

Research on the Safety Production Risk Monitoring and Early Warning System for Dust Explosion Related Enterprises in the Industry and Trade Industry

Xiaoyu Wu, Weixi Hu & Youbang Yue

Wuhan Safety and Environmental Protection Research Institute (SEPRI)

Corresponding Author: Youbang Yue; Bang301@163.com

ABSTRACT

Objective: Objective: Safety production risk monitoring and early warning system for dust explosion related enterprises in industry and trade. Safety risk monitoring and early warning system for explosive dust enterprises. **Method:** By comprehensively utilizing technology such as the Internet of Things, big data, and cloud computing, high standards are implemented for hardware deployment, software development, and comprehensive integration to achieve real-time monitoring, collection, analysis, and processing of 14 monitoring indicators such as spark detection and alarm, fan start and stop, explosion relief, and explosion-proof in the dust removal system. The data is uploaded to the cloud platform, enabling operators to remotely access data and provide intelligent warning for the dust removal system. **Findings:** Establish an intelligent dust monitoring and warning system, with the goal of effectively preventing major safety risks related to dust explosions in enterprises. **Conclusion:** By establishing a safety production risk monitoring and warning system for industrial and trade enterprises involved in dust explosion, integrating artificial intelligence and expert intelligence, mining the connotation of data, meeting the requirements of dual prevention mechanisms, enhancing dynamic assessment and control of risks, digital twinning, large screen display, more vivid and readable data, faster perception, smarter analysis, more advanced warning, more accurate judgment, more efficient emergency response, and reduced accident frequency, To curb the occurrence of major accidents.

Keywords: Dust Explosion, Safety Risk Monitoring, Risk Evaluation
