

The Specialist – “sharing through experience”

Machines Vessels Piping Materials Fired Equipment Civil Structural Inspection Electrical Instrument Control Process Safety Projects

Package Plant – are you in for a surprise

“We assumed that the manufacturer had designed this safely”

Unfortunately this isn't always the case. Manufacturers may not have supplied their equipment for your application or to standards that you would expect in your industry. With package equipment all sorts of issues can be hidden such as incorrect specification and non-compliance to local legislation, and with cost demands on project resource it's quite easy to treat packaged plant as a “black box” and assume that the hazards have been managed correctly, but it's an assumption you cannot afford to take.

A recent incident with a packaged Carbon Dioxide Recovery System resulted in a fire within an activated carbon filter. Luckily the fire was observed before it could escalate. The fire did however result in irreparable damage to the vessel, which led to considerable downtime and the loss of thousands of pounds in unrecovered carbon dioxide.

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Fire within an activated carbon filter – cost of thousands and loss of confidence!!

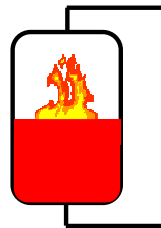
“Are you fully aware of the hazards on all your plant?”

Background

- Activated carbon filter used to adsorb aldehydes and ketones in the carbon dioxide stream
- Activated carbon beds regenerated using hot air
- A Power Supply failure occurred during regeneration
- This led to a fire destroying the unit resulting in thousands of pounds lost due to repair and unavailability of the package.

Investigation

- Likely cause was oxidation of organic materials raising the bed temperature until combustion of the carbon bed took place
- System was not inherently safe. Hot air was used for regeneration and control of the bed temperature
- No hazard study had been carried out
- Purchaser relied upon Manufacturer's expertise.



Key Elements

1. The Manufacturer failed to follow the principles of inherent safety in the design of the package
2. Incidents like this highlight the operators responsibility under PUWER to carry out hazard assessments.
3. The manufacturer also has a responsibility under other legislation e.g. PED, ATEX to carry out a hazard assessment. Was this done, was it applicable?
4. Ensuring all hazards have been identified during the design stage is particularly important for package equipment
5. Ensure you are aware of the specific hazards of package equipment, in this case activated carbon filters, if not, find somebody who is!
6. Don't assume – be SURE!

Assume can make an “ASS of U and ME”

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