



Activated carbon adsorption and desorption
system integrated equipment
活性炭吸脫附系統一體化設備
設計及操作原理

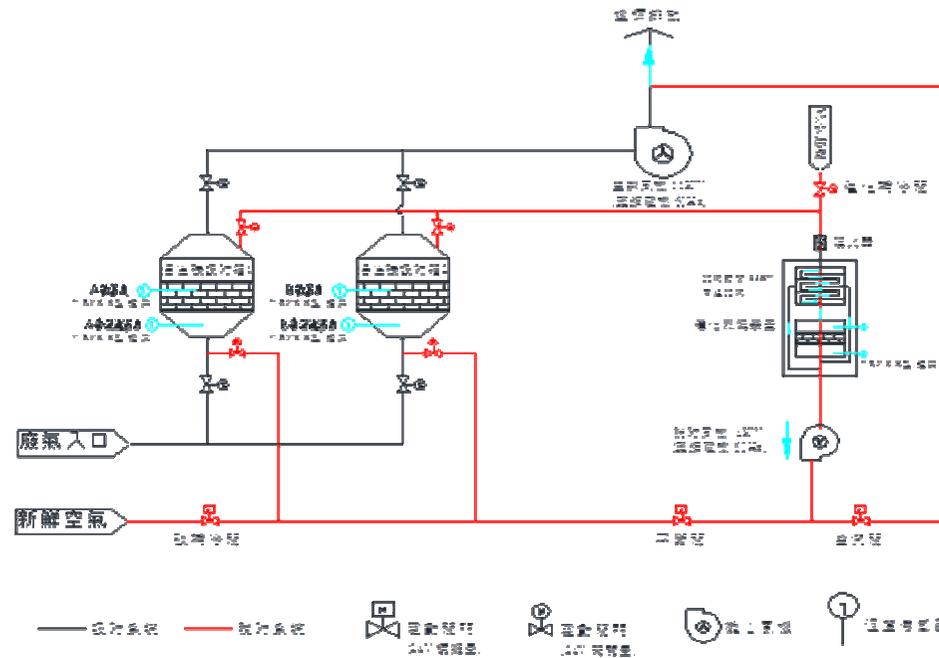
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Outline

- ▶ 1. Instruction
- ▶ 2. Preface
- ▶ 3. content
- ▶ 4. conclusion

1. Introduced “Activated carbon adsorption and desorption system integrated equipment”

a. Activated carbon adsorption and desorption treatment system



2. Activated carbon adsorption and desorption principle

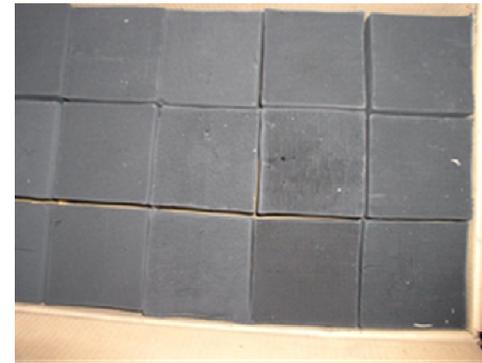
- ▶ The industry uses a large amount of activated carbon to treat waste water and waste gas. Only the characteristics of activated carbon are explained as follows. 工業界為處理廢水、廢氣均大量使用活性碳，僅將活性碳的特性說明如下：

Activated carbon

a. Old type



b. new type



However, the activated carbon used in the factory, because of the high concentration of VOC adsorption, the activated carbon will soon be saturated, lose its efficiency, and need to be replaced. The replacement frequency of activated carbon is high and the cost is also high.

3. New type Activated carbon (Honeycomb)



Honeycomb Activated Carbon

- Superior dynamic performance
- Low air flow pressure drop
- Thermally regenerative
- Water-resistant and Non Water-resistant
- CPSI 25/50/100/150/200 Available
- Patented product (Applied)
- Suitable as a carrier for catalyst and impregnation materials

APPLICATION

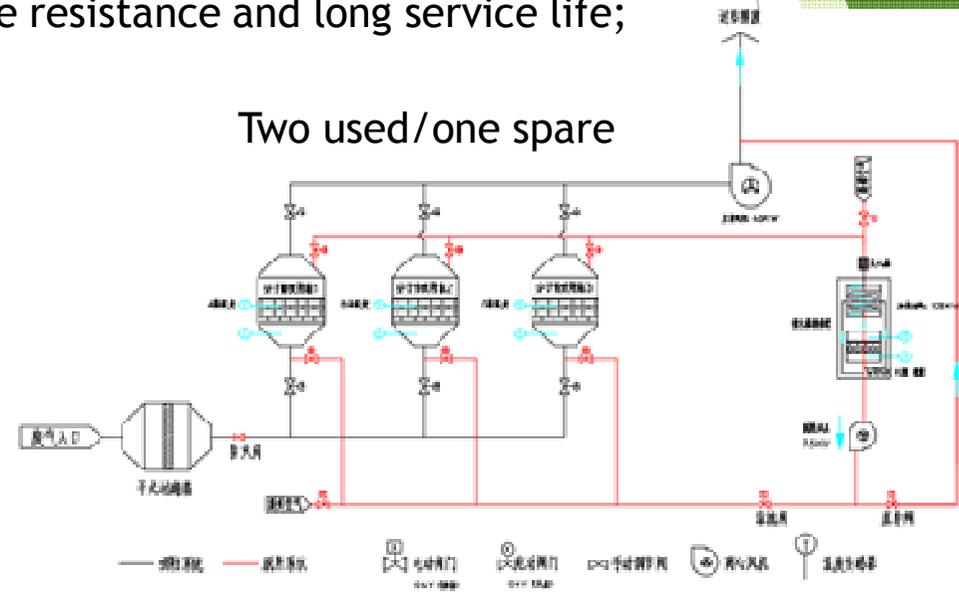
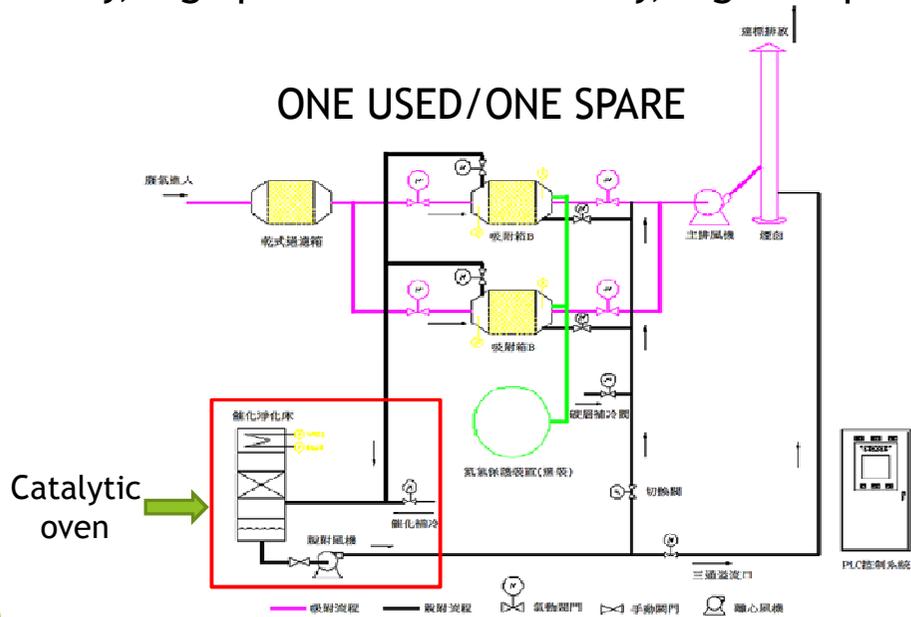
- The honeycomb activated carbon is mainly used for air and water purification.
- It has wide applications in many fields, such as chemical industry, light industry, pharmaceutical industry, environmental protection, food industry and military industry.
- It can be used as catalyst or catalyst carrier, and for gas separation and purification organic solvent recovery, desulfurization of gas or flue gas, waste water treatment, drinking water purification decolorization, odor and taste removal as well as purification and refinement.

b. Processing flow

- ▶ (1) Pretreatment process
 - ▶ The exhaust gas from the production plant first enters the dry filter through the action of the exhaust fan, using glass fiber. When the filter cotton becomes clogged, it needs to be replaced in time.
- ▶ (2) Adsorption process
 - ▶ The pre-treated organic waste gas passes through the activated carbon adsorption layer through the action of the main exhaust fan, and the organic matter is trapped inside, and clean gas is discharged.
- ▶ (3) Desorption process
 - ▶ When the activated carbon adsorption bed is saturated, close the adsorption system, start the desorption system, and start the desorption air.
 - ▶ The machine desorbs the activated carbon adsorption bed. The desorbed gas first passes through the heat exchanger in the catalytic bed, and then enters the preheater into the catalytic bed, under the action of the electric heater, increases the gas temperature to about 300°C, and then
 - ▶ Through the catalyst, the organic matter burns under the action of the catalyst and is decomposed into CO₂ and H₂O.
 - ▶ Note: The activated carbon adsorption tank is a single tank for alternate desorption, and the single tank desorption time is 3 to 4 hours.

4. Desorption system

The desorbed organic gas is treated by a typical gas-solid phase catalytic reaction. In the presence of a special catalyst and at the same time in an environment of 250°C ~ 300°C, the polymer organic matter will undergo a chain scission reaction to generate carbon dioxide and water with oxygen. , So as to achieve the removal of harmful substances in the exhaust gas. The catalyst honeycomb ceramic is used as the carrier, and the precious metals platinum and palladium are impregnated, which have the characteristics of high activity, high purification efficiency, high temperature resistance and long service life;



4.conclusion

Physical photo of VOC exhaust gas treatment equipment



Examples:1.The industry uses a large amount of activated carbon to treat waste(voc) gas.(Exist scrubber Treatment System)



Used water and Activated carbon systems





Example 2.old type Activated carbon adsorption



4.conclusion

- ▶ 1.Old type Activated carbon will be replaced on 30 days(based on 500ppm VOC exhausted gas) , and cost $10T \times 100,000NTD = 1000,000NTD (33,333USD)$
- 2. Activated carbon adsorption and desorption system integrated equipment:
Based on 500ppm VOC exhausted gas,24Hours /day, Activated carbon can be regenerated use to 365 days.
- * compare two different types Activated carbon adsorption and desorption system:
 - OUR NEW Activated carbon adsorption and desorption system integrated equipment WILL BE BETTER IN The industry using for coming future ◦
 - * A. Activated carbon automatic desorption life extension B. Easy operate and replacement C. For the owner Save the money ◦ *