Central Pollution Control Board
WM - II Division, Delhi

Sub: Minutes of the Thirteenth 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. Thirteenth 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 10.08.2018.List of the participants is enclosed at ***Annexure A***.

2. The following 04 draft Standard Operating Procedures (SoPs) & Check list of Minimal Requisite facilities for utilization of hazardous waste, prepared by WM-II Div., CPCB based on trial study report, were reviewed by TEC. Details of the same and recommendations of the TEC are as below:

Sl. No.	Agenda	TEC Recommendation
1.	Standard Operating Procedure (SOP) for utilization of Spent Sulphuric acid generated during manufacturing process of 4, 4-Diamino benzene sulfanilide (DABSA) in manufacturing of Para Amino Benzene Sulphonic Acid (PABSA)	SoPs & Checklist of Minimal Requisite Facilities for the said utilization, as recommended by TEC, after incorporating suggestions, is given at ***Annexure – I***
2.	Standard Operating Procedure (SOP) for utilization of Liquid Glauber Salt (Sodium Sulphate) to produce different Reactive Dyes	SoPs & Checklist of Minimal Requisite Facilities for the said utilization, as recommended by TEC, after incorporating suggestions, is given at ***Annexure – II***
3.	Standard Operating Procedure (SOP) for utilization of Spent Sulphuric acid (generated during acid activation of food grade Bentonite clay) in manufacturing of Di – Ammonium Phosphate/NPK fertilizer.	The committee discussed the analysis results of the trial run conducted during 15-16th February, 2018. The committee observed that the analysis result of products do not show any significant change in the trend of the same with and without utilization of spent acid. Under the circumstance, the committee recommends for the provisional SOP, wherein the analysis of spent acid and products w.r.t metals and other parameters, as prescribed under Municipal Solid Waste Rules, 2016, shall be carried out in every two months and submit the same to CPCB. The said results shall be placed in the subsequent TEC meeting for finalization of SOP. The sampling and

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		analysis shall be carried out by Gujarat PCB and in case the SPCB do not have such facility, the same may done through an NABL accredited or ISO17025/EPA recognized laboratory. Depending upon the result, further decision on this provisional SOP may be taken after examination of the results of the aforesaid analysis reports by TEC. SoPs & Checklist of Minimal Requisite Facilities for the said utilization, as recommended by TEC, after incorporating suggestions, is given at ***Annexure – III***
4.	Standard Operating Procedure (SOP) for utilization of Spent aluminium chloride generated from Dyes and Dye intermediate industries i.e. CPC to be used as a Coagulant in CETP.	The committee examined the findings / report of the trial run monitoring conducted jointly by CPCB and Gujarat PCB during April 10-11, 2018, pertaining to utilisation of Spent Aluminum Chloride as a coagulant in CETP. The committee observed that there is major deviation between the results of samples collected by CPCB and laboratory engaged by the unit and non-compliances to the treated effluent quality standards prescribed under the Consent to Operate issued by the Gujarat PCB. The committee, therefore, recommended for repeat trial run with the same protocol (for parameters viz. BOD, TSS, COD, Phenolic Compounds, Sulphides, Sulphates, Copper, Nickel, Zinc) upon taking corrective measures by the unit in accordance with the para 2 (o) of the Standard Operating Procedure for processing the proposals for utilisation of hazardous waste under the Rule 9 of the HOWM Rules, 2016.

3. The following applicants were requested to make technical presentation before the committee:

(i) M/s Coromandel International Ltd. (formerly known as Liberty Phosphate Ltd.) Plot No. C1-72, 74-75-83, GIDC Nandesari, Dist: Vadodara – 391340

(ii) M/s Colourtex Industries Pvt. Ltd.(Unit-II), Plot No. 158/3, B/H. Fire station, GIDC, Pandesara, Surat- 394221.

(iii)M/s Teesta Agro Industries Ltd. Vill.- Mazabari, P.O.- Rajganj, Dist.- Jalpaiguri, West Bengal.

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(iv) M/s Alcatraz Chemicals Plot No. 155/9-10 GIDC Nandesari, Dist. Vadodara Gujarat.

(v) M/s A. K. Enterprises, Plot No.-45, Brahmapura, Khurda Industrial Estate, Khurda, Odisha.

The applicants listed at (i), (ii), (iii), (iv) and (v) made technical presentations before the committee.

The details of the proposals alongwith the recommendations of the committee on the above (i) to (v) are given in Annexure- B.

4. M/s Coromandel International Ltd. (formerly known as Liberty Phosphate Ltd.), Vadodara, made technical presentation about utilization of Spent Sulphuric acid generated from chemical industries for manufacturing Single Super Phosphate (SSP) alongwith Toxicity study results of the Single Super phosphate (SSP) on fishes conducted by CSIR-IICT, Hyderabad.

However, the committee has recommended that:

(i) Analysis of each source of Spent Sulphuric Acid (during manufacturing of LABSA (Linear Alkyl Benzene Sulphonic Acid)and nitro derivatives) and respective derived products (Single Super Phosphate) for individual concentration of all raw materials/products and by-products/possible organic compounds utilized during each of the generation processes as well as Total Organic Compound (TOC), Fluoride and heavy metals be carried out by NABL accredited or ISO17025/EPA recognized laboratory by the proponent and results be submitted to CPCB.

Upon receipt of the above analysis reports, the matter may be discussed in subsequent TEC meeting.

5. CPCB has prepared SOP prepared for utilization of Spent alumina (generated from polymerization in Swing unit of petrochemical unit) for manufacturing of refractory material like insulation bricks, High alumina bricks and High Alumina refractory binder. The said SOP has also been circulated to all SPCBs/PCCs.

M/s Premier Refractories of India Pvt. Ltd. Katni (Madhya Pradesh) has made representation to CPCB for exemption of requirement prescribed in the said SOP for installation of online monitoring system claiming that they produce other products also and the utilization of Spent Alumina for manufacturing of the said products is carried out for about 3-4 days in a month. Further, the installation of on-line monitoring system and their connectivity with CPCB/SPCB server may be costly for small scale units like them.

The committee discussed and recommended that SPCB/PCC may waive-off installation of on-line monitoring system and their connectivity with CPCB/SPCB server for non-continuous utilization process. However, SPCB/PCC shall decide such waiving-off based on location of the unit, surrounding receptors and quantum of hazardous waste being utilized.

The meeting ended with vote of thanks to the Chair.

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Annexure A

CENTRAL POLLUTION CONTROL BOARD
DELHI- 110 032

Date: August 10, 2018

Venue: Conference Hall, Second 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	Chairman
2.	Prof. Kamal Kishore Pant	Department of Chemical engineering, Indian Institute of Technology, Delhi	Member
3.	Dr. Akhil Kumar Swar	Chief Environmental Engineer, Odisha Pollution Control Board	Member
4.	Sh. D.M. Thaker	Hazardous waste management, Gujarat Pollution Control Board	Member
5.	Sh. Vinod Babu	Additional Director, Waste Management-I Division, CPCB, Delhi	Member
6.	Sh Dinabandu Gouda	Additional Director, IPC-I Div, CPCB, Delhi	Member
7.	Sh Bharat K Sharma	Additional Director & Head, WM-II Div, CPCB, Delhi	Member Convener
8.	Ms P K Selvi	Scientist 'D', WM-II Div, CPCB, Delhi	Invitee
9.	Ms Deepti Kapil	Scientist 'C', WM-II Div, CPCB, Delhi	Invitee
10.	Ms Arti Yadav	Research Associate-I, WM-II Div, CPCB, Delhi	Invitee
11.	Ms Rupali Gupta	Junior Research Fellow, WM-II Div, CPCB, Delhi	Invitee
12.	Sh Varun Prabhu	Junior Research Fellow, WM-II Div, CPCB, Delhi	Invitee

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Annexure B

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	Process	Recommendations
1.	M/s Colourtex Industries Pvt. Ltd. (Unit-II), Plot No. 158/3, B/H. Fire station, GIDC, Pandesara, Surat-394221.	Multi Effect Evaporator (MEE) concentrate (hazardous waste) - category 35.3 as per the Schedule I of Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 generated during manufacturing of para nitro aniline/ortho chloro para nitro aniline.	MEE concentrate will be used in brine chilling plant as secondary refrigerant.	MEE concentrate is proposed to be utilized in the brine chilling plant as secondary refrigerant. Secondary refrigerant is used to transfer heat from the substance being cooled to heat exchanger where heat is absorbed by primary refrigerant. The secondary refrigerant is cooled by primary refrigerant which comes in contact with the substance being cooled, thus absorbing heat from the substance being cooled warmer fluid is returned to the chiller and rejecting the heat to primary refrigerant.	The committee observed that MEE concentrate generated from their sister concern unit i.e M/s Colourtex Industries Pvt. Ltd. (Unit-V) is proposed to be utilized in M/s Colourtex Industries Pvt. Ltd. (Unit-I, II & IV). The committee recommends for trial run @ 20 KL for seven days at M/s Colourtex Industries Pvt. Ltd. (Unit-II) including the following: i. Analysis of hazardous waste w.r.t. following pH, Specific gravity, Total suspended solids, Total dissolved solids, Chlorides as (NaCl), Para nitro aniline, 3, 4 di chloro nitro benzene, Ammonium chloride, Insoluble matter, Magnesium chloride as ($MgCl_2$) and Alkalinity as ($Ca(OH)_2$). ii. Fugitive emission shall be monitored for Para nitro aniline, Para nitro Chloro benzene and Ammonia in the work zone area. iii. Analysis of used (diluted) MEE concentrate w.r.t. pH, Specific gravity, Total suspended solids, Total dissolved solids, Chlorides as (NaCl), Para nitro aniline, 3, 4 di chloro nitro benzene, Ammonium chloride, Insoluble matter, Magnesium chloride as ($MgCl_2$) and Alkalinity as ($Ca(OH)_2$). iv. Analysis of treated effluent w.r.t pH, Phenolic Compounds, Cyanides, Ammonical Nitrogen, Copper, Lead, Chromium, Mercury, Nickel, BOD and COD

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Sl. No.	Name of the Industry	HW as Raw Material	Product	Process	Recommendations
2.	M/s Teesta Agro Industries Ltd. Vill.- Mazabari, P.O.- Rajganj, Dist.- Jalpaiguri, West Bengal.	Sulphur sludge and Cleaning & Scrubbing residue; category: D-1 & 17.1 under Schedule-I of HOWM Rules, 2016 from manufacturing of sulphuric acid and single super phosphate	Single Super Phosphate to be used as fertilizer	Sulphur sludge generated from Sulphuric Acid Plant (SAP) is mixed with rock phosphate @0.35% by weight and after grinding used in Single Super Phosphate (SSP) manufacturing process. Cleaning and scrubbing residue generated from five stage scrubber of SSP process and SAP mixed in tank and is proposed to be used in the SSP process. In the utilization process, residue is used @ 0.5 to 0.8% by weight in the finished product.	The committee recommended that with regard to fugitive emission monitoring, the investigating team shall see the handling, operation and process conditions on the site to assess the same. The trial run may be issued for 03 days and the trial run monitoring protocol may include the following; i. Stack emission monitoring in the stack attached to the five stage scrubber system w.r.t P.M., SO_2&NOx, Total Fluorine, HF ii. Stack emission monitoring in the stack attached Bag house filter of the Milling unit shall be monitored for PM, SO2, Total Fluorine, HF iii. Analysis of scrubber bleed water (H2SiF6) shall be done w.r.t. pH, Total Suspended Solids, Fluoride (Total and STLC concentration), COD& Heavy Metals (Cd + As + Pb + Cr + Co + Cu +Mn + Ni + V+ their Compounds) iv. Analysis of Scrubbing Residue (SSP) w.r.t Fluoride (Total and STLC concentration), Total Heavy metals v. Analysis of Scrubbing Residue (SAP) w.r.t Fluoride (Total and STLC concentration), Total Heavy metals vi. Analysis of Hazardous waste (i.e. Sulphur sludge) w.r.t TPH, Total Heavy metals, Silica, Moisture, Elemental S and Elemental carbon. vii. Analysis of Product (i.e. Single super Phosphate) with and without using hazardous waste w.r.t TPH, Total Heavy metals, Silica, Moisture, Elemental S and Elemental carbon. Further, the trial run monitoring team of CPCB &WBPCB officials may also inspect the treatment

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Sl. No.	Name of the Industry	HW as Raw Material	Product	Process	Recommendations
					facility and pollution control equipments available at the hazardous waste generation units.
3.	M/s Alcatraz Chemicals Plot No. 155/9-10 GIDC Nandesari, Dist. Vadodara Gujarat.	Spent Sulphuric Acid, Spent HCl& Sodium Bi Sulfite; category: 26.3 and 28.1 under Schedule-I of HOWM Rules, 2016.	R-3-Amino Pipyridine di hydro chloride, Pyridine-3-sulfonic acid, Alkane /Aryl sulphonic acid & It's salt, Alkane/Aryl disulphonic acid & It's salt, Alkane /Aryl tri sulphonic acid & It's salt and Pyridine-3-sulfonyl chloride HCL, Sodium Alkane/Aryl Sulfinate, Sodium propyne sulphonate and PPSOH solid & Liquid and 3-Hydroxy-1-propane-sulphonic acid	1. Spent Sulfuric Acid utilized for manufacturing of R-3-Amino Pipyridinedihydrochloride along with other raw material. 2. Spent Sulfuric Acid and Spent HCl utilized for manufacturing of Pyridine-3-sulfonic acid along with other raw material. 3. Spent HCl utilized for manufacturing of Alkane/Aryl sulphonic acid & It's salt, Alkane/Aryl disulphonic acid & It's salt, Alkane/Aryl trisulphonic acid & It's salt & Pyridine-3-sulfonyl chloride HCL. 4. Sodium Bi Sulfite utilized for manufacturing of Sodium Alkane/Aryl Sulfinate, Sodium propyne sulphonate and PPSOH solid & Liquid along with other raw material. 5. Sodium Bi Sulfite and Spent HCl utilized for 3-Hydroxy-1-propane-sulphonic acid manufacturing of along with other raw material.	The applicant claims that Spent Sulphuric Acid, Spent HCl & Spent Sodium Bi Sulfite are reused at the place of their generation as such and thus the same does not fall under the definition of 'waste' defined under Rule 3(1)(38) of Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 (HOWM). The applicability of Rule 9 of the Rules, therefore, does not arise. In view of the above submission by applicant the committee recommends that the applicant may approach the Ministry of Environment, Forest & Climate change to clarify if the aforesaid Spent Sulphuric Acid, Spent HCl & Spent Sodium Bi Sulfite are waste/hazardous waste or not, as per HOWM Rules, 2016. In case MoEF &CC identifies the same as hazardous or other waste, CPCB may proceed development of SOP for such utilization under Rule 9 of the HOWM Rules, 2016.
4..	M/s A. K. Enterprises, Plot No.-45, Brahmapura, Khurda Industrial Estate, Khurda, Odisha.	Aluminium dross residue; Schedule-II Stream A72 of HOWM Rules, 2016.	Alum	The dross residues obtained after metal separation contain mainly aluminum metallic fines and its compounds such as aluminium oxides, hydroxides, spinels etc besides silica, salts, magnesia and other impurities. The residue is subjected to hydro metallurgical processing to convert to alum. The	The committee has recommended that unit shall first install plant and machineries and pollution control measures required for proposed utilization process which shall be verified by Odisha PCB with valid Consent to Operate. After verification of the same, Odisha PCB shall send a verification report regarding plant and machinery to CPCB.

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Sl. No.	Name of the Industry	HW as Raw Material	Product	Process	Recommendations
				hydrometallurgical processing of the residue includes pre-treatment, leaching, solid liquid separation, crystallization, centrifuging, and recycling of mother liquor. The aluminium and its compounds are brought to solution as soluble aluminium sulphate i.e. $Al_2(SO4)_3$ by sulphuric acid leaching. Two stage counter current sulphuric acid leaching/washing are employed to leach out more than 95-98 % aluminium compounds from the residues. The near saturated sulphate solution is then filtered out from solid residue. The saturated solution is then partially evaporated to crystallize aluminium sulphate containing 12-18 water of crystallization called alum. The crystals are separated from mother liquor by centrifuging and followed by washing to produce alum crystals. The residues obtained are then washed with water till it is free from salts and pH adjusted to 7-7.5. The process is a closed loop operation with complete recycle of water. The gasses generated from the process will be scrubbed in water and alkali scrubbers. The spent scrubber will be put into solar evaporators and the solid residues obtained will be sent to TSDF.	Upon receipt of the aforesaid verification report from SPCB, the trial run may be issued for 03 days and the trial run monitoring protocol may include the following; i. Stack emission monitoring in the stack/vent attached to the scrubber w.r.t P.M., HF, SO_2 & NOx. ii. Analysis of scrubber bleed water w.r.t. pH, Colour, Total Suspended Solids, C.O.D & Heavy Metals (Al + Cd + As + Pb + Cr + Co + Cu +Mn + Ni + V+ their Compounds) iii. Analysis of mother liquor w.r.t. pH, Colour, Total Suspended Solids, C.O.D & Heavy Metals (Al + Cd + As + Pb + Cr + Co + Cu +Mn + Ni + V+ their Compounds) iv. Analysis of Hazardous waste (i.e. Aluminium dross residue/rejects) total Cyanide, leachable CN, Total Fluoride, leachable F, Nitrite, Total Heavy metals& heavy metals (TCLP). v. Analysis of Product(i.e. Alum)w.r.t total Cyanide, leachable CN, Total Fluoride, leachable F, Nitrite, Total Heavy metals& heavy metals (TCLP), and the parameters as per IS 258:2000specifications.

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