

CENTRAL POLLUTION CONTROL BOARD

DELHI

NOTICE INVITING EXPRESSION OF INTEREST (EOI) FOR DEVELOPMENT OF ENVIRONMENTAL STANDARD FOR HYDRO/PYRO METALLURGICAL EXTRACTION OF COPPER FROM COPPER SCRAP / WASTE FOR MANUFACTURING OF COPPER – INGOTS

1.0 Background

The pyrometallurgical process is adopted for manufacturer of copper-ingots from copper bearing wastes which are of good ordinary brand by the method of heating.

Hydrometallurgical process involves electrolysis methods and produce electrolytic (grade) copper containing about 99.9% copper in the form of copper-cathodes and copper-ingots from copper hearing wastes. The process involves use of aqueous media, separation of raffinates, concentration & evaporation of cell house electrolytes, electrolysis, deposits on electrodes, stripping of electrodes and then heating in crucibles etc.

In addition to this, another process involves solvent extraction techniques for treatment of brass waste (dross) for recovery of not only Zinc but also copper.

Emphasis shall be made to describe the different manufacturing process with flow charts, step to be taken for recycling of copper-bearing waste in environmentally sound manner, steps to minimize fugitive emissions of copper and to minimize copper exposure.

The in-depth study shall be conducted at least in 5 different units utilizing different copper wastes for production of copper ingots and copper cathodes. The report will suggest the steps for controlling source and fugitive emissions besides control of operating parameters so as to minimize the emissions of air pollutants as well as generation of sludge.

The report will also suggest methodologies and criteria for disposal of leaching cakes generated in production of electrolytic grade copper including recovery of copper from brass dross by solvent extraction. The units under study shall also provide the Manifest for hazardous waste transport presently practiced by the units. Efforts shall be made to explain recycling of copper bearing wastes such as copper scrap, copper dross, copper oxide mill scale; Copper revisits, cake and residue, waste copper & copper alloys; slags from in procession for further processing and refining.

Insulated copper wires scrap / copper with PVC sheathing including ISRI-Code material namely "Druid" Jelly filled copper-cables, spent cleared metal catalyst containing copper etc. as per the list of Non-ferrous Metal wastes applicable of registration of recycles {please refer to HW (M, H, & TM) rules, 2008 in this regard.}

The basis for calculating recyclables quantity registration criteria will be suggested in the documentation e.g. for copper cables, it shall be equal to the installed capacity of copper production.

Since it is polluting sector and so far no study has been done for this sector, CPCB intends to take up a project on 'Development of Environmental Standards for Hydro/PyroMetallurgical Extraction of Copper from Copper scrap/waste for manufacturing of Copper-Ingots' by engaging Expert Agencies/Organizations have similar experience. The interested organizations are requested to submit Expression of Interest (EOIs). The objective and Scope of Work is as follows:

2.0 Objectives:

- I. To prepare a survey report on location of the industries, its capacity, detailed manufacturing processes.
- II. All these units in all Zones need to be covered and its survey should include at-least 2 units from each zone.
- III. To classify the units into small, medium and large category
- IV. To study raw materials used, manufacturing process, source of air emissions, waste water analysis, waste disposal facility and pollution control devices to be installed, control strategic etc. in these units in the country;
- V. To identify appropriate pollution abatement and control systems based on 'Best Availability Technology Not Entailing Excessive Cost (BATNEEC)' concept to evolve suitable environmental standards which could be techno-economically feasible.
- VI. To prepare COINDS AND evolve suitable environmental (emission & effluent) standards, which could be techno economically feasible for HYDRO/PYRO METALLURGICAL EXTRACTION OF COPPER FROM COPPER SCRAP / WASTE FOR MANUFACTURING OF COPPER – INGOTS Units.
- VII. To recommend good practices / guidelines and better housekeeping for all operations.

3.0 Scope of Work

- i) Inventorization of units involved in Hydro/PyroMetallurgical Extraction of Copper from Copper scrap/waste for manufacturing of Copper-Ingots' operating in India nad also indicating the location of their cluster on the map. The information would include details such as number of units, their location, year of commissioning, state-wise distribution etc and status of pollution control technologies adopted by industries in India and abroad.

- ii) Categorization based on production capacities, technology used in manufacturing processes etc.
- iii) Preliminary visits to 24 units covering all the zones and in-depth study (12 Nos.) of the identified units including monitoring of all the four types of pollution viz. air (stack, fugitive emission, water, noise and solid/hazardous waste and to study Solid/Hazardous waste disposal and management facility in the identified units.
- iv) Field monitoring studies would include the study of raw material handling, manufacturing processes and Sources of pollution etc and to prepare process flow diagram.
- v) To monitor and analyze all types of pollution i.e. Emission, (Stack Monitoring for PM, SO₂, NO_x, CO, CO₂ and relevant heavy metals), Work place and Ambient Air Quality Monitoring for SPM, PM 10, SO₂, NO_x and relevant Heavy metals, Noise Monitoring and Waste water quantification and Characterization.
- vi) To evolve a monitoring programme with the following details:
 - a) Pollution Sources to be monitored
 - b) Monitoring point
 - c) Parameters to be tested
 - d) Frequency of sampling
- vii) To prepare COINDS Incorporating all the works as mentioned above AND evolve suitable environmental (emission & effluent) standards, which could be techno economically feasible .
- viii) To recommend good practices / guidelines and better housekeeping for all operations

4.0 Eligibility Criteria:

The expert agencies including Academic Institutions, Autonomous Bodies and other reputed organizations should fulfil the following criteria:

- (a) Adequate knowledge, experience of work in a similar field in India or abroad.
- (b) Adequate manpower in the field or Environmental Science and Engineering, Environmental Management and related field.
- (c) Average annual earnings, in terms of net consultancy fees, during the last 3 financial years of not less than Rs. 20 Lacs.

5.0 Submission of EOI:

Interested agencies including Academic Institutions. Autonomous Bodies and other reputed organizations may submit EOI in a sealed envelope by speed post clearly super-scribed Expression of Interest (EOI) for appraisal of 'Development of Environmental Standards for Hydro/PyroMetallurgical Extraction of Copper from Copper scrap / waste for manufacturing of Copper-Ingots' to the Member Secretary, Central Pollution Control Board, Parivesh Bhawan, East Arjun Nagar, Delhi – 110032 by October 30, 2014 in hard copy and a CD containing the following information:

- (a) Type of organization and date of establishment with photocopies of supporting documents.
- (b) Areas of strength /specialization relevant to the scope of work and objective pertaining to Development of Environmental Standards.
- (c) Copies of attested statement of income earned from similar consultancy services for the last financial years.
- (d) Previous relevant experience.
- (e) Details of key staff to be entrusted for the assignment, together with their curriculum vitae.
- (f) Undertaking of the scope of work, objective, short approach and comments.

6.0 Late submissions or submissions that do not conform to the above requirements will not be considered.

7.0 Based on the response received, suitable consultants will be short-listed and the TOR document will be sent for submission of Technical and Financial Proposal.