<u>Waste Management - II Division</u> <u>Central Pollution Control Board, Delhi</u>

- Sub: Minutes of the 31st meeting of the Technical Expert Committee (TEC) for "Evaluation of proposals for utilization of hazardous wastes under Hazardous and Other Wastes (Management and Transboundary Movement) (HOWM) Rules, 2016".
- 31st meeting of TEC for "Evaluation of proposals received from various industries for utilization of hazardous wastes under Rule 9 of HOWM Rules, 2016" was held on 13 October, 2022 at CPCB, Delhi.
- 2. This meeting has specially scheduled to evaluate the proposals for utilization of hazardous waste in the manufacturing of Single Super Phosphate (SSP).
- 3. Sh. B. Vinod Babu, Head, Waste Management-II Division, CPCB, Delhi, welcomed the Chairman and members of the committee. A list of the participants has enclosed at *Annexure A*.
- 4. Sh. Anil C. Ranveer, Member Convener & Sc. E, Waste Management-II Division, CPCB, Delhi, has briefed the agenda to the members.
- 5. Trial run findings along with long-term study results have presented by the units for utilization of hazardous waste. The details of the same & recommendations of the committee has tabulated below:

S.no	Proposal	Recommendations
1.	Utilization of process biomass sludge generated from fermentation process in pharmaceutical industry for the manufacturing of Organic manure (Mix NPK fertilizer) [M/s Gujarat Krushi Bio Fertlizers, Anand, Gujarat]	 The unit has presented the details of trial run conducted along with long term study (02 years) carried out by Anand Agricultural University for utilization of process biomass sludge [generated from fermentation process during manufacturing of lovastatin] for manufacturing of Organic manure. The committee observed following: As the product "lovastatin" is an Active Pharma Ingredient (API), the biomass sludge generated from same may contain biological contaminants. Reports of analysis carried out during trial run by CPCB & third party laboratory not in sync with parameters such as moisture content i.e. observed 15% variation. Also, analysis of lovastatin in the biomass sludge has not been carried out during trial study.
	×	to explain the benefit of using one of the raw materials (namely nicotine powder).v. In the long-term study results, pH and

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		 electrical conductivity of the soil have not presented. vi. Heavy metal analysis in the biomass sludge has been reported as per the Fertilizer Control Order (FCO), 1985. However, leaching analysis of the same has not been reported. The committee suggested that the unit shall submit following information:
		1. Analysis of biomass sludge from NABL accredited laboratory as per the parameters mentioned in the trial run protocol. The analysis report for the concentration of lovastatin & toluene in biomass sludge should also be submitted, in accordance with Schedule II of HOWM Rules, 2016.
		2. Justification/explanation for advantages of using nicotine powder as raw material for manufacturing of organic manure along with the amount of nicotine content in the final product.
		 pH and electrical conductivity of the soil utilized for long-term study.
		GPCB has requested for considering all fermentation processes of pharmaceutical sector as source of hazardous waste for utilization in the preparation of generic SoP instead of only lovastatin process.
		Upon receipt of above information from the unit, the same shall be discussed in subsequent TEC.
2.	UtilizationofSpentSulphuricAcid(SSA)[GeneratedfromLABSA]formanufacturingofSingleSuperPhosphate(SSP)[M/s.NirmaLtd,Ahmadabad, Gujarat]	The unit has presented the results of SSA analysed through Gas Chromatography Mass Spectrometry (GC-MS) for constituents such as Linear Alkyl Benzene, Benzene, etc. and briefed their proposal along with interim report of long term study (01 year) carried out by Anand Agricultural University. The unit has mentioned that Alkyl Benzene Sulphonate and Sulphonated LAB (reported in the analysis report) are same.
		The committee observed that GC-MS results of analysed parameters were below detection limit. Also, that heavy metal uptake information has not
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reported in the interim report. The committee also
observed that the total P_2O_5 content as reported by
IITR, Lucknow was below the FCO standards.
The committee recommended that unit shall submit
heavy metal uptake information and also verify the
total P_2O_5 content in the SSP.
Upon receipt of above information from the unit,
the committee may take appropriate decision.

- 6. In addition to the above, the following applicants were requested to make a technical presentation:
 - i. M/s Aarti Industries, Gujarat, Maharashtra.
 - ii. M/s Rama Phosphate Limited, Madhya Pradesh, Maharashtra, Rajasthan.
 - iii. M/s Adheesha Phosphates, Rajasthan.
 - iv. M/s RM Phosphates & chemicals Pvt Ltd, Madhya Pradesh, Maharashtra.
 - v. M/s Khaitan Chemicals and Fertilizers Ltd, Madhya Pradesh, Rajasthan, Gujarat.
 - vi. M/s Jubilant Agri and Consumer Products Limited, Amroha, Uttar Pradesh.
 - vii. M/s Patel Phoschem Ltd, Rajasthan.
 - viii. M/s Madhya Bharat Agro Products Ltd, Madhya Pradesh.
 - ix. M/s Agrophos (India) Ltd., Madhya Pradesh.

M/s Agrophos (India) Ltd., Madhya Pradesh was absent.

The committee observed that all the above units have proposed to utilize spent sulphuric acid (SSA) in manufacturing of SSP. However, sources of generation of SSA are specifically different for each proposal and recommended to submit following information for preparing consolidated data on SSP manufacturing:

- a) Sector-wise details of the industries generating SSA along with complete details w.r.t raw materials/chemicals and products.
- b) Detailed assay report of SSA for moisture content, pH, TOC, leaching concentration of heavy metals and other contaminants based on source of SSA generation process from NABL accredited laboratory.

The details of the proposals along with the recommendations of the committee on the above proposals are given in *Annexure-B*.

- 7. The committee also recommended CPCB to obtain information regarding list of units manufacturing SSP by utilizing hazardous waste from all SPCBs/ PCCs for data compilation for further processing.
- 8. The committee proposed to organize the next TEC meeting at GPCB along with a visit to SSP manufacturing units.
- 9. The meeting ended with a vote of thanks to the chair.

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Annexure A

List of Participants

SI.	Name	Designation and Organization	Member of the
No			Committee / Invitee
1.	Dr. Anil K Saxena	Former Director, National Productivity Council, Delhi	Chairman
2.	Dr. A K Swar	Former Chief Environmental Engineer, State Pollution Control Board, Odisha	Member
3.	Dr. S.K. Goyal	Chief Scientist & Head, CSIR-NEERI Delhi	Member
4.	Sh. N. A. Shah	Unit Head, Hazardous Waste Cell, Gujarat Pollution Control Board	Member
5.	Dr. Sandeep Kumar Dixit	Assistant Professor, Department of Chemistry, S.S. (PG) College, Shahjahanpur, UP	Member
6.	Dr. S. Selvan	Chief Environmental Engineer, Tamil Nadu Pollution Control Board	Member
7.	Sh. B. Vinod Babu	Head, WM-II, CPCB, Delhi	Member
8.	Sh. Anil C Ranveer	Scientist E, WM-II Div., CPCB, Delhi	Member Convener
9.	Dr. Bhupinder Singh	Principal Scientist, ICAR-IARI, Delhi	Invitee
10.	Sh N.N. Gurav	Regional Officer, Maharashtra Pollution Control Board	Invitee
11.	Sh. R K Gupta	Superintending Engineer, Madhya Pradesh Pollution Control Board	Invitee
12.	Sh. N K Pandey	Assistant Environmental Engineer, Uttar Pradesh Pollution Control Board	Invitee
13.	Sh. O.P. Gupta	Additional Chief Environmental Engineer, Rajasthan State Pollution Control Board	Invitee
14.	Sh. S. Pradeep Raj	Scientist D, CPCB RD-Vadodara	Invitee
15.	Sh. Mohd Salik	SRF, WM-II Division, CPCB, Delhi	Invitee
16.	Sh. M. V. Srinivas	SRF,WM-II Division, CPCB, Delhi	Invitee

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<u>Annexure B</u>

Recommendation on the proposals for utilization of SSA in manufacturing SSP under Rule 9 of HOWM Rules, 2016.

S. no.	Name of the unit	Source of Generation	Recommendations
1.	M/s Aarti Industries, Gujarat, Maharashtra	Dye & Dye Intermediates – NCB, 2,3,4 TCNB, 2,4,5 TCNB, 2,4 / 2,6 DCNB, 2,4 / 2,5 DCNB NB, DNB, NT 3,4 DCNB / 2,3 DCNB / 2,5 DCNB 3,4 DCNB / 2,3 DCNB / 2,5 DCNB 3,5 DCNB 2,5 DCNB 2,5 DCP DMS, DCDPS R-SO3H	The unit has 02 SSP manufacturing units located in the states of Gujarat & Maharashtra. The unit has proposed to procure SSA from its 10 sister units in Gujarat. Upon deliberation, the TEC observed that SSA has been generated from dye and dye intermediates involving Nitration, Sulphonation and Diazotization processes. The unit has established acid concentration unit to concentrate SSA (generated from sulphonation process) around 20-40% to 70%. The unit has pre-treatment facility for SSA to remove/reduce HNO ₃ & TOC content by using urea & H ₂ O ₂ respectively. The TOC of the SSA ranges around 2000-5000 ppm before pre-treatment and can be reduced up to 500-1000 ppm after pre-treatment. The unit has proposed to utilize homogenized mixture of pre-treated SSA generated from all proposed processes. GPCB has informed that the unit has permitted for trial run study. The committee recommended that unit shall provide complete details of pre-treatment plant with operational parameters, analysis of contaminants in SSA w.r.t. each stream, leaching concentration of heavy metals from NABL accredited laboratory.
2.	M/s Rama Phosphate Limited Madhya Pradesh, Maharashtra, Rajasthan	LABSA	The unit has 04 SSP manufacturing units located in the states of Rajasthan, Madhya Pradesh & Maharashtra. Upon deliberation, the TEC observed that apart from SSA (generated from LABSA process) the unit also intended to utilize SSA generated from other processes such as nitration & sulphonation. However, the details of the same have not presented. The committee recommended that unit shall provide sector wise details of the industries generating SSA along with complete details w.r.t raw materials/chemicals and products and detailed assay report of SSA for moisture content, pH, TOC, leaching concentration of heavy metals and other contaminants based on source from NABL accredited laboratory.
3.	M/s Adheesha Phosphates, Rajasthan	Pesticide sector - Nitro	The unit has 01 SSP manufacturing unit located in the state of Rajasthan. The unit has proposed to Page 5 of 7

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S. no.	Name of the unit	Source of Generation	Recommendations
		Toluene	procure SSA from M/s Deepak Nitrite, Gujarat.
			Upon deliberation, the committee observed that M/s Deepak Nitrite, Gujarat is manufacturing Nitro Toluene (Nitration process) generating SSA and pre-treat the same by using urea to decompose HNO ₃ . The committee also observed TOC result showed <0.1 %wt.
		*	The committee recommended that unit shall provide complete details of pre-treatment plant with operational parameters, other sources of SSA, list of units, their manufacturing processes, analysis of contaminants w.r.t. each stream, leaching concentration of heavy metals from NABL accredited laboratory.
4.	M/s RM Phosphates & chemicals Pvt Ltd, Madhya Pradesh,	Refrigerants – Fluoro chemicals LABSA	The unit has 02 SSP manufacturing units located in the states of Madhya Pradesh & Maharashtra. The unit has proposed to procure SSA from Refrigerants (Fluoro chemicals), LABSA and Pesticide sectors.
	Maharashtra	Pesticide	Upon deliberation, the committee observed that TOC content in SSA from Fluoro chemicals has been reported around 5 ppm and 2000 ppm from pesticide sector.
			The committee recommended that unit shall provide of list of units from where they intend to procure the SSA, complete details of their manufacturing processes, analysis of contaminants w.r.t. each stream, leaching concentration of heavy metals from NABL accredited laboratory.
5.	M/s Khaitan Chemicals and Fertilizers Ltd, Madhya Pradesh,	LABSA	The unit has 06 SSP manufacturing units located in the states of Madhya Pradesh, Maharashtra, Rajasthan, Uttar Pradesh, Chhattisgarh and Gujarat. The unit has proposed to procure SSA from the LABSA process.
	Rajasthan, Gujarat		The committee noted that a similar proposal is under consideration of the committee.
6.	M/s Jubilant Agri and Consumer Products Limited, Amroha, Uttar	Synthetic Chemical – 2 – Chloro, 6 – Dichloro, pyridine	The unit has 02 SSP manufacturing units located in the states of Rajasthan and Uttar Pradesh. The unit has proposed to procure SSA from Synthetic Chemical.
	Pradesh	F 7	The unit has not provided details of hazardous waste generation process w.r.t. raw materials, chemical reaction, operational parameters, etc. as the process is a copyright technology.
			The committee recommended that unit shall provide brief details of hazardous waste generation process, detailed analysis of SSA w.r.t. VOCs/SVOCs, leaching concentration of heavy metals

S. no.	Name of the unit	Source of Generation	Recommendations
			from NABL accredited laboratory.
7.	M/s Patel Phoschem Ltd, Rajasthan		The unit has 02 SSP manufacturing plants in Rajasthan. However, details of SSA generation process and name of units has not presented.
			The committee recommended that unit shall provide SSA generation process details with complete list of raw materials, list of hazardous wastes generating industries mentioning the sector of the units and products manufactured, analysis of contaminants w.r.t. each stream, leaching concentration of heavy metals from NABL accredited laboratory
8.	M/s Madhya Bharat	LABSA	The unit has 04 SSP manufacturing units located in the states of Rajasthan and Madhya Pradesh.
	Agro Products Ltd, Madhya Pradesh	Pesticide sector - Pendi Methylene	The unit has proposed to procure SSA from LABSA process, Pesticide sector and Nitration process.
		and Benzene and their	The unit has not provided details of hazardous waste generation process.
		Benzene Derivative (Nitration)	The committee recommended that unit shall provide details of hazardous waste generation process, analysis of contaminants w.r.t. each stream, leaching concentration of heavy metals from NABL accredited laboratory.
	Upon receipt of above information from the units, the same shall be discussed in subsequent TEC.		

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