

QUALITY PLAN

FOR THE PROCUREMENT OF INHIBITOR FOR CITRIC ACID

(Applicable for Non NTPC customers)

(Proprietary formulation from M/s Arudhra Eng P.Ltd, Chennai / M/s Agromore, Bangalore / M/s Bay-Chem Fabriks P.Ltd, Chennai / M/s Shreya chemicals, Bangalore)

Doc No: PS: TSX: 592:00:17

Dated 28.06.2017



BHARAT HEAVY ELECTRICALS LIMITED

(A Government of India Undertaking)

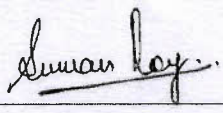
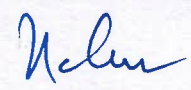
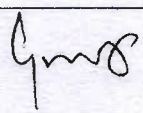
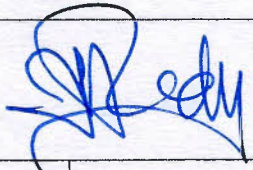
Power Sector – Southern Region

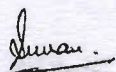
690, Anna Salai, Nandanam, Chennai – 600 035.

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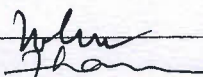
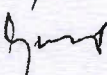
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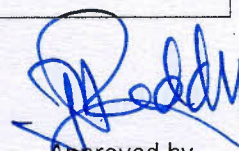
PREPARED BY	SUMAN KUMAR ROY (DM/TSX/BHEL PSSR)	
REVIEWED BY	A. LAWRENCE (Sr. Manager/Lab/BHEL Trichy)	
	S S SAHU (AGM/Quality/BHEL PSSR)	
	P GOVINDARAJU (AGM/TSX/BHEL PSSR)	
APPROVED BY	P S REDDY (GM/ (TSX,CC & PGT)/BHEL PSSR)	
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ISSUED TO		DATE OF ISSUE 04.07.2017



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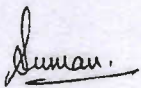
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SCOPE:

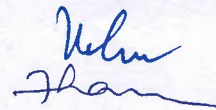
This document establishes the quality requirements for supplies purchased by BHEL. This form is a part of the purchase order. It contains **General Quality Requirements**, which apply to the purchases unless they are specifically excluded.

SECTION I : GENERAL REQUIREMENT

1. **Responsibility for Conformance** – The seller is responsible for furnishing supplies, which conform to the requirements of the purchase order. Surveillance, inspections, and tests performed by BHEL, BHEL's customer, or the government do not relieve the seller of this responsibility.
2. **Documentation** – BHEL may refuse to accept delivered items if the seller does not submit the certifications, test data, reports, and/or documentation as required in the purchase order. Computer generated documents must include an actual or facsimile signature.
3. **Right of Access** – is reserved by BHEL, our customers and regulatory authorities to the applicable areas of supplier's facilities, at any level of the supply chain, involved in the order and to all applicable records. BHEL may review your facility or products as necessary.
4. **Notification of Facility Change** – Notify the BHEL immediately of changes to facility location.
5. **Nonconformance Report (NCR)** – Nonconforming parts or material if any require BHEL's written approval before shipment. Record any deviations from specifications, or other requirements. Submit the NCR to the BHEL. A copy of the approved NCR form must accompany each affected shipment and be attached to each part/container.
6. **Latent Defect** – Notify the BHEL for any latent defects for products that were shipped prior to the discovery of the defects. Notification is by use of an NCR and a cover letter including product description, shipper number, part number, revision and a corrective action statement as required by our customers and any regulatory authorities.



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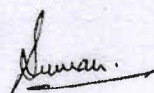
7. **First Article inspection** – Supplier to offer sample for evaluation at BHEL Lab/Customers lab before despatch to site. Sample should contain purchase order number, part number, and part name. After getting confirmation from BHEL, supplier should ship the inhibitor to site.

Section II: Selected Procurement Quality Requirements

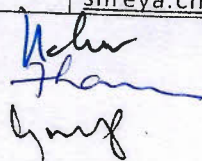
1. **Control of Quality** – Supplier to maintain their quality control system. BHEL may ask/audit their quality system for compliance.
The inhibitors have to be procured only from the original inhibitor manufacturers and not from any traders.

Inhibitor supplier details and concentration:

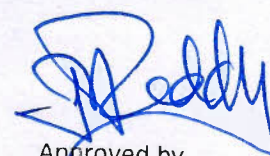
Sl No.	Inhibitor	Concentration % (v/v)	Supplier Details
01	Coronil – 92 B	0.2 - 0.3	Arudhra Engineers Private Limited P.O. Box No. 8676 79 (Old #29/9), Valmiki Street, Thiruvannamipur Chennai-600 041, India. arudra01@gmail.com Phone: 91 44 24430697
02	Rodine – 92 B	0.2 - 0.3	Agromore (p) limited P.O box no: 2602 Mysore Road, Bangalore- 560026 sales@agromore.com phone : 26743724
03	Coroban – CB	0.2 - 0.3	Bay-Chem Private Limited, No. 12/12, Ganesh nagar, G.K. Industrial Estate, Alappakkam, Porur, Chennai-600 116. bay@bsnl.net , bay_chem@yahoo.com Phone: 044-24765058
04	Acibitor – 92B	0.2 - 0.3	SHREYA Chemicals 176-177, 5 th Main, Aziz Sait Industrial Town, Nayandahalli, Mysore Road, Bangalore 560 039. Telefax : 080- 23391620 email : shreya.chemicals@gmail.com



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2. Test Reports/Certifications –

A **legible/reproducible** test report to be obtained from BHEL/Customer Lab before despatch. Inhibitor efficiency test to be carried out at BHEL/customer lab and test report to be forwarded to BHEL/customer.

The inhibitor must be liquid and completely soluble in water and in mono ammonium citrate.

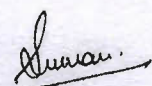
TEST REPORT FROM LAB SHOULD CONTAIN:

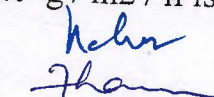
Citric Acid	--- % w/v	
pH	---	
Corrosion Inhibitor concentration	--- % v/v	
Temperature	--- ° C	
Duration of Test	--- hours	
Material	Corrosion rate	Metal Loss for the Cleaning process
i)		
ii)		
....		
Acceptable criteria as per VGB	< 2.0 g / m ² / h	< 20 g / m ²

Acceptable criteria:

As per BHEL practice,

- i) Inhibitor with Metal loss < 1.0 g / m² / h is..... excellent category
- ii) Inhibitor with Metal loss < 2.0 g / m² / h is.....very good category

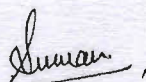

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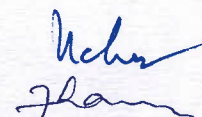
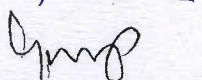

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Both categories are acceptable.

3. **Shelf Life and Storage Requirements** – Shelf life and storage requirements set by specification require a shelf life statement. The statement will contain the Date of Manufacture (DOM), Date of Shipment (DOS), and/or Date of Test (DOT), as applicable. Include the BHEL purchase order number, material lot or batch number, and the storage requirements. **Do not ship supplies having less than 75% shelf life remaining without the written approval of BHEL.**
4. **Packing, storage and handling** – Supplier should inform BHEL about packing details, storage and handling instruction should be clearly marked on the shipment.
5. **Identification** – Unique identification will be assigned to articles and be noted and traceable throughout the associated documentation (reports and certifications).


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