

Bharat Heavy Electricals Ltd.,

(A Government of India undertaking)

Electronics Division


PB No.2606, Mysore Road, Bangalore-560026, India

Sealed quotations are invited under two part bid system for manufacturing and Supply of Front Silver Paste for solar cells as per BHEL Technical Specification PS 439 354 Rev 02

RFQ NO and date	MDSSCPV046 dated 05.04.2019
RFQ due date	22.04.2019 up to 13.00 hrs of Indian standard time.
Date, Time & Venue of Technical Bid Opening	22.04.2019, 13.30 hrs New Engineering Building 2nd Floor Bharat Heavy Electricals Limited PB NO 2606, Mysore road, Bangalore-560 026. INDIA
Date, Time & Venue of Price Bid opening	Will be intimated later for technically accepted vendors
Address for Communication & Contact Person in BHEL	Mr. Muhammed Shakir/ Mr. Ramachandra, SC&PV MM Department, BHEL Electronics Division, PB NO 2606, Mysore road, Bangalore-560 026. INDIA Email: muhammedshakir@bhel.in , ramachandra@bhel.in Telephone number: +91 80 26989665, +91 80 26998476

Signature of Tenderer with Seal

REQUEST FOR QUOTATION

	BHARAT HEAVY ELECTRICALS LIMITED Electronics Division PB No. 2606, Mysore Road Bangalore - 560026 INDIA	RFQ NUMBER: MDSSCPV046 RFQ DATE : 05.04.2019	Due Date/Day: 22.04.2019 MON Time : 13:00 HRS Tender Box : Reception Area Opening Venue: NEW ENGG. BLDG
MMI:PU:RF:003	(address for communication) :		(for all correspondence)
		Purchase Executive : MUHAMMEDSHAKIR M K Phone : 080 26989665 Fax : E-mail: muhammedshakir@bhel.in	

SI No.	Description	Qty	Unit	Delivery qty	Delivery Date
1	PV0679039651 Front Silver paste for solar cells * HSN/SAC : 9032 Doc No.- PS439354 Rev - 02 Front Silver paste for solar cells as per Spec: PS-439-354	600	KG	600	31.05.2019

Total Number of Items - 1

1.
2.

TWO PART BID - SUBMIT TECHNICAL AND PRICE BID IN SEPARATE SEALED COVERS

NOTES:

1. This RFQ is governed by:
 - a) INSTRUCTIONS TO BIDDERS/SELLERS and GENERAL CONDITIONS OF CONTRACT FOR PURCHASE available at <http://edn.bhel.com> (**RFQ-PO Terms & Conditions**)
 - b) Any other specific Terms and Conditions mentioned.
 2. Bidders / Representatives who would like to be present during opening of offers are required to furnish authorization letter for the same.
- * The HSN/SAC no mentioned against the line items in the RFQ are indicative only.

For and On behalf of BHEL.

MUHAMMEDSHAKIR M K
Semiconductors & Pho

1 OF 1



**PURCHASE SPECIFICATION
GROUP: PHOTOVOLTAICS**

Spec. No PS-439-354

Rev. No 02

Page 1 of 1

FRONT SILVER PASTE FOR SOLAR CELLS

1. Description: Front side silver paste for Diamond Wire Saw Multi Crystalline silicon solar cell wafers. Should be designed for excellent electrical features, good aspect ratio, fine grid line printing, high adhesion strength, better ink transfer and wider process window.
2. Application: DWS Multi Crystalline Solar cell screen printing process.
3. Technical Specifications:

Parameter	Range	Supplier's Confirmation
1. Viscosity (Haake, RV-1, Cone 35/01, D=12 s ⁻¹ , T = 21 °C)	35 – 110 Pa.s	
2. Fineness of Grind	50%: ≤ 8 μm, Average : ≤ 10 μm	
3. Solid content	90 to 92 % mass	
4. Rheology	Thixotropic, screen printable paste	
5. Appearance	Silver Gray	
6. Resistivity	< 5 m.ohm/Sq.	
7. Finger grid line printing	Suitable for 30 to 35 μm	
8. MSDS, Data Sheet, Storage conditions to be submitted.		
9. Test Certificate – To be provided along with each lot		
10. Supplier shall indicate lot number, type number, item description, date of manufacture, date of expiry, Quantity on each Jar.		
11. Shelf Life in months		
12. Is the product RoHS compliant?		

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REVISION: (02)

APPROVED BY :

SR

PREPARED

ISSUED

DATE

SC&PV-Engg

01.04.2019

SC

RFQ No. : MDSSCPV046 dated 05.04.2019

Supplier Name:

Offer Ref :

Contact Details

Registered Office:-

Address :

Telephone No. :

Email :

Manufacturing plant:-

Address :

Telephone No. :

Email :

Contact person :-

Name:

Office Address :

Telephone No. :

Mobile No. :

Email :

Contact person in India (if any) :-

Name:

Office Address :

Telephone No. :

Mobile No. :

Email :

Signature of Tenderer with Seal

TECHNO COMMERCIAL BID FORMAT

RFQ No. : MDSSCPV046 dated 05.04.2019

Supplier Name :

Offer Ref :

Pre qualification criteria		
1	The offer shall be quoted by original manufacturer of front silver paste for solar cell processing.	Name of front silver paste manufacturer, complete address & contact details with email address, website. Data sheet of paste to be enclosed.
2	The bidder must have cumulatively supplied at least 500 kgs of front silver paste to solar cell manufacturers in India during the period 01.04.2017 to 31.03.2019	Documentary evidence to be provided (PO copy, delivery details, AWB, Packing list,etc.)
3	Front Silver Paste supplied shall be suitable for processing multi-crystalline solar cells with average efficiency not less than 18.4 %.	Certificate from customer for 18.4 % average cell efficiency to be enclosed.
4	Price variation clause: 75% of the price quoted is variable based on variations in silver price during execution of the order. Details as per technical terms below	Acceptable/ Not acceptable
Technical details		
1	Technical compliance: offer shall comply as per BHEL Technical Specification PS 439 354 Rev 02. Please enclose the product data sheet.	Please confirm
2	Front silver paste part number	part number:
3	Price variation formula based on silver price: 75% of the price quoted is variable based on variations in silver price during execution of the order. The formula can be as below. Price/ kg for each lot delivery= $0.25 \times Q + (0.75 \times Q \times S2 / S1)$ Q = Quoted/ offer price in the tender S1 = KITCO New York 24 hour spot silver (bid) closing value as on tender opening date S2 = KITCO New York 24 hour spot silver (bid) closing value as on two weeks prior to PO delivery date for the lot.	Acceptable/ Not acceptable

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4	Reference for PVC: Silver price shall be taken from KITCO New York 24 hour spot silver (bid) closing value. (Website: http://www.kitcosilver.com/)	Acceptable/ Not acceptable
5	Price variation clause: Price variation clause will be applicable for the purchase order. The Invoice value shall be based on closing silver price from KITCO website as on 2 weeks prior to PO delivery date.	Acceptable/ Not acceptable
6	Certificate of conformance/ Test report to be issued for each lot mentioning technical details and the same to be shared with BHEL before material dispatch, thus to obtain clearance from BHEL for shipment. The Certificate of conformance/ Test report shall mention BHEL Purchase Order Number, invoice number and quantity supplied.	Acceptable/ Not acceptable
Commercial terms		
7	Terms of Delivery: i) For Foreign Vendors a. CIP Bangalore (Incoterms 2010)	<input type="checkbox"/>
	ii) For Indigenous Vendors a. Door Delivery to BHEL Stores, Bangalore with Freight and Insurance paid.	Select any option <input type="checkbox"/>
8	Validity: Quotation should remain valid for a minimum period of 90 days from the RFQ due date.	Acceptable/ Not acceptable
9	Delivery Schedule: BHEL requires first delivery of 150 Kgs every month from date purchase order.	Acceptable/ Not acceptable
10	Currency of offer: Please mention currency of your offer	Currency:
11	Order Splitting: BHEL reserve the right to Split the order quantity in the ratio of 60:40 to L1, and L2 vendors respectively subjected to L2 vendor accept to supply as per L1 negotiated price. In case, L2 vendor does not accept to supply as per L1 negotiated price, the counter offer will be extended to subsequent vendors ie L3,L4,L5.... In case no subsequent vendor accept to supply in L1 price, balance quantity will be ordered on L1 only. The decision of BHEL shall be final on this matter.	Acceptable/ Not acceptable

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	Terms of Payment:	
12	<p>i) For Foreign Vendors</p> <p>a) 100% against sight draft with 45 days Credit</p> <p>Note: Deviated payment terms and corresponding loading factors mentioned in clause I (ii) of instructions to bidders (DOC No. BHEL: EDN: ITB- SHOP: REV 03), are not applicable for this tender.</p>	<input type="checkbox"/>
	<p>ii) For Indigenous Vendors</p> <p>a) 100% direct payment with 45 days credit.</p> <p>Note: Deviated payment terms and corresponding loading factors mentioned in clause I (ii) of instructions to bidders (DOC No. BHEL: EDN: ITB- SHOP: REV 03), are not applicable for this tender.</p>	<input type="checkbox"/>
13	<p>Acceptance of Reverse Auction: BHEL EDN reserves the right to adopt Reverse Auction at any point of time after technical evaluation, at its discretion. BHEL may also open the price bids at its discretion.</p>	Acceptable/ Not acceptable
14	<p>Quantity tolerance: BHEL EDN reserves the right to increase/ decrease the order quantity by maximum 5% during the execution of purchase order, but before the completion.</p>	Acceptable/ Not acceptable
15	<p>Taxes and Duties: (To be filled by Indian vendors) Please indicate percentage of applicable taxes and duties Please specify whether the unit price offered is inclusive/ exclusive of taxes and duties</p>	<p>GST: Others if any (please specify):</p> <p>Inclusive/ Exclusive</p>
16	<p>Eligibility under Preference to Make in India Order: For this procurement, Public Procurement (Preference to Make in India), Order 2017 dated 15.06.2017 & 28.05.2018 and subsequent orders. Please specify if you are eligible to claim the benefits of Indian vendor for supply of PV Modules to BHEL against Public Procurement (Preference to Make in India), Order 2017 dated 15.06.2017. If yes, the required documents evidencing the eligibility as per the order, has to be submitted."</p>	<p>Yes/No, If yes, required documents to be submitted</p>

Place :

Date:

Signature of Tenderer with Seal

Price Bid Format

RFQ No. : MDSSCPV046 dated 05.04.2019
Supplier Name :
Offer Ref :

Sl. No.	Item Description	Quantity	Currency	Price/kg	Total Price
1	Front Silver Paste for solar cells	600 Kg			

Note:

1. Technical and Commercial terms shall be as per Techno-commercial bid.

Place :

Date:

Signature of Tenderer with Seal