

COMBUSTION WEBINAR

Thermal Runaway Mechanism of Lithium Ion Battery and Its Fire Prevention Technology

Speaker: Prof. Qingsong Wang, University of Science
and Technology of China

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Biography: Qingsong Wang, professor of the University of Science and Technology of China, fellow of the Royal Society of Chemistry, and fellow of the Institution of Engineering and Technology. Mainly engaged in thermal runaway mechanism, fire risk and fire prevention of lithium ion battery. He has chaired more than 30 projects. He published more than 200 papers, such as in *Progress in Energy and Combustion Science*, and *Advanced Energy Materials*, etc., which was cited more than 12000 times (Google). He has won the LPPSTA Mannan Award, the first prize of Science and Technology Innovation Award (RI) of China Public Safety Science and Technology Society and China Fire Protection Association, and the Hou Debang Chemical Science and Technology Innovation Award. He serves as guest editors of *Process Safety and Environmental Protection*, *eTransportation*, etc.

Abstract: Nowadays, the demand for rechargeable lithium-ion batteries (LIBs) is constantly increasing in a variety of mobile and stationary applications, such as electro-chemical energy storage station, tablet computers, as well as hybrid electric vehicles (HEV) and battery electric vehicles (BEV). Due to this large demand, optimization of the LIBs in terms of energy density, high power ability, lifetime, and fast charging is needed. Besides these challenges, safety has attracted attention due to cases of fire and explosion accidents in the last two decades. Starting from the fire phenomenon, the report introduced the heat generation behavior, the mechanisms of thermal runaway triggering and propagation, and the fire dynamic. In addition, the corresponding fire prevention for lithium-ion batteries thermal runaway was further proposed based on the theory of fire protection.

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