How to Prevent Devices from Fluid Corrosion

Heat transfer fluid is a heat transfer medium which can gain high temperature under almost normal pressure. Based on its excellent thermal efficiency and wide range of operation temperature, heat transfer fluid has been used in various chemical industrial productions. But accidents continuously occur in some end users. According to the statistics, the chief culprits of fluid system fire/explosion are tube burst and fluid leakage. It is essential to know about the corrosion of fluid to improve the operation safety.

Heat transfer fluid is usually composed of alkanes, cycloalkanes, aromatic hydrocarbons and some other organic compounds. These compounds have very little corrosion to the steel devices theoretically. But fluid degradation and oxidization occur during the operation generating corrosive substances.

Without nitrogen sealing protection, fluid contacts with air in high temperature generating acid materials which have corrosion to the metal devices. These acid materials further promote fluid polymerization reaction, leading to fluid viscosity increase, thermal efficiency decrease and fluid coking, which will cause safety accidents. Based on the condition of burst tubes, corrosive perforation phenomena and thick coking tier occur caused by fluid oxidization. So, avoiding fluid oxidization is the foundation to solve corrosion problem.

Tips for avoiding fluid corrosion to system tubes, recommended by Schultz Expert:

1. Avoid fluid direct contacting with air under the protection of nitrogen or other inert gas sealing.
2. Strictly dehydrate and remove light substances to avoid water, low boiling point substances and other impurities contaminating the fluid.
3. Guarantee the fluid flow velocity in tube to avoid insufficient fluid quantity causing tube overheating and accelerating fluid degradation.
4. Regular sample and test online fluid to detect fluid quality and take measures based on the test report.