Central Pollution Control Board
Waste Management - II Division, Delhi
(B-29016/G-14/21/WM-II Div.)

Sub: Minutes of the 24th meeting of the Technical Expert Committee organized virtually through mail for "Evaluation of proposal for utilization of the hazardous and other wastes under Hazardous and Other Wastes (Management and Transboundary Movement) (HOWM) Rules, 2016".

1. 24th meeting of Technical Expert Committee (TEC) for "Evaluation of proposals received from various industries for utilization of hazardous and other wastes under Rule 9 of HOWM Rules, 2016" was organized virtually through mail in the fourth week of March, 2021.
2. The committee members were requested to provide their comments on 04 draft Standard Operating Procedures (SoPs) and 01 draft trial run protocols under Rule 9 of HOWM Rules, 2016, vide mails dated 24.03.2021 and 26.03.2021. List of committee members requested to provide their comments is enclosed at ***Annexure A***.
3. The committee members provided their suggestions and feedbacks through mail.
4. The details of the 04 Draft SoPs along with the recommendations are as below:

Sl. No.	Details of the Draft SoP	TEC Recommendation
1.	SoP for utilization of spent sulphuric acid generated during manufacturing of Hydrobromic acid (HBr) as resource material for manufacturing of Bromine (liquid) through bittern route.	Upon deliberation committee observed that it is necessary for unit to provide on-site emergency plan. In view of above, the committee recommended that after incorporating corrections and above suggestions, SoP shall be finalized.
2.	SoP for utilization of Spent Hydrochloric Acid generated from manufacturing of Chlorinated Paraffin Wax for manufacturing of Calcium Chloride	Upon deliberation, the committee observed following points to be added in the SoP: i. TOC of spent acid shall be restricted to 100 PPM and product shall be utilized for industrial grade only. ii. Adequate scrubbing system for HCl vent gas scrubbing or Three Stage Scrubbing System (Wet Scrubber followed by Two Stage Alkali Scrubber). iii. Strength of spent acid allowed to utilize shall be around or more than 30%. iv. Final product Calcium Chloride quality will have impact on acceptability for further utilization. However, BIS standards product quality limits in commercial Calcium chloride may be mentioned in SoP. In view of above, the committee recommended that after incorporating above suggestions, SoP shall be finalized.

3.	SoP for utilization of spent hydrochloric acid generated from trichloro/ perchloroethylene and Chlorinated Paraffin Wax (CPW) in manufacturing of 7ADCA	Upon deliberation, the committee observed that Spent HCl generated from manufacturing of Chlorinated Paraffin Wax (CPW) is hazardous waste. However, spent HCl is given pre-treatment and then listed as by-product also. It is possible that, industry might get spent HCl generated from CPW manufacturing without any pre-treatment. So it is recommended that SoP shall incorporate with both sources i.e. spent hydrochloric acid generated from Trichloro/ Perchloroethylene and Chlorinated Paraffin Wax (CPW) manufacturing. In view of above, the committee recommended that after incorporating above suggestions, SoP shall be finalized.
4.	SoP for utilization of waste salts from textile processing industries for recovery of salts for industrial use through salt pans	Upon deliberation, the committee observed that following points need to be incorporated in checklist of minimal requisites: i. Salt Pans should be imperviously lined. ii. The spillage should be either recycled or evaporated in Solar/MEE. Also, concentration of fluoride is one of the major concern in the analysis report before trial and after trial which should be addressed for proper treatment. In view of above, the committee recommended that after incorporating above suggestions, SoP shall be finalized.

5. The detail of 01 draft trial run protocol along with the recommendations is given in ***Annexure-B.***

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Annexure A

CENTRAL POLLUTION CONTROL BOARD
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. C.S. Sharma	Ex. Additional Director, CPCB, Delhi	Member
3.	Prof. Rajeev Gupta	Department of Chemistry, University of Delhi, Delhi	Member
4.	Prof. Kamal Kishore Pant	Department of Chemical Engineering, IIT Delhi	Member
5.	Dr. A K Swar	Chief Environmental Engineer, State Pollution Control Board, Odisha	Member
6.	Sh. D. M. Thaker	Unit Head, Hazardous Waste Cell, Gujarat Pollution Control Board, Gandhi Nagar, Gujarat	Member
7.	Sh. B. Vinod Babu	Additional Director & Head, WM-I, CPCB, Delhi	Member
8.	Sh. Dinabandhu Gouda	Additional Director & Head, IPC-I, CPCB, Delhi	Member
9.	Sh Abhey Singh Soni	Additional Director & Head, WM-II, CPCB, Delhi	Member Convener
10.	Sh. Anil C Ranveer	Additional Director, WM-II Div., CPCB, Delhi	Invitee
11.	Sh. Mohd Salik	SRF, WM-II Division, CPCB, Delhi	Invitee
12.	Sh. M. V. Srinivas	JRF,WM-II Division, CPCB, Delhi	Invitee

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Annexure B

Recommendation of the Technical Expert Committee for approval of proposals under Rule 9 of the HOWM Rules, 2016.

Sl. No.	Name of the Industry	HW as Raw Material	Product	Brief Process	Recommendations
1.	M/s Carbon India Pvt. Ltd., Bhatinda, Punjab	Carbon residue generated Urea manufacturing unit (Category 18.2 of Schedule I of HOWM Rules, 2016)	Manufacturing of Carbon Black	The waste Carbon Cake with average 80% moisture shall be procured from the fertilizer industry. Then it is crushed in lump breakers for ease of further processing. Further it is fed to sequential crusher and screener for particle size reduction, ash/grit removal and classification based on particle size distribution. The crushed, screened, and classified material with enhanced carbon content is then fed into rotary dryer to produce carbon powder with >3% moisture. Flue gases from the dryer are fed to de-dusting unit to capture fine carbon particles resulting into higher product recovery and clean the exhaust gases. Water present in the waste is completely evaporated in the drying process without leaving behind any wastewater. The crushed, cleaned, classified, and dried carbon powder is conveyed through bucket elevator and screw conveyors to product silos to feed into packaging machines in various sizes. A part of the product obtained from the above process is further processed into commercial grades of carbon black is subject to further processing for production of specialty carbons for higher value	The committee recommended trial run permission may be granted with following conditions: i. Hazardous waste (i.e. Carbon residue) shall be analysed for Moisture content, Ash, Grit, Carbon content, Sulphur, Ammonia, VOC, Fluoride and Heavy metals (i.e., Lead, Zinc, Tin, Cadmium, Arsenic, Mercury, Chromium, Cobalt, Nickel, Copper, Vanadium, Antimony, Manganese and iron), Total Petroleum Hydrocarbons. ii. Product (Carbon black): Moisture content, Carbon content, Sulphur, Ammonia, VOC, Fluoride and Heavy metals (i.e., Lead, Zinc, Tin, Cadmium, Arsenic, Mercury, Chromium, Cobalt, Nickel, Copper, Vanadium, Antimony, Manganese and iron), Total Petroleum Hydrocarbons. iii. Fugitive emission shall be monitored for PM_{10}, CO, SO_2, VOCs and Ammonia. iv. Source emission shall be monitored for Particulate matter, SO_2, NO_X, CO, Benzene, Ammonia and Heavy metals (Cd, Th+, Co, Mn, Ni, Cr, Sb, As, Pb, Cu, V+). v. Ash, grit and sludge generated during utilization process shall be analysed for following constituents: Moisture content, Carbon content, Sulphur, Ammonia, VOC, Fluoride and Heavy metals (i.e.,

Sl. No.	Name of the Industry	HW as Raw Material	Product	Brief Process	Recommendations
				addition and enhancement of financial viability of the project. Carbon black from the packaging silos is drawn into rehydration tanks to fluidize the carbon in water medium and fed into continuous ultrasonic flow cells where the clean carbon black is subjected to Ultrasonication @20000 Hz in the presence of ozone injection. The carbon produced in the above flow-cells is subjected to vacuum filtration to bring down the moisture level from >90% to about 20% and the filtrate shall be available for recovery of carbon fines and circulation back into flow-cells. The carbon with 20% moisture shall be dried to bring down the moisture level to less than 3% in final product, leaving no water effluent due to evaporation.	Lead, Zinc, Tin, Cadmium, Arsenic, Mercury, Chromium, Cobalt, Nickel, Copper, Vanadium, Antimony, Manganese and iron), Total Petroleum Hydrocarbons

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