**REVIEW PAPER 01**

**TITLE**

**Removal of VOCs by activated carbon microspheres derived from polymer: a comparative study.**

**OVERVIEW**

Qian and his team used Vinylidene chloride and styrene based Activated carbon Microsphere (ACM) to remove halomethanes (CH2Cl2, CHCl3, CCl4 & CH3I) which considered harmful to human health. To analyse the adsorption potential of ACM numerous adsorption tests were conducted at different temperatures, feed concentration and gas velocities. In comparison to this, commercially available Activated carbon (prepared from coconut shell) was also tested using same conditions. Results concluded that ACM has more adsorption potential, good adaptability and easy re cyclability than commercially available AC.

**MATERIALS AND METHODS**

Activated carbon microspheres (ACM) having surface area 1104 m2g-1 with pore diameter 1.79 nm and volume 0.448 cm3g-1 is used as adsorbent in this study. It is prepared by using carbonization and steam activation technique. In comparison, commercially available activated carbon is tested under same conditions.

Absorbates used are halomethanes (CH2Cl2, CHCl3, CCl4 & CH3I), crux of this paper is CH3I because of its most harmful nature.

**RESULTS AND DISCUSSION**

Adsorption tests reveal that adsorption capacity of ACM is higher than AC, results vary by applying different conditions. ACM also shows exciting results on regeneration.

**CONCLUSION**

ACM Proved to be highly efficient in removing halomethanes form gases. They remain stable at different feed content and gas velocities. The saturated ACM can be easily regenerated and maintain the same adsorption performance as the new adsorbent. In a word, the ACM has large adsorption capacity, good adaptability, and easy recyclability, which renders high potential and cost-effectiveness for commercial utilization.