1) Material:

Copper Cathode

2) Description:

Clean, high quality Copper Cathodes conforming to composition of Cu-CATH-1 (or 'A' grade cathode) Generally in line with BS EN 1978 OR Grade 1 Generally in line with ASTM B115 suitable to make high conductivity cast copper wire rods.

3) Properties:

a) Chemical Composition:

		BS EN 1978		ASTM B115	
Element Group	**Elements (With Symbol)**	**Maximum Composition**	**Group Total (Maximum)**	**Maximum Composition**	**Group Total (Maximum)**
		% (m/m)	**% (m/m)**	**% (m/m)**	**% (m/m)**
1	Selenium (Se)	0.00020	0.00030	0.00020	
	Tellurium (Te)	0.00020	0.00030	0.00020	0.00030
	Bismuth (Bi)	0.00020		0.00010	
2	Chromium (Cr)	-	0.0015	*	
	Manganese (Mn)	-		*	
	Antimony (Sb)	0.0004		0.0004	
	Cadmium (Cd)	-		*	
	Arsenic (As)	0.0005		0.0005	
	Phosphorus (P)	-		*	
3	Lead (Pb)	0.0005		0.0005	
4	Sulphur (S)	0.0015		0.0015	
5	Tin (Sn)	-	0.0020	0.0005	
	Nickel (Ni)	-		0.0010	
	Iron (Fe)	0.0010		0.0010	
	Silicon (Si)	-		*	
	Zinc (Zn)	-		*	
	Cobalt (Co)	-		*	
6	Silver (Ag)	0.0025		0.0025	

* Elements not mentioned in chemical composition (ASTM B115)

Total Concentration of above listed impurities shall be less than 0.0065 % (m/m) for both BS EN 1978 & ASTM B115

Note: Impurities known to adversely affect the electrical conductivity, castability and annealability of copper, when present in amounts greater than the levels specified, are listed above. Their presence shall be as low as possible. Any other impurities which may materially affect the quality

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of the product (i.e., high conductivity cast copper wire rods made out of supplied cathodes) shall not be present.

b) Surface Finish:

Surface of individual cathode shall be clean i.e., free from sulphate deposits, blisters etc.

4. Supply form:

a) Average cathode size shall be 1 mtr x 1 mtr approx., thickness minimum 5 mm. Weight shall be 100 kg to 120 kg/piece. Other sizes subject to GC approval.

b) Cathodes shall be palletized on strong wooden pallet, and Pallets should be of the same size over the entire shipment of 1 mtr X 1 mtr (inner dimension of pallet should be 9 cm) for easy movement of fork and handling.

c) Each bundle of 10 to 20 cathodes should be properly strapped with four number of steel strap (size 32 mm).

d) Material should well wrap with moisture proof material (E.g., Polythene) and packed perfectly to protect against any mechanical damage. Suitable desiccant (E.g., Silica gel) should be put inside packing of each bundle to absorb moisture and prevent possibility of any oxidation during transit and storage.

e) Each bundle must have clear identification marked by suitable means (ex.–Printed label) with the information i.e., Identification number, description, size, total no. of cathodes, net weight & gross weight, etc. shall be affixed as follows:
- One label inside the polythene cover.
- One label outside the polythene cover.

f) Every consignment shall be supplied with Detailed packing list showing bundle number, description, total number of bundles, total no. of cathodes, net weight and gross weight, etc.

5. Acceptance Tests:

a. Certificates:

i) Factory test certificate for at least 10% of the cathodes furnishing material properties and chemical composition should be submitted. Test certificate should include specified and observed values.
ii) For remaining part of consignment for which certificate in line with clause 5.a (i) above is not furnished, supplier shall confirm that the material conforms to stipulated specification.

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b. Properties not covered by clause No.3 shall be as per BS EN 1978 / ASTM B115

c. Wherever more than one specification number appears, more stringent specification for any given parameter shall be applicable.

6. General:

a) First Time Supply:

i. Supplier should fill the attached material data sheet in GC format (Annexure 1) & send along with supplier data sheet/catalogue/any helpful literature or technical data.

ii. Supplier data sheet shall include details such as standard number, material grade / designation as per applicable standard, technical properties vide clause 3, density, supply form, shelf life & storage conditions (If, any) etc.

iii. Supplier shall confirm to this specification and deviation/clarification shall be submitted along with the offer, if any.

iv. Supplier shall send material safety data sheet.

All necessary process & tests shall be done on the sample. In case of rejection the supplier shall be informed.

7. Enclosures:

Enclosure 1-> Annexure 1 (Editable PDF data sheet format is attached)

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شركة مجموعة الخليج للكابلات والصناعات الكهربائية ش.م.ك.ع. - الكويت
Gulf Cables & Electrical Industries Group Co. K.S.C.P. - KUWAIT

MATERIAL DATA SHEET FOR COPPER CATHODE

Ref.: TD-MS 50 Rev 01

DESCRIPTION	UNIT	SPECIFIED	SUPPLIER DATA
General			
Supplier Name			
Country			
Address			
Characteristics			
Material Grade / Designation		Cu-CATH-1 (or 'A' grade cathode) as per BS EN 1978	
		Grade 1 as per ASTM B115	
Chemical Composition		As per clause 3. a	
Cathode Size		1 mtr x 1 mtr (approx.), thickness 5 mm (min) OR other dimensions	
Cathode weight	Kg	100 to 120 / piece	
Supply Form		As per clause 4	
Net weight of bundle/Pallet	Kg		
Gross weight of bundle/Pallet	Kg		
Pallet material		Wood	
2 labels – 1 in inside & 1 on outside		Yes	
Comply to TD-MS-50*		Yes	
Remark			

Statement of conformity: We hereby confirm that the material meets all the requirements and will be supplied as stated in TD-MS 50 Rev 01

** Clause wise compliance/deviation shall be submitted in case of non-compliance*

Supplier Sign & Stamp:

Date:

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				03/12/2023

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