

**REGISTERED-POST**

F.No. B-31011 (BMW) /30/93/HWMD/  
To

October 16, 2012

396-398

Mr. P.K.Handa,  
M/s. Trade International,  
C-8, 2<sup>nd</sup> Floor, East of Kailash,  
New Delhi - 110 065.

**Sub: Provisional approval for adoption of the technology based on the shredding & chemical disinfection namely 'PIWS 3000 (Static/Mobile)' for treatment of bio-medical waste as per Bio-medical Waste (Management & Handling) Rules, 1998 as amended - reg.**

Sir,

This has reference to the letter nos. Nil dated 22/08/2011 & dated 30/08/2011 earlier references on the above-mentioned subject wherein you have sought approval of the technology based on the shredding & chemical disinfection namely 'PIWS 3000 (Static/Mobile)' for treatment of bio-medical waste.

Considering the environmental benefits of the non-burn technology and the clarifications provided to the queries raised by the members in the 12<sup>th</sup> meeting of the Expert Committee on 'Bio-medical Waste Management', held at 'CPCB, Delhi' on 07/07/2011, a provisional approval to adopt the technology based on the shredding & chemical disinfection namely 'PIWS 3000 (Static/Mobile)' for treatment of bio-medical waste categories 01, 02, 03, 04, 06 & 07 listed under the Bio-medical Waste ( Management & Handling) Rules, 1998, as amended is hereby accorded *for a trial period of one year* subject to the conditions enclosed at Annexure-I along with this provisional approval.

The compliance of the conditions stipulated in this approval shall be ensured.

This issues with the approval of the Competent Authority, Central Board.

Yours faithfully,



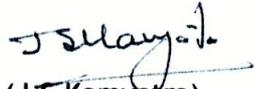
(J.S.Kamyotra)  
Member Secretary

Encl.: As above

Contd..2/-

Copy to:

- (1) Joint Secretary, HSM Division : for kind information please  
Ministry of Environment & Forests,  
Paryavaran Bhawan, C.G.O. Complex, Lodhi Road,  
New Delhi - 110 003
- (2) Dr. T.K. Joshi : for kind information please.  
**(Chairman, Expert Committee)**  
Director, Deptt. of Occupational Environment & Health  
B.L. Taneja Block, Ground Floor  
Maulana Azad Medical College  
New Delhi - 110 002
- (3) PS to CCB : for kind information of 'CCB' please

  
(J.S. Kamyotra)



Conditions for adoption of technology based on 'shredding cum- chemical disinfection' namely 'Positive Impact Waste Solution (PIWS -3000)- Static/Mobile', as technological option for treatment of bio-medical waste :

A provisional approval for a trial period of one year, for installation, operation and assessment of non-burn treatment technology "Positive Impact Waste Solution (PIWS -3000 ) (Static/Mobile)" System using shredding cum chemical disinfection (using dry chemical namely "coldster") dry process, for waste categories 01, 02, 03, 04, 06 & 07 as listed under the Bio-medical Waste (Management & Handling) Rules, 1998 as amended is accorded subject to the following conditions:

- 1) **Authorisation under the BMW Rules:** Any HCFs/CBWTF proposes to use this technology for 'Fixed (Static) or mobile Unit' has to obtain authorization for a trial period of one year under the Bio-medical Waste (Management & Handling) Rules, 1998 as amended, from the respective SPCB/PCC prior to its use and the bio-medical waste categories permitted for treatment shall be handled strictly in accordance with the BMW (M &H) Rules.
- 2) **Type and permitted capacity of the PIWS-3000 system:** The equipment namely "Positive Impact Waste Solution (PIWS -3000) shall be mobile or static and may be *installed and operated for a trial period of one year* from the date of issue.
- 3) **Permitted categories of bio-medical waste:** PIWS-3000 system is permitted for treatment of bio-medical waste categories i.e. 'Human Anatomical Waste', 'Animal Waste', Microbiology & Bio-technology wastes', Waste sharps, Soiled Waste & Solid Waste) except waste categories 05, 08, 09 & 10 as listed under Schedule I of the Bio-medical Waste (Management & Handling) Rules, 1998 as amended. Only waste segregated at source of generation as per said Rules shall be permitted to be treated using the PIWS-3000 system.
- 4) **Efficiency of the PIWS-3000 System:** The system should completely & consistently kill/inactivate 100% of the bacteria and other pathogenic organisms that is ensured by approved biological indicator at the maximum design capacity of the system.
- 5) **Operating Conditions:** The operation of the PIWS-3000 technology must be in accordance with the operational maintenance, monitoring, training and safety criteria described in the PIWS-3000 operational manual (Appendix-A), which include general information, efficacy testing results etc.
  - i). The dry chemical powder called 'Coldster' used in the system for disinfection of the bio-medical waste shall be made available at cheaper rate or manufactured in India by M/s Trade International or any other authorised chemical manufacturer .
  - ii) **Chemical composition:** Calcium oxide and other inerts in Cold-ster should not be more than 86.8 % and 13.2 % respectively. The chemical composition of the cold-ster prior to its use in India be got analysed through any laboratory recognized under the Environment (Protection) Act, 1986 and records be maintained. The proprietary product 'coldster' must be the only sterilant used in the PIWS 3000 system for treatment of Bio-medical waste.
  - iii). Use of Cold-ster in PIWS-300 system for treatment of permitted categories of bio-medical waste should not be more than 7.5 % or in other words 75 kgs of cold-ster per ton of bio-medical waste.

- iv) Temperature: The Cold-ster chemical used in the PIWS -3000 system should be able to generate /raise the temperature upto 90 to 95 ° C within a period of 150 seconds upon addition/ supply of mist within the PIWS-3000. Only such Cold-ster chemical should be used in the PIWS-3000 system failing which such Cold-ster should not be used under any circumstances in the PIWS-system.
- v) p H requirement: The Cold-ster chemical used in the PIWS -3000 system should be able to raise p H between 11-12.5 to have proper disinfection of the waste, prior to its disposal by deep burial or in municipal sanitary landfill.
- vi) Duration of treatment process: Total time period for treatment of bio-medical waste categories using PIWS-3000 system should atleast be 30 minutes.
- vii) Size reduction of waste: The PIWS-3000 system shall ensure to shred the waste into fluff of minimum size of 1" (3.18cm) to 1½" (3.81 cm) range, making it unrecognizable and unusable upon treatment and prior to its disposal
- viii) Mixing requirement: The Cold-Ster in prescribed quantity shall be mixed thoroughly with the shredded medical waste during the processing cycle to ensure strong alkaline environment is maintained and also for adequate coating and penetration of the coldster chemical for effective disinfection of the waste.
- ix) Automatic control and recording system: A PLC shall be attached with the system to ensure operational parameters as mentioned above and an on-board computer shall be used to monitor the entire processing cycle i.e. the time of processing, weight of waste feeding and pH level for permanent and regulatory records;
  - (a) After the waste for loading is weighed and accepted the computer automatically should calculate the amount of Cold-Ster, the dry chemical that is required to treat the medical waste to be processed.
  - (b) The waste processing cycle should be completely automated with no manual intervention as far as possible
  - (c) A pH monitor shall be part of the PIWS-3000 system to provide continuous monitoring of the pH level of the treated medical waste through computer for regulatory reporting purposes.
  - (d) pH probe should be cleaned and calibrated periodically for effective operation of the PIWS-3000
- (6) Validation test: The microbiological efficacy testing of the system for treated waste should conform to equal to or greater than 6 log<sub>10</sub> inactivation of Bacillus subtilis (atrophaeus) spores for inactivation of bio-medical waste under conditions of testing using normal operating parameters. The spore test shall be conducted once a week and records maintained to assess the efficacy of the system.
- (7) Treated waste disposal: Treated waste using PIWS-3000 shall be permitted to dispose off in municipal sanitary landfill in consultation with SPCB/PCC subject to the following conditions:
  - i). The treated waste complying with the validation test and not having any harmful residual chemicals or infected particles left in the waste as a result of treatment of bio-medical waste with Coldster & after it goes through its activation cycle, and become an inert substance.

- ii) The treated waste shall be disposed off in municipal sanitary landfill in consultation with the respective SPCB/PCC.

(8) **Additional conditions:**

- (i) **DG Set provision:** DG Set of 150 KW attached with the PIWS -3000 system should be provided with necessary provision as per DG Set norms notified under the Environment (P) Act, 1986. *Emissions from DG Set should comply with the DG Set norms notified under the Environment (Protection) Act, 1986.*
- (ii) **Safety Measures:** following safety measures are strictly followed
- The PIWS-3000 system should have provision of automatic shut down and alarm system provision.
  - All fire safety provisions shall be a part of the PIWS-3000 system
  - The safety codes with description with regard to operation & handling of PIWS-3000s shall be described in the Operator's Manual.
  - The machine should meet safety criteria established by OSHA and ASTM.
  - Operator safety shall be of prime concern as all grinding and screw auger parts protected from inadvertent access.
  - The chemical i.e cold-ster should be stored in a designated place and the storage area should be provided with material data safety sheet
  - The workers should be provided with personal protective equipments (PPEs) to handle the chemical coldster and the bio-medical waste.
- (iii) Skilled and properly trained workers should only be engaged for operation of the PIWS-3000 system and waste feeding shall be as per the designed capacity of PIWS-3000.
- (iv) The PIWS-300 shall render treated waste unrecognizable, landfill-ready & environmentally friendly and should not produce any air or wastewater emissions or other hazardous by-products.
- (v) The HCF/CBWTF where PIWS-3000 is operated for assessment during the trial period, shall maintain the records pertaining to the waste handled/treated, cold-ster consumption, chemical composition of the coldster, power consumption/fuel consumption. *The emissions ( if any) shall be monitored for 'bio-aerosol' atleast once a month .*
- (vi) Spill chemicals if any shall be used in the PIWS-3000 system
- (vii) PIWS-3000 system should not be used to treat chemotherapy and radioactive wastes.

- (9) A list of all the installations of the above system made in India shall be provided to CPCB by the manufacturer or supplier along with the performance report **once in a month** to verify and assess the performance of the system, by CPCB and to impose additional conditions if necessary. The proponent is required to submit information w.r.to the monitoring data while submitting the application for considering the approval under the BMW Rules **after one year trial period.**