

A Fault Detection Strategy for Chemical Plant with Process Sensor Data Analysis

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Widely used maintenance strategy of chemical process is manual maintenance. However, since frequency of manual maintenance is decided without real time observation, it is not economically optimal method and can not handle the process faults immediately. In recently, Chemical Process has a large number of sensor to obtain the real time sensor data for monitoring the process statement. However, because a chemical process is sparse and each equipment is correlated, such fault that has no significant different on observed data can be caused. In this work, a fault detection strategy that can detect a symptomless fault is proposed by analyzing the obtained sensor data for real chemical plant with principle component analysis (PCA). As the result, the symptomless faults were converted with different magnitudes, and the cause of fault can be found by the magnitudes. Therefore, accurate and immediate maintenance is available for complicated chemical process by observing the process sensor data. This research was supported by 'Development of sensor-based virtual plant engineering technology for the support of plant O&M', funded by the Ministry of Trade, Industry & Energy(10048341).