

Central Pollution Control Board
Waste Management - II Division, Delhi

Sub: Minutes of the Sixteenth Meeting of the Technical Expert Committee for “Evaluation of proposal for utilization of the hazardous and other wastes under Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016”.

1. Sixteenth meeting of the Technical Expert Committee on “Evaluation of proposal for utilization of the hazardous and other wastes under Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016” was held at CPCB, Delhi on 28.02.2019. List of the participants is enclosed at Annexure A.
2. Sh Bharat K Sharma, Member Convener of the said Committee & Head, Waste Management-II Division, CPCB, Delhi, welcomed the Chairman and members of the committee.
3. The following applicants were requested to make technical presentation about their utilization proposal before the committee:
 - (i) M/s Wanman Technocrats, Plot No 410-413/57, Hebbal Industrial Area, Sy. No. 428, Hebbal Village, Kasaba Hobali, Mysore – 570018, Karnataka
 - (ii) M/s Runaya Refining LLP, C/o Sterlite Power Transmission Limited, Near Vedanta Limited, At Bhurkamunda, PO, Kalimandir Road, Dist. Jharsuguda -768202, Odisha.

The above listed applicants made technical presentations before the committee.

The details of the proposals along with the recommendations of the committee on the above proposals (i) and (ii) are given in Annexure-B.

4. The committee was briefed about the representation received from M/s Krishanraj Fertichem Pvt. Ltd., Plot No.: 5&6, Gozariya GIDC, Gozariya, Dist.: Mehsana, Gujarat vide email dated 27.02.2019. It was represented that the SOPs titled ‘Utilization of Spent Ammonium Carbonate (generated during manufacturing of CPC Blue) for manufacturing of Zinc carbonate and Copper carbonate’ prepared include only Zinc Carbonate and Copper Carbonate, whereas the utilization permission was sought for manufacturing of five metallic carbonates (Zinc/Copper/Manganese/Magnesium/Ferrous Carbonates) which are similar to those two metallic carbonates (Zinc Carbonate and Copper Carbonate) for which the SOPs has been prepared.

The Committee observed that the utilization process for manufacturing of five metallic carbonates (Zinc/Copper/Manganese/Magnesium/Ferrous) is similar and trial run permission was recommended for two metallic carbonates (Zinc/Copper) in 10th TEC meeting held on 12.03.2018 instead of all the five metallic carbonates. Based on trial run report, the SoPs & Checklist of Minimal Requisite Facilities for the utilization of ammonium carbonate (generated during dye & dye intermediate i.e. CPC blue manufacturing) for manufacturing zinc sulphate/copper sulphate were recommended in 15th TEC meeting held on 31.12.2018 and CPCB issued the said SOPs.

After detailed discussion, the committee recommended that since the utilization processes are similar, the aforesaid SOPs may also include the three other metallic carbonates

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(Manganese/Magnesium/Ferrous) along with Zinc and Copper as products derived from utilization of Spent Ammonium Carbonate (generated during manufacturing of CPC Blue).

5. The committee was briefed that M/s Coromandel Enterprises, Madhya Pradesh and M/s Aarti Fertilizers, Gujarat has proposed to utilize Spent Sulphuric Acid (generated during manufacturing of various chemicals, dyes & dye intermediates and pesticide industries) for manufacturing Single Super Phosphate (SSP) as fertilizer. As the Single Super Phosphate manufactured by utilizing such spent sulphuric acid may have associated contaminants, the industries were asked to submit the Ecotoxicity report of the product (i.e SSP) from CSIR organization (having NABL accreditation) like IITR, Lucknow, NEERI, Nagpur, IICT, Hyderabad etc.

It was informed that the following two industries have forwarded toxicity test reports of Single Super Phosphate manufactured by utilizing spent sulphuric acid;

- (i) M/s Coromandel Enterprises (formerly Liberty Urvarak Ltd.), Khasra No. 413, Industrial Area, Nimrani, Kasrawad, Khargone, Madhya Pradesh
- (ii) M/s Aarti Fertilizers, Plot No. 801/15 to 19, 21 & 22, Phase III, Vapi – 396 195, Gujarat

The committee observed that the study reports submitted by above units are limited to only effect of SSP on aquatic organisms, whereas the above industries were asked, vide CPCB letters dated 06.06.2017 and 08.11.2017 respectively, to conduct Eco-toxicity analysis in terms of immediate or delayed adverse impacts to the environment by means of bioaccumulation or toxic effects upon biotic systems or both.

It is observed by the committee that the reports submitted by the industries indicate behavioural and color changes in the aquatic organisms (Test organism Zebra fish, *Brachydanio rerio*) in the concentration above 500 ppm of Single Super Phosphate (SSP). As depicted by the behavioural observations as well as colour change, the exposed aquatic organisms (Zebra fish) were under stress, which is symptomatic of initiation of chronic toxicity. Further, no observations on the effect of SSP on the test organism (Zebra fish) in the concentration range between 100-500 ppm have been reported in the submitted reports.

In view of above, the committee recommended that applicants may submit a detailed proposal in consultation with reputed Agricultural Universities or Institutes for assessing immediate / delayed adverse impact to the environment, -toxic effects of the product on the biotic system or through bioaccumulation. Upon receipt of the said proposal, the matter may be discussed in the subsequent TEC.

6. The committee was briefed about utilization proposals of tarry residue/coal tar (generated from the coke oven plant) for production of various products (Light creosote oil, Heavy creosote oil, Coal tar pitch etc). During 15th meeting of TEC, it was decided to invite such proponent in the next TEC meeting along with details of process of generation of the tarry residue, characteristics of the tarry residue generated from such process, comparison in characteristics of tarry residue generated from Coke Oven Plant and Coal Gasifiers, comparison in characteristics of products derived by utilizing the said two tarry residues, etc.

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Accordingly, following applicants were invited to make a presentation in the meeting on the above:

- i. M/s Deepa Industries, Bhilai, Chhattisgarh.
- ii. M/s Raipur Tar Products, Bhanpuri, Chhattisgarh.
- iii. M/s Concept Energy & Hydrocarbons, Kheda, Gujarat
- iv. M/s Kusum Kemicals Pvt. Ltd, Chhattisgarh.

The representatives of applicants listed at (i) to (iii) above attended the aforesaid meeting. The representatives of Steel Authority of India (SAIL) Bhilai and Rourkela were also invited for discussion.

The representatives of applicants (i) to (iii) above informed that the crude coal tar intended for utilization does not fall under the category of hazardous waste. The representatives of SAIL also briefed about the process of generation of crude coal tar from coke oven plant and stated that the coal tar of coke oven plant, which the above applicants intend to utilize, is by-product like many other by-products Benzene, Toluene, Xylene, etc. and does not fall under the category of hazardous waste.

After detailed discussion, the committee observed that crude coal tar is being practiced as by-product whereas tarry residue/waste is the hazardous waste generated as "Tar storage tank residue" from coke oven plant. It was also observed that the above proposal pertains to utilization of crude coal tar generated from coke oven plant and not for utilization of tarry residue.

In view of above, the committee recommended that since the said crude coal tar, as proposed by the applicants (listed at (i) to (iii) above) for utilization has not been classified as hazardous waste under HOWM Rules, 2016, the provision of approval under Rule 9 of HOWM Rules may not be applicable. However, in case the proponents intend to utilize tarry residue/waste i.e. "Tar storage tank residue" generated from coke oven plants (which falls under the category of hazardous waste; category number 13.5 under Schedule I of the HOWM Rules, 2016), such proponents shall make application under Rule 9 of the HOWM Rules, 2016, in accordance with the procedures laid down by CPCB.

Similarly, in case of the applicant at (iv) above who could not attend the meeting, details of source of generation and categories of wastes intended to be utilized may be sought and necessary action may be initiated as per above recommendations.

7. The matter of M/s Konark Tar Products Pvt. Ltd, Dist- Burdwan (West Bengal) for utilization of coal tar sludge for production of Coal tar pitch, Creosote oil and Naphthalene was also discussed in the meeting. It was observed that crude coal tar from coke oven is proposed to be mixed with coal tar sludge generated during manufacturing of carbon block. The applicant was granted trial run permission in August, 2013 based on which trial run was conducted on 24/03/2015 in the presence of officials of West Bengal Pollution Board and CPCB, Regional Directorate Kolkata. However, the trial run report of the aforesaid unit has been received in phases i.e; from West Bengal PCB in August, 2017 and CPCB, Regional Directorate Kolkata in Feb 2019.

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The Committee observed that random sampling by CPCB (RD or Head Office team) was not prescribed in the trial monitoring issued by CPCB in August 2013 as per procedures being followed at that time. However, the said random sampling is required as per the current Standard Operating Procedure for processing the proposals for Utilization of Hazardous Waste under Rule 9 of the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.

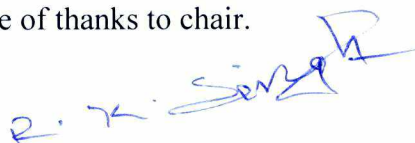
The Committee, therefore, recommended for repeat trial run as per the trial monitoring protocol given at *Annexure –I*.

8. With an objective of developing a generalised SOP covering utilization of various spent sulphuric acids (generated during manufacturing of dyes & dye intermediates) in manufacturing of other dye & dye intermediates, which will save time and resources in evaluating such utilization proposals and conducting trial runs individually, WM-II Division of CPCB made a technical presentation on draft generalized SOP for the same and highlighted issues therein.

Observing variations in characteristics of Spent Acids, utilization processes, waste generations, etc. the committee recommended that SPCB/PCC may be given responsibility of assessing source and characteristics of hazardous wastes; utilization process; size and capacity of the utilization process; compliance of pollution control norms & standards; hazardous wastes and waste water generated during the said utilization process; end-use application of the products manufactured etc. The same may be carried out through committee constituted by concerned SPCBs for implementation of HOWM Rules, 2016, wherever scrutiny and assessment are required in this SOP.

The draft SOPs, incorporating the above and other corrections suggested by the Committee is given at *Annexure II*. The committee recommended circulating the same to all SPCBs/PCCs for comments, if any. Comments received be discussed in the next TEC meeting so as to finalize the said SOP.

The meeting ended with vote of thanks to chair.

A handwritten signature in blue ink, appearing to read 'R. K. Singh', is written over the text of the meeting conclusion.

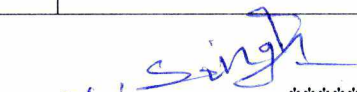
**CENTRAL POLLUTION CONTROL BOARD
DELHI- 110 032**

Date: February 28, 2019

Venue: Committee Room, Fifth Floor,
Parivesh Bhawan, CPCB, Delhi- 110 032

List of Participants

Sl. No	Name	Designation and Organization	Member of the Committee / Invitee
1.	Dr. R.K. Singh	Retired Scientist 'F', Bureau of Indian Standard, New Delhi	Chairman
2.	Prof Kamal Kishore Pant	Professor, Department of Chemical Engineering, IIT Delhi	Member
3.	Dr A K Swar	Chief Environmental Engineer, State Pollution Control Board, Odisha	Member
4.	Sh. Dinabandu Gouda	Additional Director, IPC-I Div, CPCB, Delhi	Member
5.	Dr. C.S. Sharma	Ex. Additional Director, CPCB, Delhi	Member
6.	Sh. B.R. Naidu	Regional Director, CPCB, Vadodara	Invitee
7.	Sh Bharat K Sharma	Additional Director & Head, WM-II Div, CPCB, Delhi	Member Convener
8.	Sh Atul Goswami	SAIL, Bhilai Steel Plant	Invitee
9.	Sh Santosh Kumar	SAIL, Rourkela Steel Plant	Invitee
10.	Ms P K Selvi	Scientist 'D', WM-II Div, CPCB, Delhi	Invitee
11.	Ms Deepti Kapil	Scientist 'D', WM-II Div, CPCB, Delhi	Invitee
12.	Sh Varun Prabhu	Junior Research Fellow, WM-II Div, CPCB, Delhi	Invitee



Recommendation of the committee for approval of proposals under Rule 9 of the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.

Sl. No.	Name of the Industry	HW as Raw Material	Product	Brief Process	Recommendations
1.	M/s Wanman Technocrats, Plot No 410-413/57, Hebbal Industrial Area, Sy. No. 428, Hebbal Village, Kasaba Hobali, Mysore – 570018, Karnataka	Spent copper etchant liquid - category – 12.7 (Copper etching residues) as per Schedule I of Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016. The said Hazardous Waste is generated during copper etching process of Printed Circuit Board manufacturing (PCBs)	Copper Powder and Ferric Chloride	Spent copper etchant of 10 % concentration (100g/l) is collected from PCB manufacturing industries and transferred to PP tanks for reaction and oxidation purpose. Iron rods are dipped into the solution for reaction to take place (approx. 24 hrs) copper powder which is generated (20% moisture) is recovered, segregated separately and dried on polythene sheets on impervious floor. After drying copper powder is collected and packed. After recovery of copper, the spent liquor is further processed with iron wire, water by passing chlorine gas to convert it to ferric chloride. The ferric chloride solution is collected and packed	The committee observed that plant & machineries are yet to be installed and the information provided by applicant is not complete w.r.t. the following: i. Information on the HW generation process i.e Copper etching process of the Printed Circuit Board manufacturing w.r.t details of chemicals/additives added in the etching process. ii. Information on the quantum and characteristics of waste water generation during the Ferric chloride manufacturing process, if any. iii. Purity of copper and conc. of lead in its product i.e. Copper Powder. iv. There is no chlorine emission sensor in Chlorination reactor and Air Pollution Control Device for control of Chlorine emission has also not been proposed in the said reactor. The committee also observed that Ferric chloride (generated during utilization process) may not be suitable in water treatment because of the presence of heavy metals (Mn is reported as 5030 mg/l). Therefore, the committee recommended that such Ferric chloride may not be permitted for proposed utilization in ETP/water treatment and may require suitable disposal.

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					<p>However, the proponent submitted that trial run may be granted, wherein presence of heavy metals in ferric chloride may be reanalysed so as to decide about scope of utilization/disposal of ferric chloride.</p> <p>The committee recommended that the unit shall provide details of plant & machineries and pollution control devices/alarm system required for proposed utilization process which shall be verified by Karnataka SPCB. After verification of the same, Karnataka SPCB shall send a verification report on plant and machinery to CPCB. Upon receipt of the aforesaid verification report from the SPCB, the trial run permission may be issued for 10 days with procurement of 110 KL of Spent copper etchant liquid. Officials of CPCB and SPCB may jointly conduct trial run monitoring as per the trial run monitoring protocol given at Annexure III.</p>
2.	M/s Runaya Refining LLP, C/o Sterlite Power Transmission Limited, Near Vedanta Limited , At Bhurkamunda, PO, Kalimandir Road, Dist: Jharsuguda, Odisha-768202	Aluminium dross residues are generated during primary aluminium smelting process - category -11.5 of schedule I of Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.	Aluminium metal and Aluminium Oxide (Briquette)	<p>The utilization process for Aluminium metal extraction and Aluminium oxides involve three stages; Stage I, Stage II and Stage III</p> <p>Stage I: During Stage I, skimming of hot dross from Aluminium smelter collected in specialized hot dross handling buckets. The buckets are transferred to a rotary processing unit for extraction of molten aluminium metal (660 °C). The rotary processing unit operates between 660-800 °C.</p>	<p>The committee observed that the applicant proposes to install Stage I & II units of utilization (i.e. skimming of hot dross from Aluminium Cast House into specialised dross buckets for separation of metallic aluminium and dross residues) within the premises of Aluminium smelters where the Aluminium Dross is generated. The dross residue i.e. depleted dross is proposed to transport to other facility where Stage III process would be carried out i.e. production of Aluminium Oxide Briquette (Alobriqe S) from Dross residue. The applicant is yet to install plant & machineries for the proposed utilization.</p>

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			<p>However, if the temperature of the received dross buckets reduces then the same is transferred to diesel fired activated unit for preheating for 15 minutes. Extracted Al metal is collected and transferred to the Al smelters. The depleted hot dross is force cooled by raking and cold dross is transferred to Stage II process.</p> <p>Stage II: During Stage II, depleted cold dross is sieved to remove metallic dross particles ≤ 2 mm followed by hammer mill, sieve and eddy current separator. The metallic dross particles >2 mm are separated, collected using eddy current separator and transferred to Al smelters. The Non metallic depleted dross particles < 2 mm are collected from the sieve for further processing in the Stage III of the process.</p> <p>Stage III: The Non metallic depleted dross particles < 2 mm are transferred to double shaft mixer and mixed with starch plant based organic binder 6% (by weight) for 5 minutes by sprinkling water through fine mist spray. The mixer is followed by vibrating feeder, roller mixer and briquetting press. The mixer is briquetted in the briquetting press and Aluminium oxide briquette (Alobrique S) to be collected.</p> <p>The Alobrique S briquettes produced are proposed to be used as a fluidizing agent at iron and steel industry.</p>	<p>After detailed discussion, the following was recommended:</p> <ul style="list-style-type: none"> (i) Besides Stage III operations, requisite CTE shall also be obtained for carrying out Stage I and Stage II operations from the concerned SPCB followed by installation of plant & machineries for all the three stages i.e. Stage I, II and III; (ii) The above installations of plant & machineries shall be intimated to State Pollution Control Board, Odisha who shall verify the same. After verification of the same, Odisha SPCB shall send a verification report on plant and machinery to CPCB. Upon receipt of the aforesaid verification report from the SPCB, the trial run permission may be issued for 15 days with procurement of 1500 tonnes of Aluminium dross. Officials of CPCB and SPCB may jointly conduct trial run monitoring as per the trial run monitoring protocol given at Annexure IV.
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