台北科技大學能源與冷凍空調工程系
Department of Energy and Refrigerating Air-Conditioning Engineering

Low Temperature Vacuum Process and Diagnosis Laboratory

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Laboratory Introduction:

At present, the research scope is: process diagnosis can provide important information for the setting and control of manufacturing parameters, the change of material properties, the yield of finished products and energy consumption, but appropriate sensors and systems can make the detection process go smoothly.

Diagnosis of Lyophilization or Freeze Drying Process:

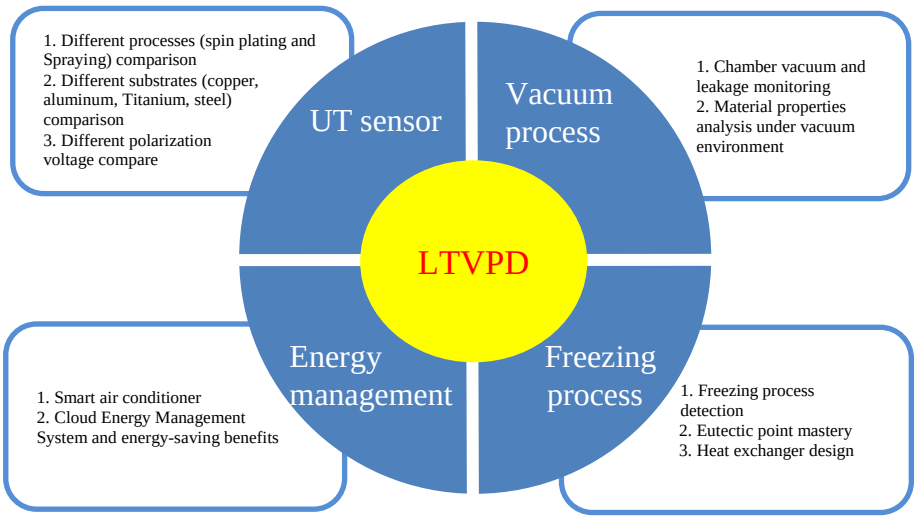
Lyophilization or freeze drying has the most stable preservation effect on biomedical, pharmaceutical, food and other products, and is widely used in related industries. However, the mastery of eutectic point and ice crystal particle size will affect the quality of products; The deployment of intelligent sensors is the basis of the Internet of things. The information of the case field is transmitted back to the cloud through the network. It becomes available information through cloud computing and big data analysis. It can optimize air conditioning and energy management and realize intelligent life and manufacturing.

Internet of Things (IoT) and Intelligent Energy Management for Low-Temperature Vacuum Equipment:

The deployment of intelligent sensors is the foundation of the Industrial Internet of Things (IIoT). We transmit the detection information from low-temperature vacuum fields and machines back to the cloud in real time through the network, and transform it into specific decision-making information through cloud computing and big data analysis. This can not only ensure process stability, but also further optimize the air conditioning and energy management of the plant, realizing the goals of intelligent manufacturing and sustainable production.

Main research project:

1. Freezing process detection and design.
2. Smart air-conditioning, cloud energy management.



Relevance of research projects