

### The Role of 2.45GHz Microwave on the Recovery of Activated Carbon

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Activated carbon is used on the process of adsorption to remove harmful gases, liquids and solids, such as volatile organic compounds, SO<sub>x</sub>, NO<sub>x</sub> and suspended materials. Activated carbon saturated with adsorbents, must be regenerated for reusing on the same process, instead of burning or burying out. This method induced microwave is a energy saving process rather than any processes of PSA(Pressure Swing Adsorption) and TSA (Temperature Swing Adsorption). The temperature to regenerate activated carbon is about 850°C in traditional method such as rotary kiln, but in the microwave process, the molecules adsorbed in activated carbon are removed from carbon porosities in the bed temperature of 250°C only. Also, the Microwave energy can change the molecules adsorbed in activated carbon into the other materials. Specially, it change the heavy organic compounds into lower hydrocarbon molecules, combined gas(CO+H<sub>2</sub>), or CO<sub>2</sub>+H<sub>2</sub>O. Surface area of the A/C regenerated by microwave, was the same as raw activated carbon, and it could be used on the adsorption process again.