

## A review on activated carbon: process, application and prospects

### ABSTRACT

Activated carbon (AC) is used in different states of applications after its discovery as a strong and reliable adsorbent. An overview on AC is presented together with revisiting the sources of AC generation; methods used to generate AC comprising of pyrolysis activation; physical activation; chemical activation and steam pyrolysis. The important factors affecting the AC production, the possible applications of AC and their future prospects are also discussed. AC is applied in water, wastewater and leachate treatments in many countries, especially to polish the color, remove the odor and some heavy metals. It is cheap and available, and can be produced from agricultural waste materials, e.g. rice husk, palm oil shell and coconut shell. The AC's fine and porous structure and an extremely large particle surface area ( $>1000 \text{ m}^2/\text{g}$ ) results in making it possessed powerful adsorptive properties. Therefore, the adsorption process using AC is found to be a potentially viable method of removing pollutants from aqueous solutions.

**Keyword:** Activated carbon; Pyrolysis; Adsorbent; Activation; Surface area

