

**Central Pollution Control Board**  
(Hazardous Waste Management Division)  
Delhi - 110032  
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**Minutes of the 12<sup>th</sup> Meeting of the Expert Committee on Bio-medical Waste Management for Evaluation of the State-of-the-Art-Technologies for Treatment of Bio-medical Waste held on July 07, 2011 at CPCB, Delhi.**

- 1.0 The list of the participants of the meeting is enclosed at *Annexure I*.
- 2.0 Shri J S Kamyotra, Member Secretary CPCB welcomed members of the Expert Committee and the special invitees and informed about the follow-up action taken in light of the decisions taken in the last meeting of the Expert Committee including forwarding of the queries on 'PIWS -3000' received from the members to the proponent. The views or observations of the members on the minutes of the last meeting circulated to all the members were asked for and no changes were suggested by the members, minutes of the last meeting were taken as confirmed. The members were informed about the new proposals received from M/s. S.S Medical Systems India Limited, the response received from M/s. Trade International subsequent to the queries of the members on PIWS-3000 as well as request from M/s Safe Environmental Solutions Ltd., seeking permanent approval for "Sharp Blaster" technology for treatment of waste sharps. The members was informed about the letter of 'Principal Secretary, Forest & Environment Department, Government of Gujarat' requesting to relook into the decision of the committee for inclusion of Category 07 as per Schedule I of BMW Rules for treatment adopting 'Plasma Pyrolysis Technology'.
- 3.0 **Opening Remarks by the Chairman of the Expert Committee:** Dr. T. K. Joshi, Chairman Expert Committee informed members that M/s. Safe Environmental Solutions Ltd., had approached CPCB for seeking approval only after he questioned the requirement of CPCB approval under Bio-medical Waste (Management & Handling) Rules, 1998. Thereafter, he requested the proponents to complete their presentations within fifteen minutes.
- 4.0 **Presentation by the Proponents on the Technologies for Treatment of Bio-medical waste:**

a) **Presentation by M/s Trade International:**

Shri Timothy P. Spencer, President, Positive Impact Waste Solutions, Texas and Mr. P.K. Handa representing M/s Trade International, New Delhi showed a video clip regarding PIWS -3000 technology i.e 'shredding followed by chemical disinfection using calcium hydroxide' and about the clarifications provided by them on the queries received from the members. To the additional



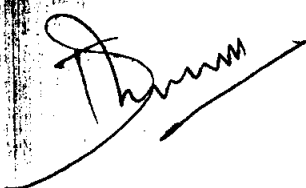
queries of the members, he clarified that (i) addition of the chemical called 'coldster' depends upon the quantum of waste so as to maintain pH around 11-12 while treating the waste; (ii) the output is dry treated waste; (iii) presently the PIWS -3000 system is adopted in USA, South Africa, China, but not used in European Union, (iv). All mixture of bio-medical waste can be treated and disposed off in municipal landfills, (v). Treated waste is also used for road filling in Singapore and recovery of bio-fuel is under trial in USA. (vi) The treatment capacity of the system ranges from 200 kg/hour to 600 kg/hour of waste; (vii) The special approvals would not be required from Transportation department in India as the vehicle width is 10' same as that of the ordinary trucks and (viii) PIWS-3000 can be used as on-site or off-site treatment facility. The representative from Texas could not clarify on the bio-fuel recovery per tonne of bio-medical waste (treated by PIWS-3000) and no such assessment has been made by them. The Members expressed their concern for inclusion of waste category 01 & 02 for treatment using PIWS-3000 vis a vis the existing provisions of the BMW Rules for segregation of bio-medical waste.

**b) Presentation by M/s S.S. Medical Systems (India) Pvt. Ltd. on 'AMB, Belgium's Ecosteryl 125/250 i.e shredding cum Microwave Technology:**

The representative of M/s S. S. Medical System, Lucknow presented a video-clip showing the operational aspects of the technology namely 'AMB Belgium's Ecosteryl 125/250 i.e Shredding cum Microwave Technology'. The representative informed that Ecosteryl devices can treat the bio-medical waste categories 1, 2, 3, 4, 5, 6 & 7 listed under the BMW Rules and claimed that treated waste qualified the validation tests using Bacillus Atrophaeus. He informed that the technology is approved by the French Ministry of Health, Youth, Sport and Community Service and certified by the European Public Authorities. He also informed that plastic waste treated by adopting this technology can be recycled in manufacturing of plastic containers. The members expressed their apprehension on treatment of waste category 01 & 02 by adopting this technology. The proponent could not provide cost effectiveness of the technology.

**c) Presentation on "Sharp Blaster" by M/s. Safe Environmental Solutions Ltd., UK:**

Shri Alok Mathur representing M/s. Safe Environmental Solutions in his presentation informed that subsequent to the provisional approval granted to 'Sharp Blaster' name presently changed as 'Needle Blaster' for treatment of waste category 04 i.e waste sharps. The provisional validity of the system was extended by CPCB upto March 31, 2011 with the condition that the system should be attached with a compactor to ensure that the treated waste canister is compacted before disposal by deep burial or land filling. He informed that keeping in view the stipulated time limit of 48 hours for ultimate disposal of the generated bio-medical waste, the Canister henceforth will be supplied in sizes of 2.5 L and 5 L and the compactor has been attached with the 'Needle



Blaster' to ensure that the canister is compacted before disposed as per approval and provision made for made with regard to the additional provision for conducting the validation test for ensuring proper treatment. Regarding provision for calibration of temperature, and cost aspects of the equipment, the proponent clarified that present cost includes import duty etc and the equipment cost will come down once it is manufactured in India and also necessary provision will be made regarding calibration.

**d) Draft Guidelines for Environmentally Sound Management of Mercury Waste Generated from HCFs:**

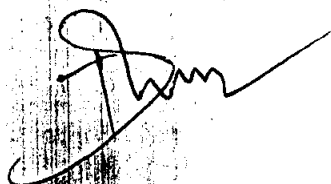
Shri J Chandra Babu, Scientist 'C' informed that preliminary draft guidelines prepared by CPCB were circulated to all the members, SPCBs/PCCs and other Expert Institutions in August, 2010 seeking comments/views by September, 2010. The comments received were incorporated and the final draft circulated to the members in the last meeting as well as again today. He requested the members to provide comments if any within a *weeks time*. The Chairman, Committee opined that considering the environmental impacts of mercury bearing waste, there is a need for gradual phasing out of the mercury based medical instruments in HCFs and alternates to the mercury based dental amalgams should be encouraged.

**e) Miscellaneous issues: Letter from 'Principal Secretary, Forest & Environment Department, Government of Gujarat for inclusion of waste category 07 in the provisional granted to the 'Plasma Pyrolysis Technology':**

The letter received from 'The Principal Secretary, Forest & Environment Department, Government of Gujarat' and the subject of granting approval to the 'Plasma Technology' was deliberated at length for waste category no.07, however, no consensus could be reached. Therefore, the matter be deferred at present. This may be discussed again.

**5.0 Discussions & Recommendation:**

Before taking any decision on the proposals, the Chairman Committee sought views of Dr. M. Subba Rao, Director, MoEF. Dr. Subba Rao opined that the existing provisions of the Bio-medical Waste (Management & Handling) Rules, 1998 and amendments made thereof, clearly specify technological options to be followed depending upon the category of bio-medical waste listed under schedule I of the BMW Rules. However, keeping in view the toxic emissions that may emanate from the conventional incineration technologies, there is a need to move towards the non-burn technologies. As such technologies use mixed kind of bio-medical waste their adoption requires amendment to the existing BMW Rules and the draft BMW Rules are



going to be notified shortly, committee may suggest for adoption of the non-burnt technologies so that necessary provisions can be made.

*Upon considering pros and cons of the proposals received with regard to the technologies for treatment of bio-medical waste, in light of the existing provisions of the Bio-medical Waste (Management & Handling) Rules, 1998, recommendations of the Committee are as follow:*

- a) **PIWS -3000:** Weighing the environmental benefits of non-burn technology, the members agreed in principle for setting up such a facility in the Country. However the said technology warrants deviations from prevailing BMW Rules w.r.t. segregation, treatment and disposal. In Schedule-I of the BMW Rules, states the options for disposal of waste (Incineration, microwaving, chemical disinfection, deep burial etc.) which are the technologies that were available during formulation of the notification. However, in the rules provision exists for occupier/operator to set-up state of the art technology and approach Central Pollution Control Board to get the standards laid down, which is possible only if such facility is set up in the Country. Therefore, the committee recommended to consider grant of provisional approval to the shredding cum chemical disinfection (with coldster) technology only **for a trial period of one year**. However, the waste shall be collected and segregated as per the existing provisions of the BMW Rules.
- b) **AMB, Belgium's Ecosteryl 125/250 Microwave Technology:** As the representative of M/s S.S. Medical Systems (India) Pvt. Ltd., did not cover all the aspects in their presentation as communicated vide CPCB letter dated 28.06.2011, it was decided that the proponent be asked to clarify /provide information on (i) Country wise details of waste treated by AMB technology; (ii) Discharge standards specified for the above said technology (for Air Emissions etc.) in Countries where the technology is working; (iii) Cost of equipment (Capacity wise), Treatment Cost and (iv) Environmental impacts due to the disposal of treated bio-medical waste.
- c) **Sharp Blaster:** The 'Needle Blaster' technology may be approved only for the waste category 04., waste sharp as listed under schedule I of the BMW Rules subject to the condition that (i) the proponent should try to make available the equipment including the canister cheaper (ii) Lid used for the canister should be of minimum thickness possible and free from PVC and it should be made of Poly propylene only; (iii) The steel sheet used for manufacture of the 'canister' should be free from 'manganese' and other toxic constituents; (iv) The label should provide all the details such as batch number, temperature maintained during the treatment process, duration of sterilization, date of treatment; (v) The equipment shall be encouraged for its use only for treatment of the waste sharps excluding glass; (vi) The equipment shall be used extensively in the immunization program and remote areas where access to equipment for treatment of waste sharps does not exist; (vii) The operator shall make provision for calibration of the equipment.



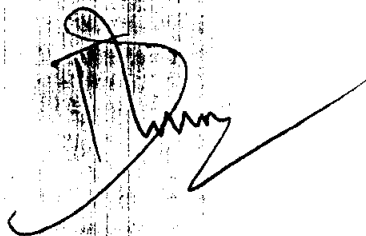
especially with regard to the temperature to ensure proper treatment (viii) Strip test as prescribed under BMW Rules should be adopted while treating the every canister (ix) Additional conditions shall be included appropriately if required by the CPCB in light of the BMW Rules while granting the approval by CPCB.

d) **Guidelines for Environmentally sound management of Mercury Waste in HCFs:**  
It was recommended that additional comments /views if any on the draft guidelines will be provided by the members **within a week**. It was also agreed that aspects relating to the need for phasing out of the mercury based medical instruments in Health Care Facilities should also be included while finalizing the afore said guidelines.

The other agenda items i) CO<sub>2</sub> correction requirements for stack emission of Bio-medical Waste Incinerators and review of the existing standards for bio-medical waste incinerators; ii) Non-burn technologies for treatment of Bio-medical Waste; iii) Consideration of dental chair equivalent to bed etc. could not be taken up due to paucity of time and hence the committee decided that all such issues including the Draft Bio-medical Waste ( M & H) Rules which is expected to be notified shortly by MoEF, will be discussed in the next meeting.

The meeting ended with vote of thanks to & from the Chair.

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A handwritten signature in black ink, appearing to be 'T. D. Singh', with a long horizontal flourish extending to the right.

## List of Participants

S.No.	Name of the Member/Official/Participant
1.	Dr. T.K. Joshi, Chairman, Expert Committee & Director, Moulana Azad Medical College Delhi.
2.	Shri J. S. Kamyotra, Member Secretary, CPCB, Delhi
3.	Dr. M. Subba Rao, Member & Director, HSMD, MoEF, New Delhi
4.	Dr. Anil Kumar, Member & CMO, Directorate General of Health Services, MoH & FW, New Delhi
5.	Dr. D.K. Sharma, Special Invitee and Medical Superintendent, A.I.I.M.S, New Delhi
6.	Prof. (Dr.) B.K. Das, Member & Professor, SCB Medical College & Hospital, Cuttack
6.	Ms. Anu Agarwal, Program Co-ordinator, Toxic Link, Delhi
7.	Lt. Colonel V.S. Grewal, Special Invitee and Jt Director (Health) DGAFMS, Ministry of Defence
8.	Sh. Chetan A Sawant, Special Invitee and JSO, MPCB, Mumbai
9.	Sh. P.K. Handa, Director, Trade International
10.	Sh. Timothy P. Spench, Trade International
11.	Sh. Rajan Handa, M/s Trade International
12.	Sh. Ujjwal Handa, M/s Trade International
13.	Sh. Ram Niwas, M/s Trade International
14.	Ms. Surya Srivastava, Manager, M/s S/S Medical Systems (I) Pvt. Ltd.
15.	Sh. Biswanath Chatterjee, G.M., M/s S/S Medical Systems (I) Pvt. Ltd.
16.	Sh. Alok Mathur, GM, M/s Safe Environmental Solutions Ltd
17.	Sh. Gautam Rana, M/s Safe Environmental Solutions Ltd.
18.	Sh. B. Vinod Babu, Sc.'D' & I/c HWMD, CPCB, Delhi
19.	Sh. J Chandra Babu, Sc.'C', HWMD, CPCB, Delhi
20.	Sh. R N Pankaj, Sc. 'B', HWMD, CPCB, Delhi
21.	Ms. Youthika, Sc. 'B', HWMD, CPCB, Delhi

