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राजस्थान राज्य प्रदूषण नियंत्रण मण्डल  
**RAJASTHAN STATE POLLUTION CONTROL BOARD**

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**Guidelines for Abatement of Pollution from Scrap Tyre Pyrolysis Plants**

Draft guidelines for abatement of pollution from scrap tyre pyrolysis plants were issued by the State Board by its office order no. F.16 (CM-153)/RPCB/SWMC/3741-3768 dated 11.1.2012. An Expert Committee was later on constituted by the State Board vide its office order No.F16(47)SWMC/RPCB/2052-2071 dt.2.11.2012 to deliberate on the issues related to environmental and safety precaution to be taken by the scrap tyre pyrolysis plants and to suggest guidelines for these plants. Accordingly, the expert committee submitted its report to the State Board on 20.03.2013.

Further, a committee was constituted vide office order no. F.16 (CM-153)/RPCB/SWMC/72-77 dated 9.04.2013 to examine the findings of the expert committee and propose modifications in the draft guidelines. Revised draft guidelines prepared by the committee were placed for feedback and comments of various take holder vide state Board's office order dated 4.06.2013.

In response to the above, a large number of comments/suggestions were received which were duly considered by the State Board and following guidelines for abatement of pollution from scrap tyre pyrolysis plants are issued:

**1. Location and establishment of new units**

- 1.1 That new tyre pyrolysis plant, if permitted in future, will be allowed in the state only in approved industrial areas preferably in industrial areas designated for operation of such type of industries.
- 1.2 That a minimum area for the new tyre pyrolysis plant, if permitted in future, proposed to be set up will be 3000 m<sup>2</sup> looking to area required for storage of raw material, products, by products, plantation etc.

1.3 All the new tyre pyrolysis plants, if permitted in future, proposed to be established in the state shall meet with the area and siting criteria as stated above. Further, such units shall be allowed to become operational only when requisite pollution control arrangements and safety measures as per these guidelines are installed.

Meanwhile, new units shall be allowed to be established in future only after substantial experiential knowledge is gathered based on the implementation of these guidelines by the existing units.

## **2. Pollution Abatement Measures**

2.1 Suitable sensor will be installed to ensure that all gases from the reactor have been evacuated before opening of the reactor for transfer of carbon black/steel wire.

2.2 That the produced carbon black will be conveyed through hydraulic/screw conveyor in closed conditions. The carbon black generated from the manufacturing process can also be conveyed/collected/handled by using any other suitable technology, provided the State Board considers the technology to be appropriate. It will be ensured that all the materials have been completely removed from the reactor for which a glass inspection window with provision of lights (illumination) shall be provided at the outer enclosure of the reactor. The end of the conveyor will be attached to a bagging plant where all the carbon black will be bagged in HDPE bags and the bags will be properly sealed. The bagging plant will be equipped with requisite air pollution control arrangements such as dust extraction system, bag filter to arrest all the carbon particles which may get air borne during bagging process and a vent of minimum height of 11m from the ground level.

2.3 That all the excess uncondensed gases from the reactor will be stored under compressed conditions in a tank of suitable design. The collected gases will be used as a fuel instead of wood during the start up of the reactor. In case of left over excess uncondensed gases, the same will have to be flared in a scientifically designed flaring system at a minimum 30 m height from the ground level. Ideally, no wood/coal will be allowed as fuel in such plants, however, in case of startup, wood/coal may be used in limited quantity. The emissions generated from burning of gases used as fuel will be

released through a stack of minimum 11m height from the ground level or as per the provisions of Emission Regulation Part-IV issued by CPCB whichever is higher.

- 2.4 Oil mixed water may be converted into briquettes in a briquetting plant by mixing the wastewater with sawdust and carbon black in suitable proportions. These briquettes manufactured using the wastewater and carbon black are to be utilized only in processes where temperature is 1000<sup>0</sup>C or more to avoid emissions of obnoxious gases. The wastewater generated from the process can also be treated/recycled by using any other suitable technology, provided the State Board considers the technology to be appropriate. However, in no case the treated or untreated wastewater will be discharged either within or outside the plant premises on land or sewer or stream.
- 2.5 That the units will carry out ambient air quality monitoring at three locations simultaneously within their premises in consultation with the Regional Officer to monitor RSPM, carbon monoxide and methane gases at least once in three months through a recognized laboratory or by the industry. It will be ensured that monitoring shall be carried out only during the period when the plant is in operation.
- 2.6 That all the products will be stored under the covered shed only and will not be stored in open. The storage sheds will have cement concrete floors with a plinth height of minimum 0.5m. Tyres shall be stored in earmarked open area on a raised cement concrete platform with a plinth height of minimum 0.5m. The storage area should not be too close to the reactor.
- 2.7 The industry shall ensure that there are no leakages from the reactor, pipelines etc. Adequate arrangements will also be made for control of fugitive emissions generated from handling of raw materials/products.
- 2.8 That unit will maintain log book of the plant operation, monitoring of the ambient air quality, generation and utilization of wastewater, production and sale of various products and byproducts.

### **3. Proactive measures for safety, housekeeping and curbing public nuisance**

- 3.1 That suitable sensor for gas, temperature and pressure shall be installed inside the reactor to regulate safe operation of the reactor. The sensors will ensure that the evacuation of products in the form of carbon black/steel wire will only start after the

reaction is complete and it is safe to open the reactor for evacuation of the products. In case of any abnormal operating conditions, the plant should automatically stop operating till safe operating conditions are restored. Further, a safety valve will be installed to release any excess pressure built in the reactor. Arrangements for water sprinkling on the reactor will also be installed which will get automatically activated along with activation of pressure release valve. Alternatively, jacketed cooling system may be adopted instead of water sprinkling on the reactor to cool down the reactor in case of emergency.

- 3.2 That sensor for carbon monoxide gas will be installed in the main working area to ensure that carbon monoxide concentration in the working environment does not exceed the prescribed occupational safety and health standards. It will also be coupled with a warning/alarm system so that the plant operator can take adequate steps to rectify the situation.
- 3.3 That safety instruction for safe operation of plant will be displayed at the gate, plant working area and other critical places. Further, adequate training will be imparted to the workers for safe operation of these plants. The unit will prepare safety manual for routine as well as accidental safety, on-site & off site emergency plan and get it approved from the competent authority. A management plan in the case of accident must be duly prepared and the industry will be equipped to take care of the situation for the first aid as well as the follow up action.
- 3.4 The safety measures suggested in the guidelines are indicative only. The project proponent shall be required to get them approved by the competent authority (Not the State Board)
- 3.5 The plants will maintain good housekeeping and will ensure that no raw material, products or byproducts get spilled inside or outside the plant. Proper roads for movement of vehicles inside the plant shall be constructed.
- 3.6 That adequate arrangement for firefighting approved by the competent authority shall be installed.
- 3.7 That copy of certificates obtained from the relevant departments for fire fighting and other safety issues will be submitted to the State Board.

3.8 Green belt shall be developed around the industry in two rows for which the vacant area between the boundary wall and the plant must be used. Sapling used for planting green belt must be minimum 5 ft heights at the time of plantation.

**4. Implementation of pollution abatement and safety measures in the existing tyre pyrolysis plants**

4.1 State Board will allow four months time from the date of publication of the guidelines to implement the above provisions of the guidelines in the existing tyre pyrolysis plants which have been established after due Consent to Establish under the provisions of Water (Prevention and Control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981. However, the units will be required to deposit, within a period of three weeks of publication of these guidelines, a bank guarantee of Rs. 10, 000 per reactor as surety along with an affidavit to install all the aforesaid measures within the period of four months from publication of the guidelines. The time allowed for implementation of the above measures may be extended up to six months on the merits of each case. Action will be initiated for issuance of appropriate directions under section 33A of Water (Prevention and Control of Pollution) Act, 1974 and under section 31A Air (Prevention and Control of Pollution) Act, 1981 against the units which fail to deposit the bank guarantee and affidavit in the prescribed time limit.

4.2 All the units to whom time has been allowed will be required to show substantive progress by way of submission of action taken report to the State Board every two months and the units which fail to show substantive progress in implementation of the above recommendations, action will be initiated for issuance of appropriate directions under section 33A of Water (Prevention and Control of Pollution) Act, 1974 and under section 31A Air (Prevention and Control of Pollution) Act, 1981 and the deposited bank guarantees be forfeited.

4.3 The units should implement all the guidelines at the end of prescribed time period failing which action will be initiated for issuance of appropriate directions under section 33A of Water (Prevention and Control of Pollution) Act, 1974 and under section 31A Air (Prevention and Control of Pollution) Act, 1981 and the bank guarantees deposited by them be forfeited.



The State Board may revise/amend the above guidelines from time to time as and when required depending upon the necessity of enforcement and/or progress of science and technology.



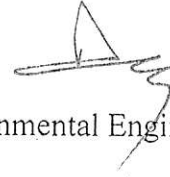
Member Secretary

F.16 (CM-153) RPCB/SWMC/Alwar/ 1422-1439

Dated 2/9/13

Copy to the following for information & necessary action-

01. P.S.to Chairperson, RSPCB, Jaipur
02. Sr.P.A.to Member Secretary, RSPCB Jaipur
03. Patron Pyrolysis Plant Owner's Welfare Society, 41X,Nityanand Nagar B,Gandhi Path, Queens Road, Jaipur.
04. Chief Scientific Officer, RSPCB,Jaipur
05. CEE, (Plg)RSPCB,Jaipur
06. The Regional Officer, RSPCB, Alwar, Balotra, Bhilwara, Bharatpur, Bikaner, Chittorgarh, Jaipur, Jodhpur, Kishangarh, Kota, Pali, Sikar and Udaipur.
07. ACP, RPCB to display the guidelines on the State Board's website.



Sr. Environmental Engineer (SWMC)