BEFORE THE NATIONAL GREEN TRIBUNAL

EASTERN ZONE BENCH KOLKATA

IN

OA No. 117/2024/~~EB~~ EZ

IN THE MATTER OF:

M/s Sai Fertilizers Pvt. Ltd.

APPLICANT

VERSUS

Union of India & Ors.

RESPONDENTS

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Sandeep Roy

Scientist D

CPCB, Kolkata

Filed through Counsel

Dated: _____ 2024

Place: Kolkata

NOTARY C.M.M. Court Calcutta Regn. No. 008/2022 Expiry Date 31.03.2027 GOVT. OF WEST BENGAL

BEFORE THE NATIONAL GREEN TRIBUNAL

EASTERN ZONE BENCH KOLKATA

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OA No. 117/2024/EZ

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M/s Sai Fertilizers Pvt. Ltd.

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REPLY AFFIDAVIT ON BEHALF OF RESPONDENT NO. 1, CENTRAL POLLUTION CONTROL BOARD

1. That, Hon'ble NGT vide order dated 31.05.2024 has sought the reply of Central Pollution Control Board (hereinafter called as 'CPCB') in the instant matter. Thereby, the reply is made in succeeding paragraphs.

2. That at the outset, the answering respondent deny all claims, contentions, allegations and averments against answering respondent CPCB in the above Original Application (hereinafter called as 'OA') contrary to anything stated or submitted in this reply. Nothing in the OA may be deemed to have been accepted or admitted by the answering Respondent for want of a specific denial or on the ground of non-traverse, save any averment which has been expressly admitted hereinafter.

3. That, CPCB is a statutory Board constituted under Section 3 of The Water (Prevention and Control of Pollution) Act, 1974. It performs the functions under The Water (Prevention and Control of Pollution) Act, 1974, The Air (Prevention and Control of Pollution) Act, 1981 and The Environment (Protection) Act, 1986.

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PARA-WISE REPLY:-

4. That, in reply to the averments made in Para No. 1 of the Original Application, it is humbly submitted that Ministry of Environment Forest and Climate Change (hereinafter referred as MoEF&CC), Government of India has notified Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016 (hereinafter referred as HOWM Rules, 2016) for effective management of Hazardous waste, in suppression of the Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008. The provisions for utilization of hazardous waste has been laid down under the Rule 9 of the HOWM Rules, 2016, which stipulates that:

> *"(1) utilization of hazardous wastes as a resource or after pre- processing either for co-processing or for any other use, including within the premises of the generator (if it is not part of process), shall be carried out only a/her obtaining authorisation from the State Pollution Control Board in respect of waste on the basis of standard operating procedures or guidelines provided by the Central Pollution Control Board.*
>
> *(2) Where standard operating procedures or guidelines are not available for specific utilisation, the approval has to be sought from Central Pollution Control Board which shall be granting approval on the basis of trial runs and thereafter, standard operating procedures or guidelines shall be prepared by Central Pollution Control Board"*

In this regard, for processing of proposals received for development of Standard Operating Procedure (hereinafter referred as SoP) for utilization of Hazardous Waste, CPCB has constituted a Technical Expert Committee (comprising of subject experts & representatives of State Pollution Control Boards/ academics/institutions, etc.) Further, CPCB has also prepared a SoP detailing the procedure for (i) processing the proposals received for utilization of hazardous waste including filing of application on an online portal (available at https://egovernancecpcb.co.in/hazardous/), (ii) evaluation of proposal by Technical Expert Committee (hereinafter referred as TEC); (iii) conducting trial utilization studies in the presence of CPCB and SPCB/ PCC officials with monitoring and (iv) finalization of SoP by CPCB based on findings of trial study and the recommendations of the TEC.

Further, with regard to proposals received by CPCB for utilization of spent sulphuric acid (hereinafter referred as SSA) generated from Linear Alkyl

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Benzene Sulphonic Acid process in manufacturing of Single Super Phosphate (hereinafter referred as SSP), it is humbly submitted that this respondent CPCB followed due procedure for processing of utilization proposal. The proposal was deliberated in Technical Expert Committee by CPCB for "Evaluation of proposal for utilization of the hazardous wastes under Rule 9 of Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016". As per the recommendations of Technical Expert Committee (TEC), long term trial utilization studies including field studies have been carried out on plants by applying fertilizer produced by utilizing spent sulphuric acid (generated from Linear Alkyl Benzene Sulphonic Acid process). Based on the outcome of trial studies at production stage as well as actual utilization as fertilizer in long term studies, CPCB developed draft SoP for said utilization proposal and as per the recommendation of 36th TEC meeting forwarded the same to Department of Fertilizers (hereinafter referred as 'DoF'), (Respondent No. 3) under Ministry of Fertilizers and Department of Agriculture (DoA) under Ministry of Agriculture and Farmers' Welfare for inputs/concurrence vide letter dated 19/01/2024 (**Annexure- I**).The Minutes of Technical Expert Committee meetings are available in public domain (at https://cpcb.nic.in/minutes-of- meetings/). The relevant portion of the Minutes of 36th Technical Expert Committee meeting is attached as **Annexure-II.** As per the inputs provided by DoA in 38th TEC meeting **(Annexure-III)** and concurrence of Respondent No. 3 i.e. DoF vide letter dated 13.05.2024 (**Annexure-IV**), CPCB finalized and issued the SoP (SoP no. 102) for "Utilization of Spent Sulphuric acid [generated from Linear Alkyl Benzene Sulphonic Acid in manufacturing of Single Super Phosphate for use as Fertilizer", in June 2024. The copy of the SoP issued by CPCB is attached as **Annexure-V.** The said SoP is also available in public domain at https://cpcb.nic.in/sop-for- hw-specific/.

5. That, in reply to the averments made in Para No. 2 of the Original Application, it is humbly submitted that, CPCB has developed a framework in compliance of the said Hon'ble NGT order in OA No. 804/2017 for Identification of any Industrial material as "Waste" or "By-Product". As per the said framework, concerned SPCBs/PCCs are entrusted for identification of any Industrial material as "Waste" or "By-product" after following the procedures outlined in the framework. Further, with regard to development of draft SoP for utilization of spent sulphuric acid in manufacturing of Single Super Phosphate, the comments

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made by this answering respondent at Para No. 4 of this Reply may kindly be referred.

6. That the averments made in Para No. 3 of the Original Application needs no comments by this Answering Respondent.

7. That, in reply to the averments made in Para No. 4 of the Original Application, it is humbly submitted that as per the provisions of the HOWM Rules, 2016 spent sulphuric acid exhibits hazardous characteristics under Schedule II of HOWM Rules, 2016 and hence the utilization of the same shall be carried out only after obtaining Authorization for the same from concerned State Pollution Control Boards/Pollution Control Committee based on the SoP prepared by CPCB. Further, it is humbly submitted that the averments for interim utilization of spent sulphuric acid may not arise since CPCB has already finalized the said SoPs. Accordingly, any intended user of aforesaid utilization (as mentioned in the SoP issued by CPCB in this regard) may directly approach concerned State Pollution Control Board for obtaining necessary authorization.

8. That, in reply to the averments made in Para No. 5 of the Original Application, it is humbly submitted that the Technical Expert Committee, for evaluation of utilization proposals under Rule 9 of HOWM Rules, 2016, in its 36th meeting, recommended Gujarat Pollution Control Board & CPCB to formulate the draft SoP for utilization of spent sulphuric acid in production of SSP and to forward the draft SoPs along with trial utilization study reports (at production stage as well as long-term field studies) to the Department of Fertilizers / Department of Agriculture for further evaluation and concurrence. The relevant portion of the Minutes of 36th Technical Expert Committee meeting is attached as **Annexure-II**. In compliance, CPCB vide letter dated 19/01/2024 (**Annexure-I**), sought inputs and concurrence from DoF & DoA. In response CPCB received a communication from Department of Fertilizers, vide letter 19.02.2024 (**Annexure-VI**) suggesting to temporarily allow the utilization of spent sulphuric acid (generated from all sources including synthetic organic chemicals sector) for the manufacturing of Single Super Phosphate, in view of the time period (18- 24 months) required for long term studies. However, in the said response dated 19/02/2024, DoF has given generic suggestions on use of SSA for the production of SSP, wherein specific comments on draft SoP forwarded by CPCB were not provided. The

specific comments were provided subsequently by DoF vide letter dated 13/05/2024 (**Annexure-IV**) giving their concurrence to CPCB's draft SOPs.

9. Accordingly, as per the inputs provided by DoA in 38th TEC meeting and concurrence of Respondent No. 3 i.e. DoF vide letter dated 13.05.2024 (**Annexure-IV**), CPCB finalized and issued the SoP (SoP no. 102 for the "Utilization of Spent Sulphuric acid [generated from Linear Alkyl Benzene Sulphonic Acid] in manufacturing of Single Super Phosphate for use as Fertilizer"), in June 2024 (**Annexure-V**). The SoP is available in public domain at https://cpcb.nic.in/sop-for-hw- specific/.

10. That, in reply to the averments made in Para No. 1 of Brief facts of Original Application, it is humbly submitted that the comments made by this answering respondent at Para No. 4 of this Reply may kindly be referred.

11. That, in reply to the averments made in Para No. 2 of Brief facts of Original Application, it is humbly submitted that the submission made by this answering respondent at Para No. 5 of this may kindly be referred.

12. That, in reply to the averments made in Para No. 6 of Brief facts of Original Application, (appearing as Para No. "6" after Para No. "2") it is humbly submitted that, the same are matter of record, hence need no comments from this Answering Respondent.

13. That, in reply to the averments made in Para No. 3 - 7 of Brief facts of the Original Application, it is humbly submitted that the submission made by this answering respondent at Para No. 4 and 5 of this Reply may kindly be referred.

14. That, in reply to the averments in Para No. 8 of Brief facts of Original Application, it is humbly submitted that CPCB has issued SoP for said utilization as mentioned by this answering respondent at Para No. 4 of this Reply. Accordingly, any intended user of aforesaid utilization (as mentioned in the SoP issued by CPCB in this regard) may directly approach concerned State Pollution Control Board for obtaining authorization.

15. That, in reply to the averments in Para No. 9 (a) - 9 (b) of Grounds of Original Application, it is humbly submitted that the submission made by this answering respondent at Para No. 4 of this Reply may kindly be referred.

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16. That, in reply to the averments in Para No. 9 (c) of Grounds of Original Application, it is humbly submitted that the same requires no comments from this Answering Respondent.

17. That, in reply to the averments in Para No. 9 (d) - 9(e) of Grounds of Original Application, it is humbly submitted that the submission made by this answering respondent at Para No. 4 of this Reply may kindly be referred.

18. That, in reply to the averments made in Para No. 9 (f) of Grounds of Original Application, it is submitted that requirement of Environmental Clearance shall be in accordance to the procedures laid down under Schedule of the Environmental Impact Assessment Notification, 2006 and Schedule therein. As per the said notification, Environmental Clearance is granted by the State Level Environmental Impact Assessment Authority or by MoEF&CC, as the case may be. Hence, needs no comments from this answering respondent.

19. That, in reply to the averments made in Para No. 9 (g) -9(h) of Grounds of the Original Application, it is humbly submitted that it requires no comments from this Answering Respondent.

20. That, in reply to the averments made in Para No. No. 10 and Para No. 11 of Grounds of the Original Application, it is humbly submitted that no comments from this Answering Respondent.

21. In light of the above submissions, it is respectfully submitted that this Answering Respondent i.e. CPCB, shall abide by any order(s) or direction(s) passed by this the Hon'ble Tribunal in the instant OA.

PRAYER

That in view of the above submissions, it is respectfully submitted that this answering Respondent No. 1 shall abide by any order or directions passed by this Hon'ble Tribunal.

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GOVT. OF WEST BENGAL

DEPONENT

BEFORE THE NATIONAL GREEN TRIBUNAL

EASTERN ZONE BENCH KOLKATA

IN

OA No. 117/2024/PB

IN THE MATTER OF:

M/s Sai Fertilizers Pvt. Ltd.

APPLICANT

VERSUS

Union of India & Ors.

RESPONDENTS

AFFIDAVIT

I, Sandeep Roy, son of Late Mahesh Chandra Roy, aged about 44 years, having office at the Regional Directorate, Central Pollution Control Board, Southend Conclave' Block No.502, 5th & 6th Floor, 1582, Rajdanga Main Road, Kolkata-700107, do hereby solemnly affirm and sincerely state as follows: -

1. That the accompanying reply may be read part and parcel of the present affidavit as I am competent to swear this affidavit.

2. That the contents of reply are true and correct on the basis of the record maintained during ordinary course of business of CPCB and available records and documents and the contents of the same are read over to me and are not repeated herein for the sake of brevity.

DEPONENT

I, Sandeep Roy, working as Scientist 'D' and posted at Regional Directorate, Central Pollution Control Board, Kolkata-700107, the respondent No.1 herein does hereby verify that the contents of the above paragraphs are true and correct to the best of my knowledge, information and belief.

Verified at Kolkata on this the .....Day of July, 2024.

DEPONENT

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C.M.M. Court Calcutta
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31.03.2027
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-X-

VERIFICATION

Verified at ... on this .... day of ...., 2024 that the contents of the above affidavit are correct to the best of my knowledge and belief and nothing has been concealed therein.

DEPONENT

SOLEMNLY AFFIRMED
&
Declared Before me
on Identification Adv.
NOTARY
N. DAS GUPTA
C.M.M. Court
Govt. W.B
15 JUL 2024

N. DASGUPTA
Notary
Regn. No. 006/2022
3, Bankshal Street
Calcutta-700001

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Regn. No.
006/2022
Expiry Date
31.03.2027
OF WEST BENGAL

Annexure - 1

LiFE Lifestyle for Environment

केन्द्रीय प्रदूषण नियंत्रण बोर्ड
CENTRAL POLLUTION CONTROL BOARD
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार
MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE, GOVT. OF INDIA

F.No: CP-21/103/2021-WM-II-HO-CPCB-HO

19th January, 2024

To

Ms. Yogita Rana,
Joint Secretary,
Department of Agriculture & Farmers welfare,
Ministry of Agriculture & Farmers welfare
Krishi Bhawan, New Delhi

Ms. Aparna S Sharma
Joint Secretary,
Department of Fertilizers,
Ministry of Chemicals & Fertilizers
236 A, A-wing, 2nd Floor,
Shastri Bhawan, New Delhi

Sub: Request for inputs on the proposal for utilization of Industrial hazardous wastes as a supplementary resource to produce fertilizers that have end-usage in the form of land applications.

Ref: CPCB letter No: CO-16/1/2021-WM-II-HO-CPCB-HO/2509 dated 19/07/2023

Madam,

This has reference to CPCB's earlier communication (copy enclosed) regarding utilization of Industrial hazardous wastes as a supplementary resource to produce fertilizers that have end usage in land applications as per provisions under Rule 9 of Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016. CPCB had requested nomination of subject experts from Department of Fertilizer (DoF) and Department of Agriculture (DoA) to assist the Technical Expert Committee (TEC) of CPCB in examining the utilization proposals.

The matter was discussed in 36th meeting of TEC held on 16-08-2023 wherein the DoF deputed Sh. Rakesh Kumar (General Manager-Projects) from NFL, also attended the same.

During the meeting, it was decided that the industry proposals and the draft Standard Operating Procedures (SOPs) for utilization of hazardous wastes, supported with reports of long term trial studies (on impact of such fertilizers on soil/crop quality) be forwarded to DoF/ DoA for further examination and concurrence. The relevant minute of the said meeting are enclosed.

In view of above, CPCB in consultation with Gujarat Pollution Control Board has prepared draft SOP for utilization of Spent Sulphuric acid (generated during manufacturing of Linear Alkylbenzene Sulfonic Acid (LABSA) for detergents) in production of Single Super Phosphate (SSP) fertilizer. The said draft SOP along with relevant study reports are enclosed for ready reference.

It is requested that DoF may kindly evaluate the attached Draft SOP and also suggest inputs on the following points for incorporating in the draft SOP;

i. Percentage mixing ratio of virgin acid with the above Spent sulphuric acid in manufacturing of Single Super Phosphate fertilizer;
ii. List of trace organic compounds and heavy metals with their limiting concentrations in the SSP derived by utilizing the Spent acid.
iii. The method of application of the SSP (derived by utilizing Spent acid) in terms of periodicity of application and quantity that can be applied in per unit area of land.
iv. Important notice/ Labeling required to be put on the fertilizer bags

It is requested to kindly provide inputs on above points and concurrence to the draft SOP along with other conditions, if any, at the earliest to enable CPCB in issuance of the SOPs.

Yours faithfully,

(Bharat Kumar Sharma)
Member Secretary

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'परिवेश भवन' पूर्वी अर्जुन नगर, दिल्ली-110032
Parivesh Bhawan, East Arjun Nagar, New Delhi - 110032
दूरभाष/Tel: 43102030, 22305792, वेबसाईट/Website : www.cpbc.nic.in

Waste Management - II Division
Central Pollution Control Board, Delhi

Sub: Minutes of the 36th 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".

1. 36th 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 16.08.2023 by CPCB, Delhi through hybrid mode.

2. Ms. Deepti Kapil, Sc. D & Member Convener (TEC), Waste Management-II Division, CPCB, Delhi, welcomed the Chairman and members of the committee and apprised the agenda of the meeting to TEC. The list of the participants is enclosed at ***Annexure A***.

3. Based on the trial study reports, the draft Standard Operating Procedures (SoPs) & Checklist of Minimal Requisite facilities for utilization of hazardous waste prepared by WM-II Division, CPCB, were discussed by the committee. Recommendations of the committee on the draft SoPs are tabulated below:

S.no.	Proposal	Recommendations
1.	Utilization of hazardous wastes (Spent Sulphuric acid & Sulphur muck) in manufacturing of Single Super Phosphate (SSP) & Utilization of hazardous wastes (Spent Sulphuric acid & biomass/process sludge) in manufacturing of DAP/NPK fertilizer & Organic manure	CPCB apprised that various proposals for utilization of hazardous wastes (Spent sulphuric acid, biomass/process sludge generated from various Pharma processes) in production of fertilizers (SSP, DAP/NPK fertilizer & Organic manure) have been received. These proposed fertilizers/ manures have application in agriculture for essential nutrients in the soil and increasing the crop yield. In this regard, the following trial studies were conducted to study the environmental impact during the proposed utilization processes; i. Utilization of spent sulphuric acid (generated during manufacturing of LABSA) in production of SSP, ii. Utilization of spent sulphuric acid (generated during Diazotization, Nitration and Sulphonation Reaction of organic compound) in production of SSP, iii. Utilization of sulphur muck (generated from spent sulphuric acid plant) in production of SSP, iv. Utilization of spent sulphuric acid (generated during acid activation of bentonite clay) in production of DAP/NPK Fertilizers) and v. Utilization of process biomass sludge (generated during fermentation process in pharmaceutical industry) in production of Organic manure (Mix NPK fertilizer). Apart from above studies, long term impact studies were prescribed at lab/pilot scale to study impact on soil/crop quality

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while utilizing the above said hazardous wastes in production of fertilizer for (i) and (v), above. The said studies have already been completed.

CPCB in the 33rd TEC meeting deliberated the matter related to products manufactured by utilizing hazardous wastes, that have end use in land applications, human consumption, animal feed, drugs, etc. wherein, the committee observed that there is need for exclusive deliberation with the domain experts/scientists from concerned departments, like Ministry of Chemicals & Fertilizers, Ministry of Agriculture and FSSAI. Accordingly, CPCB requested the Department of Fertilizers (DoF) and the Department of Agriculture (DoA), for their inputs regarding safe utilization of hazardous waste as supplementary resources to produce fertilizers and invited them to depute experts for the meeting.

Sh. Rakesh Kumar (General Manager-Projects) from National Fertilizers Limited (deputed by the Department of Fertilizers) participated in this 36th TEC meeting and informed that DoF has issued Fertilizer (Control) Order, 1985 prescribing norms of fertilizers which majorly focus on the standards for nutrients (NPK). However, as FCO standards do not specify limits for heavy metals and toxic elements, it is essential to understand the impacts on ecology and soil characteristics due to application of fertilizers produced by utilizing hazardous wastes. Thus suggested to forward the above proposals (draft SoPs along with trial study and long term study reports) to DoF/ DoA for further consideration.

Committee observed that utilization of certain inorganic compounds may have lesser residual toxicity on soil as compared to acids containing organic compounds.

Committee also observed that above studies may require inputs and concurrence of DoF/ DoA which may specify (i) acceptable quantity of fertilizers derived utilizing hazardous waste, that can be applied per unit of land area, (ii) Name of trace compounds that may present in fertilizer and its concentration and (iii) Periodicity of application, (iv) Modalities to deal with such applications in future. Etc. whichever may apply.

In view of above, committee recommended GPCB & CPCB to formulate the SoPs and forward the draft SoPs along with trial study and long term study reports to DoF/ DoA for further evaluation and concurrence on above proposals.

Further for the proposals involving utilization of wastes containing inorganic compounds like sulphur muck and spent acids generated from activation of clay, for which long term studies are yet to be carried out, temporary permission for such utilization may be granted for a period not exceeding 02 years for conducting long

		term study. Outcome of long-term studies be forwarded to DoF/ DoA seeking their concurrence on further utilization based on results of the long term study.
2.	Utilization of spent acid in manufacturing of Di-Calcium Phosphate	GPCB in State level expert Committee constituted for evaluation of proposals for utilization of hazardous wastes, discussed the proposals for utilization of Spent acids (HCl and H_2SO_4) {generated from various industrial processes} for manufacturing of Dicalcium Phosphate (DCP). The said Committee permitted, 03 trial studies for utilization of spent acids (generated from multiple sources) in the manufacturing of DCP as below: i. Utilization of Spent HCl [generated during manufacturing of Monochloro Acetic Acid and Chlorofluoro] in manufacturing of DCP at M/s Spa Vet Min Pvt. Ltd., Vadodara- Trial run carried out from 16/08/2022 to 20/08/2022. ii. Utilization of Spent HCl [generated from chlorination reactions in dyes and dyes intermediate & Pharmaceutical manufacturing] in manufacturing of DCP at M/s Unim Chemical Industries, Sabarkantha- Trial run carried out from 25/08/2022 to 01/09/2022 iii. Utilization of Spent H_2SO_4 [generated during manufacturing of Pigment (Alpha Blue))] in manufacturing of DCP at M/s S. A. Pharmachem Pvt. Ltd., Vadodara- Trial run carried out from 10/08/2022 to 12/08/2022. However, re-trial utilizing virgin HCl is required to be carried out. In addition to above CPCB is also in receipt of applications for utilization of Spent Phosphoric acid (H_3PO_4) for manufacturing of DCP. The above matter was deliberated in 32nd TEC meeting wherein the Committee recommended that products derived from hazardous waste that has end use in human food and animal fodder may require approval by Food Safety and Standards Authority of India (FSSAI); and further in 33rd meeting, the Committee suggested to invite the subject experts from respective organizations to address the aforesaid matter. Accordingly, officials from the FSSAI were invited for 36th meeting. However, the concerned officials haven't attended the meeting. The committee recommended to deliberate the matter in subsequent TEC meeting by inviting the officials/ experts from FSSAI and other pertinent agencies who are actively engaged in formulating BIS standards for DCP, such as National Dairy Development Board, ICAR-Indian Veterinary Research Institute, ICAR-Central Institute for Research on Buffaloes, ICAR-Central Avian Research Institute, ICAR-Central Sheep and Wool Research

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Waste Management - II Division
Central Pollution Control Board, Delhi

Sub: Minutes of the 38th 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".

1. 38th 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 14.03.2024 by CPCB, Delhi through hybrid mode.

2. The Divisional Head, Waste Management-II Division, CPCB, Delhi, welcomed the Chairman and members of the committee, invitee members and apprised the agenda of the meeting to TEC. The list of the participants is enclosed at ***Annexure A***.

3. The representation received regarding utilization of Spent Sulphuric acid (generated from various sources) in production of Single Super Phosphate, Di- Calcium Phosphate and for utilization of spent sodium sulphide in manufacturing of sodium bi sulphide were discussed and recommendations were given below:

S. no	Agenda	Background	Recommendations
1	Utilization of spent acids (generated from various sources) in production of Single Super Phosphate (SSP) and Dicalcium Phosphate (DCP)	In accordance with 36th TEC recommendations CPCB vide letter dated 19/01/2024 sought inputs and concurrence on the draft SoP developed for utilization of Spent Sulphuric acid [generated during manufacturing of Linear Alkylbenzene Sulfonic acid (LABSA) for detergents] in production of Single Super Phosphate (SSP) fertilizer from Department of Fertilizer (DoF) and Department of Agriculture (DoA) Further, CPCB received a communication from DoF vide letter dated 19.02.2024, suggested to temporarily allow the utilization of Spent	CPCB invited representative from Department of Fertilizer (Ministry of Fertilizer) and Department of Agriculture (Ministry of Agriculture & Farmers welfare) for deliberation on the representations. **A.) Utilization of spent acids (generated from various sources) in production of Single Super Phosphate (SSP)** CPCB mentioned that it has received around 25 applications and GPCB around 08 applications for utilization of spent sulphuric acid (generated from organic sources such as LABSA i.e. detergent industry, Dye & Dye Intermediates, fertilizer, pesticides, Pharmaceutical, etc. and inorganic sources such as chemical processing of ores containing heavy metals such as Chromium, Manganese, Nickel, Cadmium & Dye & Dye Intermediates, fertilizer, etc.). Of 33, trial studies have been completed for 02 applications at i) M/s Nirma Ltd. (LABSA-Detergent sector) and ii) M/s Aarti

S. no	Agenda	Background	Recommendations
		Sulphuric acid generated from all sources including synthetic organic chemicals sector for the manufacturing of SSP, in view of time period (18-24 months) required for long term studies for application of SSP (derived from spent acids) as a fertilizer. Further, GPCB vide letter dated 11/03/2024 forwarded the representation of Gujarat Dyestuff Manufacturer's Association and Gujarat Chamber of Commerce and Industry requesting to issue temporary permission to utilize spent acids in production of SSP and DCP in light of the Department of Fertilizer's letter dt. 19/02/2024. In this regard GPCB also suggested to temporarily allow the utilization of spent acids in the production of SSP and DCP with precautionary measures (i.e., pre-treatment of Spent acid) adopted during the trial studies conducted at Gujarat and accordingly requested to place the matter before the TEC for consideration.	Fertilizers (Synthetic Organic Chemical), of which long term study for the proposal of M/s Nirma Ltd for SSP derived from SSA (LABSA) has been completed by Anand Agriculture University, Gujarat. The findings of said long term study have been deliberated in 36th TEC meeting and as per the recommendations of TEC, CPCB vide letter dated 19/01/2024 sought inputs and concurrence on the said draft SoP developed, from DoF and DoA. Further, CPCB received a communication from DoF vide letter dated 19.02.2024, suggested to temporarily allow utilization of Spent Sulphuric acid generated from all sources including from the production of synthetic organic chemicals for the manufacturing of SSP. However, the response to the CPCB letter dated 19/01/2024 was not included in the above communication. DoF responded that their suggestion for temporary usage of spent acid in SSP production was to prevent any disruption in generation and supply of SSP. Further mentioned that they may look into CPCB letter dated 19/01/2024 and respond accordingly for further processing. DoA was of the view that any usage of spent acid for SSP production shall be governed by criteria which are to be established based on the outcomes of trial studies and long term studies. Accordingly, committee recommended that; (1) In case of utilization at production level, CPCB may issue trial run permission. At the same time, CPCB may also process for Conditional permission for conducting long term studies with following condition: I. The proposal received for different sources of SSA under Rule 9 may be scrunitised by CPCB

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			II. Long term trial studies be conducted in association with SPCB and Government research institutions wherein the scope of such study shall be examined jointly by CPCB and SPCB in accordance with following conditions but not limited to: i. The Spent Sulphuric acid & SSP (derived by utilizing such spent acid) be analysed for moisture, acid content, pH, TOC including concentration of various important VOCs, SVOCs and Heavy Metals and process based derivatives. The analysis of Total Organic Contamination (TOC) shall include various critical VOCs, SVOCs. ii. Seed germination test using various concentrations of SSP sample derived by using the spent acid as well as SSP produced from fresh acid in similar concentrations shall be analysed. iii. Toxicity studies of the SSP sample in various concentration (minimum 5 concentrations) ranges, derived by using the spent acid be carried out. 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 study should focus on accumulation and negative impact of the Heavy metals, TOC, & specific chemical (based on source of generation w.r.t. raw material & process based derivatives) due to use of spent sulphuric acid on soil & plant. III. The committee also suggested that during the period of conditional

S. no	Agenda	Background	Recommendations
			permission for long term trial studies, the following precautionary measures shall be ensured by the CPCB: i. The proposals for different sources of SSA to be processed as a separate long term study. ii. The permission shall be renewed every year after inspection of study site, and verification of interim study findings. However, the validity of permission may not exceed 24 months unless the same is extended by CPCB. iii. The permission may be terminated by SPCBs/PCCs in case of any adverse observation with respect to transportation, meeting of minimal quality criteria, observations of on-going study, etc. iv. The minimal quality criteria for temporary utilization of SSA is recommended as below; a. The Purity of SSA shall be >70%. b. TOC of SSA shall be <200 ppm. v. In case of TOC ≥ 200 ppm, a pre-treatment facility shall be installed to reduce TOC < 200 ppm. vi. The utilization of SSA shall be restricted to supplementing only up to 50% of the fresh or virgin sulphuric acid to maintain the quality of SSP. vii. Sampling of spent acid, fresh acid and spent acid-SSP would be undertaken in presence of the concerned SPCB, and respective engaged government institution would be carried out. viii. Sales of SSA to be made only to end

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			users (SSP producer) and no sales to be allowed to traders/ intermediate processing units. ix. SPCB shall verify the contract between sender and actual end user for sending SSA to manufacture SSP. x. Further SPCB shall monitor and verify the handling capacity of SSA at utilizers end to ensure the environmentally sound utilization of total quantity of HW (SSA) produced at generator end. xi. Each procurement, production and transportation details shall be maintained on the National Hazardous Waste Tracking System/ Vehicle Location Tracking System (VLTS). xii. The actual user shall maintain a passbook for procurement, treatment & utilization of SSA and quantity of SSP produced. IV. SPCBs/PCCs shall ensure the following during the period of long term studies by the institutions: i. The SSP (produced utilizing spent acid) intended for long term study shall be stored in the premises of the institution and usage of the same shall be monitored by Scientist Incharge. ii. The bag of SSP produced utilizing SSA shall be labeled with quotes produced from SSA for the purpose of long term study and such label shall be endorsed by officials of SPCB. Such label should encompass the details regarding Source of Spent acid, % of Spent acid utilized w.r.t fresh acid, Name of the producer and Date of the batch manufactured.

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S. no	Agenda	Background	Recommendations
			iii. The long term study area of the crops shall be demarcated with KML files to locate the geo-coordinates along with name & address of the location. V. SPCB shall also monitor and forward the outcome of long term study alongwith their observation to CPCB for deliberating in TEC. (2) With regard to the proposals where long term study for utilization of Spend Sulphuric Acid (generated from LABSA) in production of SSP was conducted successfully and concurrence from DoF awaited on draft SOP, the committee recommended for finalization of said draft SoP upon receipt of concurrence/ inputs from DoF. **B.) Utilization of spent acids (generated from various sources) in production of Di-Calcium Phosphate (DCP)** CPCB and GPCB received various applications for utilization of Spent HCl/Spent Sulpuric acid/Spent Phosphoric acid for production of DCP (animal fodder). Accordingly, 02 trial studies for utilization of spent acids (generated from multiple sources) were conducted. The same matter was discussed in earlier TEC meetings and in 37th TEC meeting it was recommended to conduct comprehensive long term animal studies on usage of Di Calcium Phosphate (manufactured from Spent acids) prior to its usage as animal fodder. Further recommended CPCB to identify the suitable government research institutions for

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File No.23011/23/2024-P&K/SSP
Government of India
Ministry of Chemicals & Fertilizers
Department of Fertilizers

Shastri Bhawan, New Delhi
Dated the 13th May, 2024

To,

Shri Bharat Kumar Sharma
Member Secretary
Central Pollution Control Board
Privesh Bhawan
Shahadar, Delhi 110032

Subject : Comments of Draft SoP Prepared by CPCB in Consultation with Gujarat Pollution Control Board (GPCB) for Utilization of Spent Sulphuric Acid (generated during manufacturing from LABSA for detergent) in production of Single Super Phosphate fertilizer.

Sir,

I am directed to refer to CPCB Letter no. CP-21/103/2021-WM-II-HO-CPCB-HO dated 19.01.2024 and CPCB Letter no. CO-16/1/2021-WM-II-HO-CPCB-HO-10638 dated. 05.03.2024 On the above mentioned subject regarding draft SOP prepared by CPCB in Consultation with Gujarat Pollution Control Board (GPCB) for Utilization of Spent Sulphuric Acid (generated during manufacturing from LABSA for detergent) in production of Single Super Phosphate fertilizer.

2. In this regard, we had circulateddraft SOP to Fertilizer Association of India (FAI) and Projects and Development India Limited (PDIL) vide our letter No. 23011/23/2024-P&K/SSP dated 18th March, 2024 for their comments. We have considered their comments and given our inputs on the draft Standard Operating Procedure (SOP) which is enclosed at Annexure I and the specific inputs on the four queries raised in the letter for incorporating in the draft SOP dated 18th March 2024 are also attached as Annexure II.

3. It is further important to mention here that as per the long term study (conducted by the Anand Agricultural University for SSP manufactured from spent acid and pure acid), it was concluded that there was no difference found in various parameters of study with the use of SSP produced either from Spent Sulphuric Acid

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or Pure Sulphuric Acid. Therefore, there should not be any restriction on use of Spent Sulphuric Acid for production of SSP.

4. Also, the Kharif season is from April-Sept and peak months for fertilizer consumption are from June, July, Aug. So the demand of fertilizers will be at peak in next few coming months. So any disruption to supply of fertilizers may have an impact on the agriculture production and productivity. Therefore, any restriction on the use of spent acid will result in replacement with fresh acid which may significantly impact the viability of SSP production and hence its availability.

5. In view of above, we request CPCB:-

i. To finalize the above Standard Operating Procedure (SOP) for manufacturing SSP from Spent Sulphuric Acid generated during manufacturing from LABSA to avoid any disruption in supply of SSP.

ii. As mentioned in our earlier submission dated 19th February, 2024 that Spent Sulphuric Acid from sources other than LABSA are currently undergoing trials. We therefore request that till such time, the trials are completed, the Spent Acid from sources other than LABSA should also be permitted for production of SSP.

Encl.:As above.

Yours faithfully

(Dalbir Singh)
AC (Movt.) & SSP
Ph- 23385119

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Annexure I

Comments on the Draft Standard Operating Procedure for utilization of Spent Acid in the Single Super Phosphate Plant

1. In the section 97.2 Utilization Process, the **Figure 1** may also include the scrubber water utilized reused for acidulation process. The revised diagram is as follows:

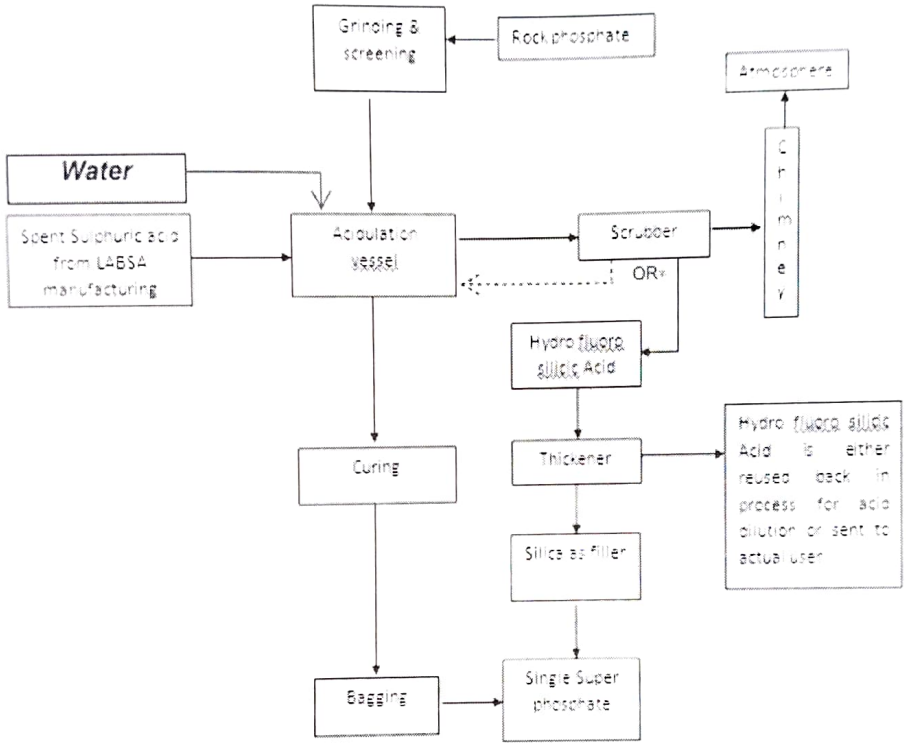

Figure 1: Process flow diagram for utilization of spent sulphuric acid in manufacturing of SSP

2. In the point number 4, under section 97.3 (a) At production stage, the sentence "Acid feeder shall be properly covered ensuring no fugitive emission of H2SO4 mist" may be removed as acid feeder has been eliminated due to automation.

3. In the point number 7, under section 97.3 (a) At production stage, "Adequate water and alkali scrubbers to be installed for acidulation vessel for control of process fumes". Whereas two stage water scrubber is adequate to meet the required standard and hence there is no need to install alkali scrubber for the said purpose, addition of alkali scrubber may add to financial burden and increase in price of SSP.

4. In the point number 10 Treatment and Disposal of Waste Water, under section 97.3 (a) At production stage, waste water generated may also be allowed to be reused in acidulation process as diluter.

5. In the point number 2, under section 97.3 (b), the labelling should not be made mandatory as per results both SSP produced from spent or pure sulphuric acid has the identical characteristic.

6. In the point number 3, Under section 97.3 (b), it should not be practically feasible to generalize the dosage of SSP per hectare per crop as it may as per soil composition and type of crop.

7. In the point number 1, under 97.5 Standard (a) At Production Stage, source emission standards prescribed are different from the emission standards given in the trial run protocol. It is suggested that protocol used during trail run should only be prescribed.

8. In the point number 1, under 97.5 Standard (b) At utilization stage, we reiterate that should not be practically feasible to generalize the dosage of SSP per hectare per crop as it may as per soil composition and type of crop.

9. Under section 97.8 On-line detectors / Alarms / Analysers. As per the Guidelines for Continuous Emission Monitoring System (OCEMS), published by CPCB in August 2018, OCEMS shall be installed for PM, HF, Flow and Camera for phosphatic fertilizers. And further under the table sl. No. 4, it may be noted that two stage water scrubber is adequate to meet the required standard and hence there is no need to install alkali scrubber for the said purpose, addition of alkali scrubber may add to financial burden and increase in price of SSP.

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Annexure II

Inputs for the Specific Queries Raised in the letter for Incorporating in the Draft SOP

1. The brief summary of the results of Anand Agricultural University enclosed with the SOP, are as follows:

1.1. The toxicological study was carried out (by CSIR-IITR Lucknow) for utilizing with SSP produced from 100% Spent sulphuric acid and 100% pure sulphuric acid. The experimental results show that there was no fish behavioural and clinical signs observed in control and fish exposed to SSP at 100 mg/L concentration. No fish mortality was observed during the study period (Pages 75, 79, 132 and 136).

1.2. Based on all analysis results and chemical, toxicological & long term study on crops of SSP manufactured from fresh/virgin as well as spent sulphuric acid are identical.

1.3. The Anand Agricultural University (AAU) carried out the impact study on Maize, Mustard, and Soil and seed germination on the following aspects:

A. **Maize**

i. Growth and yield attributes
   a. Plant Height:
   b. Yield and Yield Attributes
   c. Effect of SSPs on the seed germination and vigour of Maize
ii. Effect of SSPs on nutrient content in grain and stover of Maize
iii. Micronutrient content in grain and stover of maize
iv. Heavy metal content in grain and stover of maize

There was no significant difference noticed between spent H_2SO_4 and fresh H_2SO_4 manufactured SSP on Growth and yield attributes, nutrient content, micronutrient and heavy metal content in grain and stover in Maize crops.

B. **Mustard**

1. Growth and yield attributes

a. Plant height
b. Number of branches per plant and test weight
c. Yield
d. Effect of SSPs on the seed germination and vigour in Mustard:

ii. Effect of SSPs on nutrient content in seed and stover of mustard:
iii. Micronutrient content in seed and stover of mustard
iv. Heavy metal content in seed and stover of mustard

There was no significant difference noticed between spent H_2SO_4 and fresh H_2SO_4 manufactured SSP on Growth and yield attributes, nutrient content, micronutrient and heavy metal content in seed and stover in Mustard crops.

C. Effect of SSP on soil properties

i. Soil pH and Soil electrical conductivity
ii. Soil available P_2O_5, K_2O and S
iii. Soil exchangeable Ca and Mg
iv. Soil DTPA- Micronutrient extractable
v. Soil DTPA- heavy metal extractable

The data indicated that there was no significant effect observed by different sources phosphorus (DAP, P- spent H_2SO_4 and P- Fresh H_2SO_4) along with and without FYM on the above parameters.

D. Conclusion

The report concluded that

"Study indicated that the application of 100 % Recommended Dose of Phosphorus either through SSPs manufactured from Spent or fresh H_2SO_4 (generated from manufacturing at 6 plants of NIRMA Ltd.) or DAP, found equally beneficial for getting yields of both the crops in Maize-Mustard cropping sequence. While application of @10t/ha along with RDP through SSPs manufactured from Spent or fresh H_2SO_4 or significantly increased the yield of maize and mustard crop. Further under the seed study, no adverse effect was observed on germination and vigour index of seed of maize and mustard produced either by application of SSPs manufactured from spent H_2SO_4 and H_2SO_4."

2. Spent Sulphuric Acid generated from LABSA manufacturing is having acid concentration between 70% - 80% and virgin acid having concentration 98 %. Whereas in manufacturing of SSP, concentration of acid required is 70%. So, use of virgin acid requires dilution with water.

3. In view of the above we have the following response:

3.1. **Percentage mixing ratio of virgin acid with the above spent sulphuric acid in manufacturing of single super phosphate fertilizer:**

Reply: From the study, it is evident that there is no significant impact of SSP produced either from spent sulphuric acid and fresh sulphuric acid. Hence, there should not be any restriction on use of spent acid and 100% should be utilized for making SSP. However, the SSP product should meet the FCO specifications.

3.2. **List of trace organic compounds and heavy metal with their limiting concentrations in the SSP derived by utilizing the spent acid.**

Reply: There is no limit prescribed under FCO for heavy metals or trace organic compounds for any chemical fertilizers including SSP. However, there are limits specified for heavy metals for organic fertilizers. The limits are as follows:

S.No	Heavy metal	Limit (mg/Kg)
1	Arsenic (as As2O3)	10.0
2	Cadmium (as Cd)	5.0
3	Copper (as Cu)	50.0
4	Chromium (as Cr)	300.0
5	Mercury (as Hg)	0.15
6	Nickel (as Ni)	50.0
7.	Lead (as Pb)	100.0
8.	Zinc (as Zn)	1000.0

The limits in the SSP product derived from spent sulphuric acid from LABSA is lower than the prescribed limits for organic fertilizers. Therefore, we are of the opinion that there is no need for any heavy metal limits separately to be given for SSP produced from Spent acid. It may be noted that use of organic fertilizers per unit area is much higher than SSP.

3.3. **The method of application of the SSP (derived by utilizing spent acid) in terms of periodicity of application and quantity that can be applied in per unit area of land.**

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Reply: There is no change in the method and does of application of SSP derived by utilizing spent acid from LABSA processas it conforms to the FCO specifications. Therefore, application of SSP produced either from 100% spent sulphuric acid or pure sulphuric acid should be based on the general fertilizer recommendations given by the state government for various soils and crops.

3.4. **Important notice/labelling required to be put on the fertilizer bags.**

Reply: Fertilizers falls under Essential Commodity Act and have to comply with the regulations under FCO. All fertilizers products have to comply with the marking requirement specified in S.O. 977 (E) dated 9th November 1987 under FCO. Therefore, there is no need for any separate/additional notice/labelling requirement to be put on the fertilizer bags.

I. Analysis of SSP Derived from Fresh Acid and Spent Sulphuric Acid Carried out by Anand Agricultural University

Table 3: SSP Fertilizer Analysis

PARAMETERS		Results	
	As Per FCO-1985	SSP Manufactured from Fresh-H_2SO_4	SSP Manufactured from Spent-H_2SO_4
AVAILABLE PHOSPHORUS (As P_2O_5) by Weight	16% Min.	16.55%	16.30%
WATER SOLUBLE PHOSPHORUS (As P_2O_5) by Weight	14.5% Min.	14.58 %	14.54%
SULPHATE SULPHUR (As S) % by Weight	11% Min.	11.73%	11.55%

II. CLARIFICATION ON IITR REPORT

1. IITR, Lucknow has analyzed SSP (both manufactured from fresh Sulphuric Acid and Spent Sulphuric Acid from LABSA process) for two different methods. **Heavy metal ions** have been measured by **Atomic Absorption Method** and **average & water soluble phosphorous as P** is measured by **Ion Chromatography method** of 4110 B of APHA/AWWA; 23rd Edn. (2017). Report of IITR is attached herewith.

2. **APHA/AWWA are Water and Wastewater analysis method**. APHA/AWWA test methods are procedures specifically for examination of a wide spectrum of parameters in water and wastewater. Therefore, Ion Chromatography Method of APHA/AWWA detected only faction of what was present in SSP dissolved water solution. As it captured conductivity of only dissolved ion as P. Hence, it would not reflect the true values of the average P2O5/water soluble P2O5 in SSP.

3. Whereas, approved method for measurement of average P2O5/water soluble P2O5 for SSP fertilizer is **FCO, 1985 Schedule II, Part – B, 4 (III) Gravimetric Method.** Anand Agricultural University, Anand has measured Water Soluble Phosphorous as P_2O_5 the sample of both SSP (SSP manufactured from Fresh Sulphuric Acid as well as SSP manufactured by using Spent Sulphuric acid from LABSA Process) as per method laid by FCO, 1985. Which is part of the final long term study report of AAU. Therefore, the report of AAU should be considered for percentage of P2O5 in SSP. A copy of the report of AAU is enclosed herewith.

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Annexure - V

Standard Operating Procedure and Checklist of Minimal Requisite Facilities for utilization of hazardous waste under Rule 9 of the Hazardous and Other Wastes (Management and Transboundary movement) Rules, 2016

Utilization of Spent Sulphuric acid (SSA) [generated from Linear Alkyl Benzene Sulphonic Acid (LABSA) process] in manufacturing of Single Super Phosphate for use as Fertilizer

CPCB

June, 2024

Central Pollution Control Board
(Ministry of Environment, Forest & Climate Change,
Government of India)
Parivesh Bhawan, East Arjun Nagar,
Shahdara, Delhi – 110032

Utilization of spent sulphuric acid (SSA) [generated from Linear Alkyl Benzene Sulphonic Acid (LABSA) process] in manufacturing of Single Super Phosphate for use as Fertilizer

Procedure for grant of authorization by State Pollution Control Boards (SPCBs)/ Pollution Control Committee (PCCs) for utilization of Hazardous waste

1) While granting authorization for utilization of hazardous wastes, SPCBs/PCCs shall ensure that authorization is given only to those wastes for which Standard Operating Procedures (SoPs) for utilization have been circulated by Central Pollution Control Board (CPCB) ensuring the following:
   a. The waste (intended for utilization) should have similar source of generation as specified in SoP.
   b. The utilization shall be similar to as described in SoP.
   c. End-use / product produced form the waste shall be same as specified in SoP.
   d. Authorization shall be granted only after verification of details and minimum requisite facilities as given in SoP.
   e. Issuance of passbooks (similar to the passbooks issued for recycling of used oils, waste oil, non-ferrous scraps, etc.) for maintaining records of receipt of hazardous wastes for utilization.
   f. Monitor closely the quantity of hazardous waste (spent sulphuric acid) being sent by generators and the quantity being utilized by authorized facilities to manufacture the product (Single Super Phosphate), including the end usage of the product.

2) After issuance of authorization, SPCBs/PCCs shall verify the compliance of checklist and SoP on quarterly basis for initial 1 year; followed by random checks during subsequent period for atleast once a year. The compliance reports may be submitted to CPCB.

3) In-case of lack of requisite infrastructures with the SPCBs/PCCs, they may engage 3rd party institutions or laboratories having EPA, 1986/NABL/ISO17025 accreditation/ recognition for monitoring and analysis of prescribed parameters in SoPs for verification purpose.

4) SPCBs/PCCs shall provide half yearly updated list of units permitted under Rule 9 of Hazardous & Other Wastes (Management & Transboundary Movement) Rules, 2016 (HOWM Rules, 2016) to CPCB and also upload the same on SPCB/PCC website, periodically. Such updated list shall be sent to CPCB.

5) Authorization for utilization shall not be given to the units located in the State/Union Territory where there is no Common TSDF, unless the unit ensures authorised captive disposal of the hazardous waste (generated during utilization) or its complete utilization or arrangement of sharing with any other authorised disposal facility.

6) In case of the utilization proposal is not same with respect to source of generation or utilization process or end-usage as outlined in this SoP, the same may be referred to CPCB for clarification/conducting trial utilization studies and developing SoP thereof.

7) The source and work zone standards suggested in the SoP are based on E(P)A notified and OSHA standard respectively. However, SPCBs/PCCs may impose more stringent standards based on the location or process specific conditions.

8) SPCBs/PCCs shall ensure that the utilizer of spent sulphuric acid (SSA) shall maintain daily records in National Hazardous Waste Tracking System (NHWTS).

102.0 Utilization of Spent Sulphuric Acid:

Type of HW	Source of generation	Recovery/Product
Spent Sulphuric Acid (Category no. B-15 & C 2 of Schedule II of HOWM Rules, 2016)	Linear Alkyl Benzene Sulphonic Acid (LABSA) manufacturing process in detergent industry or any other industry producing LABSA for supply to detergent industry.	As a supplementary resource in manufacturing Single Super Phosphate (SSP) for use as Fertilizer

102.1 Source of Waste (Spent Sulphuric Acid)

Sulphonation reaction of Linear Alkyl Benzene with sulphuric acid (98%) and oleum in presence of water results in formation of LABSA, a synthetic detergent. During this process 70 – 80% concentrated spent sulphuric acid is generated. This spent sulphuric acid is categorized as hazardous waste as category B-15 (Inorganic Acid) & C2 of Schedule II of HOWM Rules, 2016 which is required to be disposed in authorized disposal facility in accordance with authorization condition, when not utilized as resource recovery.

Table 1: - Typical Characteristic of spent sulphuric acid generated from LABSA

Parameters	Results	Unit
Moisture	19	%
Acid content (H_2SO_4)	80	%
pH	Highly acidic	-
TOC	200	ppm
Nickel	3	mg/Kg
Calcium	6	mg/Kg
Cobalt	0.13	mg/Kg
Iron	720	mg/Kg
Copper	0.12	mg/Kg
Zinc	3.5	mg/Kg

102.2 Utilization Process

(a) **At production stage** – Rock Phosphates is grinded and screened through 0.15 mm screen. The coarse material is sent back to silo for grinding and the fine material charged to acidulation vessel along with Spent Sulphuric acid and water. The reacted mass is cured for 2-6 weeks and the final product (i.e., SSP) is packed in form of powder or in form of granules.

(b) **End utilization** – The product (i.e. SSP fertilizer produced utilizing the spent sulphuric acid) to be applied on land as fertilizer as per the SOP given at section 102.3 (b).

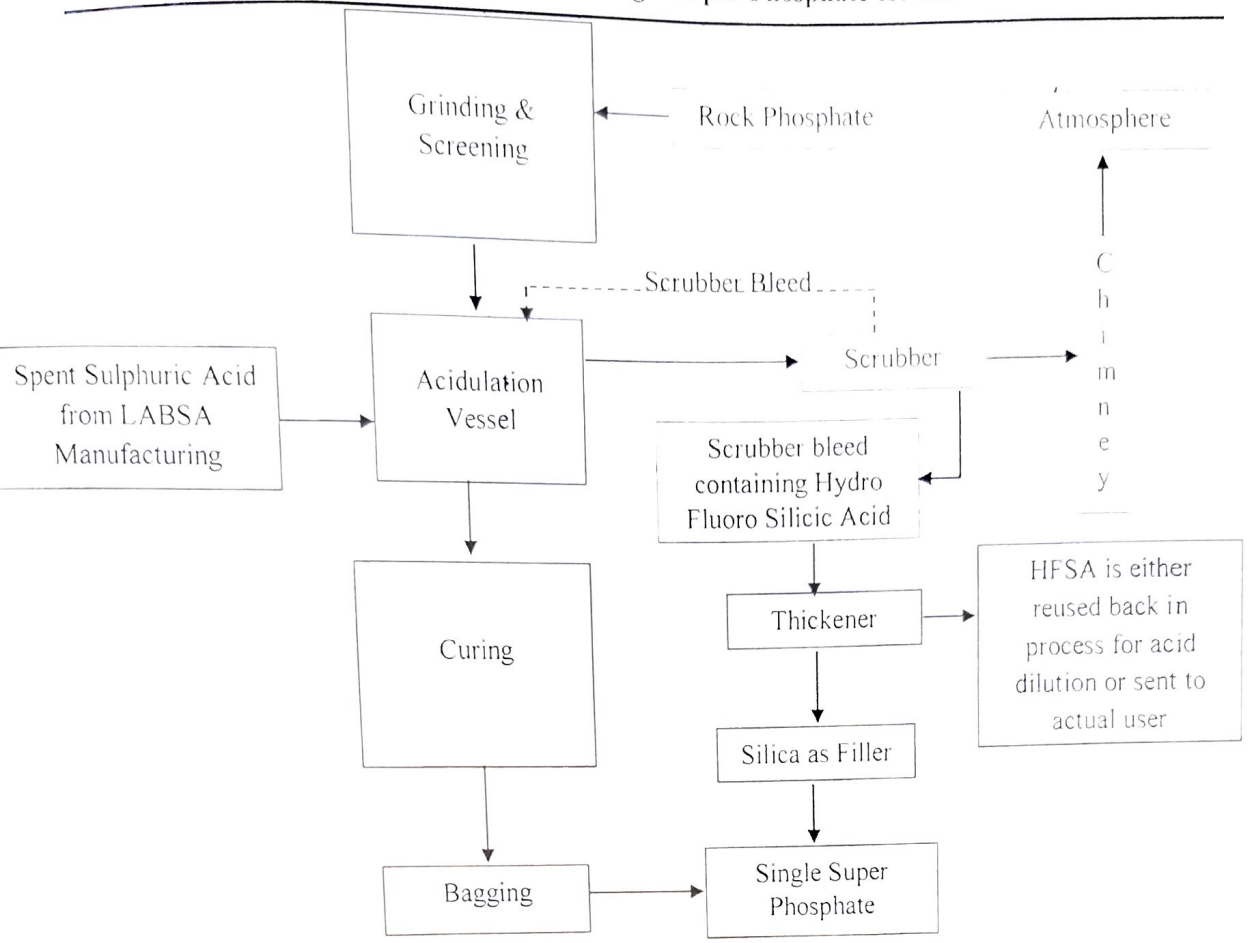

Figure 1: Process flow diagram for utilization of Spent Sulphuric acid in manufacturing of SSP

102.3 Standard Operating Procedure for utilization

(a) At production stage:

This SoP is applicable only for utilization of spent sulphuric acid generated from LABSA process in manufacturing of Single Super Phosphate for use as Fertilizer.

1) The spent sulphuric acid shall be transported in SPCB/PCC registered tankers mounted on vehicles fitted with requisite safeguards ensuring no spillage of the same.

2) There shall be a designated space for unloading of spent sulphuric acid in to a storage tank. The receiving storage tank shall be placed above the ground and contained with low raise parapet/bund wall with proper slope to collect spillages, if any, into a collection pit.

   Further, storage sheds shall have proper slope and seepage collection pit to collect seepage/ floor washing. The collected seepage / floor washing shall be utilized in the process or channelized to ETP for further treatment.

3) The spent sulphuric acid shall be transferred through pump to acid feeder where water is mixed to maintain strength of acid as per requirement, ensuring no manual intervention.

4) The handling and transfer of the Spent Sulphuric acid shall be carried out through mechanised system ensuring no fugitive emissions.

5) The process shall be in a closed system, provided with proper platform for acid feeder and acidulation vessel.

6) The units such as grinder and screening shall be connected with adequate dust collection equipment viz. cyclones and bag filters and the dust generated shall be reused back in the system.

7) Adequate water and alkali scrubbers to be installed for acidulation vessel for control of process fumes.

8) The treated gases shall comply with emission norms prior to dispersion into atmosphere through stack. The stack height shall be a minimum of 30 m from ground level or as prescribed by the concerned SPCB/PCC, whichever is higher.

9) The scrubber bleed containing Hydro Fluoro Silicic acid (HFSA) shall be recycled back in to the acidulation vessel OR sent to thickener for separation of HFSA and silica. The silica shall be used as filler in the final product and the HFSA may be sent to authorized recyclers or reused back in the process.

10) Treatment and disposal of wastewater:

Waste water generated from floor-washings, spillages, reactor washing, etc. shall be treated Physico-Chemically in an ETP so as to comply with inlet standards prescribed in case of CETP or be treated in captive ETP having adequate treatment facilities to comply with surface water discharge standards as stipulated in the Consent issued by the SPCBs/PCCs.

In case of zero discharge condition, the treated waste water from ETP may be managed as per conditions stipulated by the SPCB/PCC.

11) The hazardous wastes generated (if any) during utilization process shall be collected and temporarily stored in non-reactive drums under a dedicated hazardous waste storage area and be sent to authorized common TSDF or other authorized facility within 90 days from generation of the waste in accordance with the authorization issued by the concerned SPCB/PCC. Such storage shall be done under covered storage area with proper ventilation.

12) Prior to utilization of spent sulphuric acid, the unit shall obtain authorization for generation, storage, and utilization from the concerned SPCB/PCC under HOWM Rules 2016.

13) The unit shall maintain proper ventilation in the work zone and process areas. All personnel involved in the plant operation shall wear proper PPEs specific to the process operations involved and type of chemicals handled as per MSDS. The safety precautions of the worker shall be in accordance with the Factory Act, 1948, as amended from time to time.

14) Transportation of spent sulphuric acid shall be carried out by sender (generator) or receiver (utilizer) only after obtaining authorization from the concerned SPCB under HOWM Rules, 2016. Requisite manifest document shall be followed as laid down under the said Rules.

15) In case of environmental damages arising due to improper handling of hazardous wastes including accidental spillage during generation, storage, processing, transportation and disposal, the occupier (sender or receiver, as the case may be) shall be liable to implement immediate response measures, environmental site assessment and remediation of contaminated soil/groundwater/sediment etc. as per the *"Guidelines on Implementing Liabilities for Environmental Damages due to Handling & Disposal of Hazardous Wastes and Penalty"* published by CPCB.

16) The unit shall provide suitable fire safety arrangements and flame proof electrical fittings.

17) During the process of utilization and handling of hazardous waste, the unit shall comply with requirements in accordance with the Public Liability Insurance Act, 1991 as amended, wherever applicable.

(b) End Usage of the Product:

1. Final product SSP, manufactured utilizing above said hazardous waste shall meet the specifications of SSP as mentioned in Fertilizer Control Order (FCO), 1985 and amendments thereof.
2. The unit shall label the bags containing the product (i.e. Single Super Phosphate produced utilizing spent sulphuric acid) as "*This Single Super Phosphate has been manufactured by utilizing spent sulphuric acid, generated from LABSA process of detergent manufacturing industry.*" Further, all fertilizers products have to comply with the marking requirement specified in S.O. 977 (E) dated 9th November 1987 under FCO.
3. SSP produced by utilizing Spent Sulphuric acid (generated from LABSA process) is permitted to use as a fertilizer based on the long term trial studies and after the acceptance given by Department of Fertilizers letter no. 23011/23/2024-P&K/SSP dated 13/05/2024.

102.4 Record/Returns Filing

1) The unit shall maintain a passbook issued by the concern SPCB/PCC and maintain details of each procurement of spent sulphuric acid as mentioned below:

- Address of the sender
- Date of dispatch
- Quantity procured
- Seal and signature of the sender
- Date of Receipt in the premises

2) A log book with information on source and date of generation/procurement of spent sulphuric acid, quantity, date wise utilization of spent sulphuric acid, quantity of SSP manufactured, hazardous waste generation and its disposal, etc. shall be maintained including analysis report of emission monitoring & effluent discharged, as applicable.

3) The unit shall maintain record of hazardous waste generated, utilized and disposed as per Form 3 & also file annual returns in Form 4 as per Rule 20 (1) and (2) of HOWM Rules, 2016.

4) The unit shall submit quarterly and annual information on hazardous wastes consumed, its source, products generated or resources conserved (specifying the details like type and quantity of resources conserved) to the concerned SPCB/PCC.

5) The unit shall use NHWTS to manage the manifest, enter daily records of quantity generated, disposed, etc. as soon as the portal is operational and till such time continue using platform provided by respective SPCB/PCC.

102.5 Standard

a) At Production stage:

1) Source emission monitoring from the common stack attached to scrubber shall comply with the following emission standards or as prescribed by the concerned SPCB/PCC, whichever is stringent;

PM	150.0 mg/Nm^3
SO_2	40 mg/Nm^3
HF	25 mg/Nm^3
NO_x	25 mg/Nm^3
Total Fluoride	20 mg/Nm^3

2) Fugitive emission in the work zone shall comply with the following standards:

PM_{10}	5.0 mg/m^3 TWA*
H_2SO_4 mist	13 mg/m^3
Fluorine	0.2 mg/m^3

*Time-weighted average (TWA)- measured over a period of 8 hours of operation of process

3) Monitoring of the specified parameters for source emission shall be carried out quarterly for the first year followed by at least annually in the subsequent year of utilization. Fugitive emission for specified parameters shall be carried out quarterly. The monitoring shall be carried out by ISO 17025 accredited or EPA, 1986 approved laboratories and the results shall be submitted to the concerned SPCB/PCC on a quarterly basis.

4) Standard for wastewater discharge: Treated effluent shall be discharged in accordance with the conditions stipulated in Consent to Operate issued by respective SPCB/PCC under the Water (Prevention and Control of Pollution) Act, 1974. In case of (i) zero discharge as per consent or (ii) non-availability of Common Effluent Treatment Plant (CETP), the unit shall achieve zero discharge by setting up adequate captive treatment facility

b) At utilization stage:

1) SSP produced utilizing SSA should be analysed for the parameters, as prescribed in Fertilizer Control Order (FCO), 1985, and amendments thereof, once in every three months and be submitted to concerned SPCB/PCC. In case, parameters not meeting prescribed standards, utilization shall be stopped reported to concerned SPCB/PCC.

2) Final products manufactured utilizing SSA shall meet the specifications mentioned in Fertilizer Control Order, 1985 and amendments thereof.

102.6 Siting of production Industry

Facilities for production of SSP by utilizing spent sulphuric acid shall be located preferably in a notified industrial area or industrial park/estate/cluster and in accordance with Consent to Establish issued by the concerned SPCB/PCC.

102.7 Size of Plant & Efficiency of utilization

The production facility may use about 0.45 MT spent sulphuric acid per 0.56 MT rock phosphate (raw material) to produce 1 Metric Tonne of SSP. Therefore, requisite facilities of adequate size such as of storage shed and other plant & machinery as given in para 102.8 below shall be installed accordingly.

102.8 On-line detectors / Alarms / Analysers

Online emission monitoring systems shall be installed in case of continuous process operations for PM, SO_2, NOx, and F as prescribed by the SPCBs/PCCs and the online data be connected to the server of the concerned SPCB/PCC and CPCB.

102.9 Checklist of Minimal Requisite Facilities

Sl. No	Particulars
1.	Storage tank(s) of adequate capacity to store Spent Sulphuric acid. Storage tank(s) shall be placed above the ground and contained with low raise parapet/bund wall with slope to collect spillages, if any, into collection pit.
2.	Mechanized system for transfer of spent sulphuric acid from storage tank to acid feeder and acidulation vessel.
3.	Grinder, reactor (acidulation vessel)
4.	Adequate water and alkali scrubbers shall be installed at acidulation vessel.
5.	Adequate dust collection system such as Cyclones and bag filters for dust collection at grinding and screening section.
6.	Suction arrangement to channelize emissions from grinding and screening section and dust collector system to Air Pollution Control Devices.
7.	Effluent treatment plant.
8.	Common Stack to have sampling port, platform, access to the platform etc. as per the guidelines on methodologies for source emission monitoring published by CPCB under laboratory analysis techniques LATS/80/2013-14.
9.	Online emission monitoring systems shall be installed in case of continuous process operations for PM, SO_2, NOx, and F as prescribed by the SPCBs/PCCs.

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Annexure - VI - 37/105

File No.23011/23/2024-P&K/SSP
Government of India
Ministry of Chemicals & Fertilizers
Department of Fertilizers

Shastri Bhawan, New Delhi
Dated the 19th February, 2024

To

Members Secretary
The Central Pollution Control Board
PariveshBhawan, East Arjun Nagar, Delhi-110032

Subject: Regarding Permission to Utilize Spent Sulfuric Acid in SSP Manufacturing.

Sir,

Single Super Phosphate (SSP) manufactures and Fertilizer Association of India (Representative of SSP Industry) have brought to the knowledge of the Department of Fertilizers about the difficulties being faced by them due to restriction in use of spent sulphuric acid in the production of SSP. Single Super Phosphate (SSP) is an indispensable phosphatic fertilizer that plays a critical role in supporting agricultural growth and food security. The application of SSP is a cost-effective source of balanced phosphorus nutrition, contributes to sustainable agriculture, improves soil quality, and fosters environmental friendliness. Therefore, ensuring an adequate supply of SSP is one of our primary objectives. Any hurdle in SSP production will adversely affect the phosphatic fertilizer availability and agricultural output of the country.

2. SSP manufactures informed about the recommendations put forth in the Technical Expert Committee Meetings and communication issued by the Central Pollution Control Board (CPCB) time to time. The Department recognizes the concerns of using Spent Sulphuric acid in the manufacturing of SSP and its use as a fertilizer. However, currently due to a lack of conclusive long-term studies or reports, as well as looking into its application for the last several decades for producing SSP from spent acid, it is difficult to comment on the impact resulting from the use of Spent sulphuric acid for SSP production. The utilization of spent sulphuric acid has been in practice for over five decades, without any known impacts on the environment like water, air and soil.

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3. We understand that the trial runs are being conducted by CPCB and State Pollution Control Boards (SPCB) for the utilization of spent sulphuric acid generated from various industrial sources for the manufacturing of SSP. The trials for some of the spent acids have been completed and that from synthetic organic chemicals are going under long-term study as suggested by the Expert Committee of CPCB.

4. We understand that the Standard Operating Procedure (SOP) for SSP for which study has been completed is yet to be released and for others the same shall only be released after the long-term study is completed. The industry association and FAI representatives informed that such studies may take 18-24 months. Therefore, any restriction on the use of spent acid will result in replacement with fresh acid which will significantly impact the viability of SSP production and hence its availability.

5. Thus, to avoid any disruption in supply of SSP, it is advised that until the long-term study is concluded, CPCB may temporarily continue to allow the utilization of spent sulfuric acid generated from all sources including from the production of synthetic organic chemicals for the manufacturing of SSP.

6. We appreciate an early resolution of the issues in the interest of SSP industry and sustainable agriculture at large.

Yours faithfully

(Dalbir Singh)
AC (Movt.) & SSP
Ph- 23385119

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