent new, revamped and refurbished facilities constituting the Project, including all the construction services, materials and equipment to be provided by/ Employer to satisfy its obligations pursuant to the Contract undertaken with the Employer.*
- c) QMS (Quality Management System): part of the organization's management system that focuses on achievement of results, in relation to the quality objectives, to satisfy the needs, expectations and requirements of / Employer and of any other interested parties, as appropriate.*
- d) QAS (Quality Assurance Specification): document specifying the minimum requirements related to Construction Contractor's QMS and QA/QC Manual specific for the Works.*
- e) QCS (Quality Control Specification): specification for quality control requirements. This standard compiles in Annex- 1 all applicable ITS(s) and relevant inspection and test report forms.*



  PG PARS CO. <small>Corrosion control & Cathodic protection</small> Info@pgpars.com www.pgpars.com	PG PARS CO. Design , Consultation , Production & Implementation of Cathodic Protection Systems	Client's Logo
Project:		
Document Title:	ITP/QCP for Zinc Anode	
Document Number:	Rev:01	Page 5 of 12

- f) *ITS (Inspection and Test Standard): standard listing in chronological sequence of all quality control activities and responsibility related to the execution of required inspection and tests.*
- g) *QCP (Quality Control Plan): Endorsement of QCS Annex-1 prepared by Construction Contractor in accordance with the requirements specified in this QCS and in other contractual QAS and documentation. The QCP compiles all applicable ITP(s) and relevant inspection and test report forms.*
- h) *ITP (Inspection and Test Plan): Construction Contractor plan prepared in accordance with the corresponding ITS and applicable contractual, engineering and PG Pars Co.s requirements. The ITP shall*
- Provide references to applicable procedures, acceptance criteria, documentation, quality records and inspection attendance to be performed, in chronological order, from initial inspection, throughout final inspections and mechanical completion. ITP and relevant inspection report forms shall be enclosed in the QCP.*
- i) *RFI (Request for Inspection): Written notification to be issued by Construction Contractor in order to allow all parties involved to perform their inspection and test witness as planned in the applicable ITS.*
- j) *QA (Quality Assurance): Part of quality management focused on providing confidence that quality requirements will be fulfilled.*
- k) *QC (Quality Control): Part of quality management focused on fulfilling quality requirements.*
- l) *NCR (Non Conformity Report): Document recording a non-fulfillment of requirement.*
- m) *Non Conformity: The non-fulfillment of specified requirements.*
- n) *Special Process: A process the results of which are highly dependent on the control of the process or the skill of the operator and in which the specified quality cannot be readily determined by inspection or test on the product.*
- o) *Calibration: Comparison of a measurement and test equipment with a reference standard or with another one provided with better tolerance in order to detect or to measure possible inaccuracies and to document or eliminate them.*
- p) *Any other terms related to quality and not listed above shall conform to section 3 "Term and Definition" of ISO 9000:2008 "Quality Management System – Fundamentals and vocabulary"*

  Info@pgpars.com www.pgpars.com	PG PARS CO. Design , Consultation , Production & Implementation of Cathodic Protection Systems	Client's Logo
Project:		
Document Title:	ITP/QCP for Zinc Anode	
Document Number:	Rev:01	Page 6 of 12



3. RESPONSIBILITIES

- a) *In order to assure that the equipment and materials (or "the Goods") conform to the requirements of the requisition, specifications and other related documents, the PG Pars Co.s shall perform inspection and tests with therequirementstipulatedintherelevantrequisitionandspecificationsattachedtothePurchaseOrder.All equipment, material shall be subject to test and inspection during manufacturing periods as per the technical specifications. Inspection and test shall be made in such a manner as not to unduly affect the work of the Contractor.*
- b) *In case the equipment, material furnished or the services rendered or work performed by the PG Pars Co., as the case may be, be defective in quality or workmanship or otherwise not in conformity with the requirements of the technical specification, the Contractor shall have the right prior to the end of guarantee period to require correction of them. The equipment, material, which have been rejected or required to be corrected shall be replaced or corrected within a reasonable time by the PG Pars Co.after written notice to meet the technical specifications.*
- c) *For inspection and tests as required by the Contractor's representative and according to the technical specifications, which are carried out, the PG Pars Co. without charge shall provide all needed facilities and assistance for the safety and convenience of the Employer's representatives and for the performance of their duties. However, any failure to inspect or test such material equipment shall not relieve the PG Pars Co. from his responsibilities, and also shall not impose liability on the Contractor.*
- d) *The PG Pars Co. shall perform all necessary tests in accordance with the technical specifications without any additional charge. Should at any time prior to the end of the guarantee period the Contractor deem it necessary to execute additional tests to check the performances of any material, equipment supplied or the Works performed, then these tests shall also be performed, upon the Contractor's instructions. Should the results of these tests demonstrate that the works, materials, equipment performances comply with the technical specifications mentioned in Contract Documents and Instruments and relevant applicable standards, and then the cost of such tests shall be borne by the Contractor.*

  PG PARS CO. Commission control & Cathodic protection Info@pgpars.com www.pgpars.com	PG PARS CO. Design , Consultation , Production & Implementation of Cathodic Protection Systems	Client's Logo
Project:		
Document Title:	ITP/QCP for Zinc Anode	
Document Number:	Rev:01	Page 7 of 12

Should on the contrary the results of these tests demonstrate that the works, material equipment supplied does not comply with technical specifications and relevant applicable standards then the PG Pars Co. shall bear the costs of such test together with the cost relevant to the replacement or correction of defective works, material and equipment.

- e) Performing any inspection or testing as foreseen in the Contract and approval or failure to notify the disapproval by the Contractor of any material, equipment which are supplied or work performed by the PG Pars Co. Shall not relieve the PG Pars Co. From his Contractual responsibilities regarding the correctness of the equipment, material supplied or the Works performed to meet the technical specifications requirements.*
- f) This specification must be used in connection with contractual documents which identified in the other section of purchased order in hand and is not intended to be used alone. In cases of conflict between requirements of this specification and other contractual documentation, the conflict shall be resolved at the ordering stage.*
- g) PG Pars Co. Shall not waive any inspection or test called for under this inspection procedure, or approved procedure, unless otherwise, to get written approval of Contractor regarding such neglecting. The degree and frequency of inspection is dependent upon the complexity and criticality of the materials and equipment in question.*
- h) It is not always possible in some areas to define the precise extent and scope of inspection during preliminary design, and in these cases the PG Pars Co. and Contractor shall negotiate with Employer to clarify these areas prior to sign the Purchase Order.*
- i) All documents, manuals, drawings and tags shall be in English.*
- j) Resident inspection shall be provided when specifically required by contractual obligations, purchase order requirements or when requested. It may also be implemented when a sufficient workload is in any one shop to warrant resident inspection, or, if deemed necessary, in order to obtain the required quality of product(s) as defined by the purchase order and Employer documents.*
- k) Calibration Certificate of all using equipment for construction, inspection and tests shall be available for review.*

 <p>PG PARS CO. Corrosion control & Cathodic protection Info@pgpars.com www.pgpars.com</p>  <p>CBSI CERTIFICATION BODY OF SYSTEM</p>	<p>PG PARS CO.</p> <p>Design , Consultation , Production & Implementation of Cathodic Protection Systems</p>	<p>Client's Logo</p>	
<p>Project:</p>			
<p>Document Title:</p>	<p>ITP/QCP for Zinc Anode</p>		
<p>Document Number:</p>	<p>Rev:01</p>	<p>Page 8 of 12</p>	

4. INSPECTION PROCEDURE

a) The PG Pars Co. shall develop its detail inspection procedure incorporating inspection and test plan and any requirements in the Purchase Order, and submit it to the Contractor for approval. Inspection procedure at least shall consist of:

- Inspection and test items
- Q.Cprocedure/code
- Acceptance criteria
- Inspection authority
- Inspection & test report/data to be submitted

b) All NDT tests shall have clearly defined acceptance and rejection levels.

5. CODES AND STANDARDS

a) Iranian Petroleum Specification & Standards

b) The latest edition of international standard and codes as stipulated in the purchased order.

c) PG Pars Co.'s standard deviations will be accepted, if justifiable explanations can be presented but Contractor written approval is required case by case. In case the PG Pars Co. has certified evidence those in special cases their own standards are superior to those stated herein, they shall issue such standards for review by Contractor and upon APPROVAL; such standards can be incorporated in the execution of the work.

d) The inspector will be guided by the requirements of the code(s) and specifications stipulated in the purchase order.

e) All queries regarding referenced codes and standards shall be presented to Inspector and Contractor for decision.



6. INSPECTION

a) The PG Pars Co. shall fill the Inspection Notification note and send it to Contractor a minimum 5 days before proposed inspection date.

b) The Inspector will inspect Materials which are to be incorporated in the Works in accordance with Engineering Standards and Inspection and Testing Procedure and/or mandatory tests and inspections with the requirements set out hereinbelow.

c) The adequacy of test equipment and procedures to be used shall be investigated prior to performing the test.

7. INSPECTION AND TEST PLAN (ITP)

  Info@pgpars.com www.pgpars.com	PG PARS CO. Design , Consultation , Production & Implementation of Cathodic Protection Systems	Client's Logo
Project:		
Document Title:	ITP/QCP for Zinc Anode	
Document Number:	Rev:01	Page 9 of 12

- a) *Inspection and Test Plan shows the basic principle of the inspection and test requirement to be witnessed by the inspector. This Inspection and Test Plan shall be extracted per individual equipments / items. The PG Pars Co. shall submit overall inspection plan indicating PG Pars Co.'s inspection and test points including witness points of the Contractor in accordance with the Purchase Order prior to the start of fabrication.*
- b) *The ITP shall be considered as minimum extent of inspection. PG Pars Co.'s quality plan shall include all inspection and test requirements per specifications & datasheets, etc., and shall be reviewed and approved by Contractor/Employer during negotiation for ordering*
- c) *This plan shall contain any test & inspection requirements that had been specified in the Purchase Order.*

8. **ABBREVIATIONS**

1(H) = 100% WITNESSED. Action performed for all materials or equipment, which is witnessed by the SP and, where indicated, by the Client and/or Third Parties.

2(SW)= % OF TYPE/LOT WITNESSED. Action performed only on a certain number of pieces. The number

20 (%) of Items shall be finalized in PIM.

3 (SW)= TYPE UNIT WITNESSED. Action performed on one spot-sampled piece. Type unit is used to denote all the pieces of the same type that are identical.



4 (W)= WITNESSING NOT MANDATORY. The Supplier shall inform the Contractor of the date of the activity and the Contractor reserves the right to witness the test. If the test is conducted at the notified date, the Supplier may proceed with the subsequent phase, even if the Contractor did not witness the test.

C(R/A) = REVIEW OF TECHNICAL DOCUMENTS BEFORE COMMENCEMENT OF CONSTRUCTION.

The technical documents shall be reviewed before the commencement of construction.

V(R) = REVIEW OF DOCUMENTS. Materials certificates, statement of compliance and reports of inspection and tests conducted by the Supplier shall be revised to assess their conformance with the requirements specified in the Code and Standards, Specifications and/or Purchase Order Standards.

9. **PG PARS CO.'S INSPECTIONREPORT**

 <p>PG PARS CO. Corrosion control & Cathodic protection Info@pgpars.com www.pgpars.com</p>  <p>CBSI CERTIFICATION BODY OF SYSTEMS</p>	<p>PG PARS CO.</p> <p>Design , Consultation , Production & Implementation of Cathodic Protection Systems</p>	<p>Client's Logo</p>
<p>Project:</p>		
<p>Document Title:</p>	<p>ITP/QCP for Zinc Anode</p>	
<p>Document Number:</p>	<p>Rev:01</p>	<p>Page 10 of 12</p>

PG Pars Co. shall provide a final report for the test and inspections of any equipment and issue it to Contractor/Employer. Contractor standard inspection reports shall be used for status and progressive reporting, and for final report.

The records of inspection and test previously performed by the PG Pars Co. shall be presented to Contractor's inspector for his review when he visits PG Pars Co.'s shop for inspection.

As a minimum, the following items shall be included in PG Pars Co.'s report:

- a) Cover sheets (P/O No., item no., and item description, serial No.)*
- b) Content sheets.*
- c) Certificate of compliance with codes and/or standards.*
- d) Materialists.*

Important Note: - As has to be stipulated in each Purchase Order, the PG Pars Co. shall immediately after finishing the shop test submit a copy of the relevant Test reports to Contractor. Anyhow, prior receiving the above report by Contractor the Cargo Inspection will be postponed. In such cases all the consequences of such postponing shall be borne by the PG Pars Co.



10. NON – CONFORMANCENOTE

If any non-conformance is found during inspection, the inspector will immediately submit the nonconformance report to the PG Pars Co. for necessary remedying and to the Contractor for resolving. In this event, the document shall be summarized including the condition of non-conformance and recommended corrective action. The revised form will be submitted latter by Cargo Inspector.

11. INSPECTION RELEASNOTE



After accepting the inspected items, the inspector will issue an Inspection Release Note to the PG Pars Co. Through such Release Note, the inspected items will be ready for delivery from PG Pars Co.'s shop.

Note: The PG Pars Co. shall not proceed with shipment of the goods prior to issuance of the Inspection Release Note.

 		PG PARS CO. Design , Consultation , Production & Implementation of Cathodic Protection Systems		Client's Logo
Project:				
Document Title:		ITP/QCP for Magnesium Anode		
Document Number:		Rev:01	Page 11 of 12	

1. *itp*

1-Material/Equipment: Sacrificial Magnesium Anode								
Item	Test Type/Quality	Standard	Acceptance Criteria	Inspection Status				Remark
				M	T	C	E	
1.	Check Technical Documentation			1(H)	4(W)	2(SW)	V(R)	
2.	Compliance with the prototype			1(H)	4(W)	2(SW)	V(R)	
3.	Weight	-----	---- lb.	1(H)	4(W)	2(SW)	V(R)	
4.	Quantity	-----	As Per MTO	1(H)	4(W)	2(SW)	V(R)	
5.	Closed Circuit Potential	ASTM B483	1.55 V	1(H)	4(W)	2(SW)	V(R)	
6.	Electrochemical Efficiency	ASTM B483	1230 Ahr/kg	1(H)	4(W)	2(SW)	V(R)	
7.	Chemical Composition	ASTM B483	Aluminium 0.01% max manganese 0.9-1.2 Copper 0.02 % max Iron 0.03% Max Nickel 0.001 max Other Elements 0.3 Zinc Reminder	1(H)	4(W)	2(SW)	V(R)	
8.	Anode cable connection pull-out test (pulling force of 2000 N)	ASTM B483	According to Standard	1(H)	4(W)	2(SW)	V(R)	
9.	Anode cable connection electrical resistance test (not above 0.002 Ohm). To be performed after the test at position 2.4	ASTM B483	According to Standard	1(H)	4(W)	2(SW)	V(R)	
10.	Check of the electrical cable characteristics			1(H)	4(W)	2(SW)	V(R)	

 <p>PG PARS CO. Corrosion control & Cathodic protection شركت پی اے پی اے www.pgpars.com Info@pgpars.com</p>  <p>CBSI CERTIFICATION BODY OF SYSTEM</p>	PG PARS CO. Design , Consultation , Production & Implementation of Cathodic Protection Systems		Client's Logo	
Project:				
Document Title:	ITP/QCP for Magnesium Anode			
Document Number:	Rev:01	Page 12 of 12		

11.	Steel insert material certificate (if any) V 9 e Backfill mixture composition for pre-packaged anodes			1(H)	4(W)	2(SW)	V(R)	
12.	Visual checks			1(H)	4(W)	2(SW)	V(R)	
13.	Visual and dimensional check			1(H)	4(W)	2(SW)	V(R)	
14.	Anode cable connection pull-out and electrical tests			1(H)	4(W)	2(SW)	V(R)	
15.	<i>Dimension</i>	IPS-M-TP-750	-----	V(R)	1 (H)	V(R)	V(R)	
16.	<i>Weight</i>	IPS-M-TP-750						