

Central Pollution Control Board
Waste Management - II Division, Delhi

Sub: Minutes of the Seventeenth 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. Seventeenth 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 11.06.2019. 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 National Aluminium Smelter Plant (NALCO), Smelter Plant, Nalco Nagar, Angul, Odisha-759145
 - (ii) M/s Sagar Chemical & Solvent, Mondalpara, Bamunari, PS: Rishra, Dist. Hooghly-712250
 - (iii) M/s JK Papers Ltd., Jaykaypur, Dist.: Rayagada, Odisha-765017
 - (iv) M/s Hindustan Platinum (P) Ltd., C-122, TTC industrial Area, Pawane Village, Navi Mumbai- 400703
 - (v) M/s IRC Agrochemicals Pvt. Ltd., P.S. Srijan Tech Park, DN-52, Unit No. A&B, 14th Floor, Salt Lake, Sector-V, Kolkata, West Bengal-700091

The above listed applicants made technical presentations before the committee, except M/s Hindustan Platinum (P) Ltd., Mumbai.

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

4. The committee was explained about content in following 02 Standard Operating Procedures (SoPs) & Checklist of Minimal Requisite facilities for utilization of hazardous waste prepared by WM-II Div., CPCB, based on trial study report and was reviewed by TEC. Details of the same and recommendations of the committee are as below:

| Sl. No. | Details of the SoP | TEC Recommendation |
|---------|--|---|
| 1. | Standard Operating Procedures for Utilization of Aluminium Dross residues generated from separation of metal for manufacturing of Alum | SoP & Checklist of Minimal Requisite facilities for the said utilization, as recommended by TEC, after incorporating suggestions is given at <u>Annexure I</u> . |
| 2. | Standard Operating Procedures for utilization of spent sulphuric acid (generated during manufacturing of dyes & dye intermediates) in | The SoP was finalized after considering suggestions/feedback received from SPCBs/PCCs. The |

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| | manufacturing of other dye & dye intermediates | said SoP is given at Annexure II |
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5. In continuation to decisions taken in 15th meeting of the TEC held on 31/12/2018, the representatives of Core Group of LABSA and SSP manufacturers of Gujarat made presentation about the scope of study for utilization of Spent Sulphuric Acid for manufacturing Single Super Phosphate (SSP) as fertilizer in collaboration with Anand University, Gujarat.

It was unanimously decided that scope of discussion is limited to the spent sulphuric acid generating from LABSA to be utilized in SSP.

The committee after discussions observed that there is also need for study for decomposition rate of Total Organic Contamination (TOC) and accumulation of contaminants of SSP in soil. The following recommendations were made by the committee:

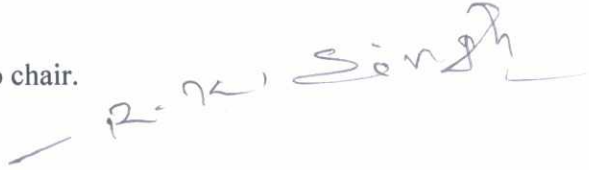
- (i) The spent acid generated during manufacturing from LABSA be analysed for moisture, acid content, pH, Total Organic Contamination (TOC) including concentration of various important VOCs, SVOCs and heavy metals. The SSP derived by utilizing the said spent acid be also analysed for Total Organic Contamination (TOC) including concentration of various important VOCs, SVOCs and heavy metals. These tests for Total Organic Contamination (TOC) including conc. of various important VOCs, SVOCs in fresh acid used for manufacturing of SSP be carried out by Division of Agricultural Chemicals, IARI, Pusa, New Delhi.
 - (ii) Seed germination test using various concentration of aforesaid SSP sample derived by using the aforesaid spent acid as well as SSP produced from fresh acid in similar concentrations of SSP be carried out from Seed Division, IARI, Pusa, New Delhi.
 - (iii) Toxicity studies of the aforesaid SSP sample in various concentration (minimum 5 concentrations) ranges, derived by using the aforesaid spent acid be carried out by CSIR- IITR, Lucknow. Toxicity test should be carried out as per worldwide accepted standard method of acute toxicity test of fish (viz; OECD Guideline For Testing Of Chemicals, Test Guideline No. 203 Adopted: 18 June 2019)
 - (iv) The representative of the core group will inform CPCB about name and address of the (i) plant from where generated spent acid would be used for experimental production of spent acid SSP and (ii) plant where such spent acid would be used for production of spent acid SSP for the purpose of the above study as at (i), (ii) and (iii) above.
 - (v) Sampling of spent acid, fresh acid and spent acid-SSP would be undertaken in presence of the concerned SPCB, CPCB and respective organization where test would be carried out. Anand Agricultural University as presented will carry out the detailed study of the impact of SSP made with spent acid of LABSA for the terms of reference submitted. The study by the expert agency should focus on accumulation and negative impact of the specific organic chemical (in this case LABSA) due to use of spent sulphuric acid on soil & plant.
6. The representation of M/s Nandesari Industries Association, Gujarat for amendment in SoP for utilization of spent alkali bromine and spent acidic bromide generated during manufacturing of various pesticides, pharmaceuticals and organic chemicals for recovery of liquid bromine was discussed before the committee. The committee noted that MEE was prescribed in the SoP

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since the wastewater generated contains high COD and TDS. After discussions, the committee recommended that amendment in section 48.4 (17) of the SoP may be incorporated as below:

“Wastewater generated from stripping column, floor washing, spillages, reactor washing, scrubber bleed, boiler blow down, etc. shall be treated physio-chemically in ETP followed by suitable treatment so as to meet inlet norms of CETP, where CETP is available, through technologies like advance oxidation process (AOP) or Reverse Osmosis (RO) followed by forced evaporation. In case, CETP is not available, condition of Zero Liquid Discharge (ZLD) be enforced by SPCB/PCC.”

The meeting ended with vote of thanks to chair.

R. K. Singh

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

Date: June 11, 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. | Dr A K Swar | Chief Environmental Engineer, State Pollution Control Board, Odisha | Member |
| 3. | Dr. C.S. Sharma | Ex. Additional Director, CPCB, Delhi | Member |
| 4. | Sh. D. M. Thaker | Unit Head, Hazardous Waste Cell, Gujarat Pollution Control Board, Gandhi Nagar, Gujarat | Member |
| 5. | Sh. B.R. Naidu | Regional Director, CPCB, Vadodara | Invitee |
| 6. | Sh Bharat K Sharma | Additional Director & Head, WM-II Div, CPCB, Delhi | Member Convener |
| 7. | Sh Anil C Ranveer | Additional Director, WM-II Div, CPCB, Delhi | Invitee |
| 8. | Ms P K Selvi | Scientist 'D', WM-II Div, CPCB, Delhi | Invitee |
| 9. | Sh Mohd Salik | Senior Research Fellow, WM-II Div, CPCB, Delhi | Invitee |

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Recommendation of the Expert 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 National Aluminium Smelter Plant (NALCO), Smelter Plant, Nalco Nagar, Angul, Odisha-759145 | Aluminium Dross rejects/residues generated from oxidation of hot aluminium metal during its transportation as well as melting and holding furnaces. The above mentioned hazardous waste falls under the Category A-72 of schedule II of Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016. | Crushed Material Bath, to be used in anode covering and for metal charging in the pots | Unprocessed dross, through a feeding hopper and reciprocating feeder transported to autogenous mill for crushing i.e. solid aluminium pieces get separated from bath material through multiple collisions. The separated bath is sucked by the negative draft generated by de-dusting unit and sent to bag filter chamber and solid aluminium stays back inside the mill in the form of globules. To release this bath, compressed air purging is done at regular intervals and the same is being collected through 3 nos. of conveyors. These conveyor transfers the collected bath to a double deck vibrating screen where 3mm to 20mm size materials are separated. More than 3mm again sent back to autogenous mill for re-crushing and less than 3mm materials are sent to bath Silo via hoppers and transported to potlines through closed tankers for its reuse for anode covering. | The committee noted that Hazardous Waste i.e., Aluminium dross is claimed by the applicant to be captively utilized in its primary production process of Aluminium. In case, utilization is part of process then provision of Rule 9 of Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 does not attract. Therefore, the committee recommended that the utilization of Aluminium dross claimed to be part of its process be examined by Odisha SPCB in context of CTE given by them. Odisha SPCB may refer the matter to CPCB for processing under Rule 9 of the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016, if it is found that proposed utilization is not part of process. |
| 2. | M/s Sagar Chemical & Solvent, Mondalpara, Bamunari, PS: Rishra, Dist. Hooghly- | Spent solvent generated from paint industries category - 21.2 of schedule I of Hazardous and Other Wastes (Management and Transboundary | Thinner | The raw material (spent solvent) is charged inside the reboiler by means of a centrifugal pump coupled with flame proof motor. The reboiler is a jacketed vessel where the charge is heated by a preset automatic thermic fluid heater (TFH). The spent solvent from | The committee observed that spent solvent generated from paint industry; Category 21.2 may be utilized as per SoP already available for utilization of spent solvents. It was therefore, recommended that section 2 (source of waste) of the SoP already available for utilization of spent solvent for recovery of solvent be amended as below: |

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| Sl. No. | Name of the Industry | HW as Raw Material | Product | Brief Process | Recommendations |
|---------|---|--|---|---|--|
| | 712250 | Movement) Rules, 2016. | | paint industries the temperature is set at 185°C. So, when the liquid starts boiling, vapours flow through the column where it is separated from the higher boiling components and gets cooled inside the primary and secondary condensers, cooled by the cooling tower water and chilled water respectively. | Types of HW: Spent solvent (HW categories 20.2: 21.2, 26.4; 28.6 and 29.4 of Schedule I of HOWM Rules, 2016) |
| 3. | M/s JK Papers Ltd., Jaykaypur, Dist.: Rayagada, Odisha-765017 | ETP sludge generated from pulp and paper industry. The above mentioned hazardous waste falls under the category – 32.3 of Schedule I of Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 | Energy recovery from Liquor fired boiler. | ETP sludge shall be pumped to Centrifuge and the thickened sludge shall fall directly inside the black liquor intermediate mixing tank from the top. Black liquor from the digestion process goes to multiple evaporators and here it gets concentrated upto 50% and then goes to intermediate mixing tank. Continuous running of agitator inside Intermediate mixing tank for proper mixing of secondary sludge with black liquor and filtrate shall send back to ETP inlet. The uniform mixture of secondary sludge and black liquor goes to finisher and gets final product i.e., Heavy Black Liquor Dry Solid (72-75%) which is finally fed to the liquor fired boiler through spray guns. Ash collected from the bottom of the ESP attached to the furnace in an Ash mixing tank. Now as proposed ash shall be mixed to the mixture of ETP sludge and black liquor in intermediate mixing tank and the final mixture goes to finisher for concentration and finally to furnace for firing purpose. | <p>The committee observed that ETP Sludge generated from secondary clarifier of the ETP is proposed to be utilized for firing purpose in recovery boiler by mixing in intermediate tank with APCD residue of ESP and Black Liquor generated from digester of pulp and paper making process.</p> <p>The committee recommended to conduct trial run at peak load of 2 Tonnes and 1300 Tonnes of the secondary ETP sludge and Heavy Black Liquor respectively for 7 days at M/s J K Paper Ltd., Rajyagada, Odisha including the following:</p> <ol style="list-style-type: none"> Analysis of Hazardous waste w.r.t. Moisture Content, Ash Content, Volatile Matter, Chlorine, Carbon, Hydrogen, Sulphur, Nitrogen, Oxygen, Total concentration of Heavy metals (Cr, Cd, Cu, Ni, Pb, Zn, As, Mn) Fugitive emission shall be monitored for PM₁₀, HCL vapour/mist in the work zone area. Source Emission Monitoring w.r.t. PM, CO, SO_x, and NO_x from the Stack attached to the ESP of Liquor fired Recovery Boiler Analysis of waste water w.r.t. Absorbable Organic Halides (AOX), pH, Phenolic |

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|---------|---|--|---|---|--|
| | | | | | Compounds, B.O.D., C.O.D, CN & Heavy Metals (Cd + As + Pb + Cr + Cu + Mn + Ni + Zn), Tri halo methanes (THMs) |
| 4. | M/s IRC Agrochemicals (earlier M/s Tata Chemicals Pvt Ltd), P.S. Srijan The Park, DN-52, Unit No. A&B, 14 th Floor, Salt Lake, West Bengal | Sulphur Sludge generated from Sulphuric acid plant under the category 17.1 of Schedule I of HOWM Rules, 2016 | Single Super Phosphate used as fertilizer | Single Super Phosphate manufacturing process involves conveying of rock phosphate to grinding mill followed by conveying of the ground rock phosphate to mixer where sulphuric acid and water are added. The reacted mass is transferred to Den followed by curing and packing of the products. Sulphur sludge is ground separately in a ball mill in the sulphuric acid plant and transferred to the SSP manufacturing unit as a filler. | <p>The committee observed that M/s IRC agrochemicals has taken over the unit from M/s TATA Chemicals, West Bengal and has proposed to utilize only Sulphur Sludge generated from Sulphuric Acid plant for manufacturing of SSP (as a filler).</p> <p>The unit also informed the committee that they got a fire explosion while grinding sulphur sludge alongwith rock phosphate in the grinding unit due to exothermic nature of sulphur in the sludge.</p> <p>The committee observed that trial run permission has already been granted for similar utilization earlier in December 2018 to M/s Teesta Agro Industries, West Bengal, however the trial run could not be conducted by the unit.</p> <p>In view of above, the committee recommended the following:</p> <ol style="list-style-type: none"> 1. Anticipating fugitive emissions from the milling of sulphur sludge in the ball mill, bag filter house may be installed at the ball mill 2. Proper feeding mechanism or system at the mixing unit, for adding sulphur sludge with sulphuric acid and rock phosphate, be installed. 3. To explore the possibility of settling the |

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| Sl. No. | Name of the Industry | HW as Raw Material | Product | Brief Process | Recommendations |
|---------|----------------------|--------------------|---------|---------------|--|
| | | | | | <p>scrubbing liquid residue in the settling/collection tank before recycling it in the mixing tank, so as to analyse the characteristics of the residue for the contaminants.</p> <p>4. Trial run for utilization of sulphur sludge in SSP manufacturing may be conducted by considering the issues of M/s Teesta Agro Industries for preparation of generic SOP.</p> <p>Upon installation of bag house system at ball mill and feeding system for adding sulphur sludge to mixing tank, the unit shall forward the photographs to concerned SPCB. The same may be verified by the SPCB and on receipt of the verification report the trial run monitoring permission to the unit may be granted for 03 days with the following conditions;</p> <ol style="list-style-type: none"> Fugitive emissions monitoring near crushing unit w.r.t parameter PM Source emission monitoring at stack attached to the scrubbing unit (four stage) w.r.t parameters PM, SO_x, F and HF Source emission monitoring at bag house filter attached to the ball mill w.r.t parameters PM, SO_x, F and HF Scrubber bleed water from four stage scrubber w.r.t parameters pH, TSS, COD, Cyanide, Heavy metals (As, As, Cr, Cd, Cu, Fe, Pb, Ni |

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| Sl. No. | Name of the Industry | HW as Raw Material | Product | Brief Process | Recommendations |
|---------|---|---|--|---|--|
| | | | | | and Zn) and fluoride (total and TCLP) v. Sulphur sludge, SSP and scrubbing residue shall be analysed w.r.t parameters TPH, moisture, Cyanide, heavy metals (As, Cr, Cd, Cu, Fe, Ni, Pb, Zn), Silica, Elemental S and Elemental C |
| 5. | M/s Hindustan Platinum Pvt. Ltd, Navi Mumbai, Maharashtra | Spent catalyst containing Platinum, Palladium, Rhodium, Ruthenium, Silver etc | Precious metals from spent catalyst containing Platinum, Palladium, Rhodium, Ruthenium, Silver etc | Spent Catalyst containing Platinum, Palladium, Rhodium, Ruthenium, Silver, etc. are treated using hydrometallurgical process to recover salts of precious metals. | <p>The committee observed that the applicant has proposed to utilize Aluminium Sulphate/Alum, Sodium Aluminate/Silicate, Nitrate solution etc. generated during utilization of the spent catalyst. The same has not been prescribed in the existing SOP titled "Utilization of Spent Catalyst containing precious metals to recover Platinum, Iridium, Osmium, Palladium, Rhodium, Ruthenium, Rhenium, Gold and Silver".</p> <p>With regard to permission for utilization of the said Aluminium Sulphate/Alum, Sodium Aluminate/Silicate, Nitrate solution in CETP, Pulp & Paper industries etc., the applicant was informed vide letter dated 14.06.2017 to make application to CPCB in accordance with procedures laid down under SOP for processing the proposals for utilization of hazardous wastes under Rule 9 of the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 which is available at CPCB website http://cpcb.nic.in/SOP_Rule9_Dec_2016.pdf.</p> <p>However, the applicant has not made application in this regard and the applicant has communicated vide letter dated 29/01/2019 to</p> |

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| Sl. No. | Name of the Industry | HW as Raw Material | Product | Brief Process | Recommendations |
|---------|----------------------|--------------------|---------|---------------|---|
| | | | | | <p>amend the said existing SOP for the same. The applicant was invited for the 17th TEC meeting on 11.06.2019; however, no intimation was received in this regard.</p> <p>The matter was examined and the committee recommends that the applicant may be asked to make fresh application and be processed as per procedure laid down at general SOP for general application processing available at https://cpcb.nic.in/uploads/hwmd/SOP Rule 9 July 2017.pdf.</p> |

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