

Flame Arrester Maintenance Guide



Protecting People, Property and our Planet

The Chemical Safety Board (CSB) Recommends:

Flame arresters require regular inspection and maintenance (cleaning) to maintain functionality. Dirt and small particles collecting in the narrow gaps between the flame arrester plates, insects nesting in the housing, and corrosion can degrade performance.

Guidance on Inspection Intervals

Many issues can be identified easily through simple inspection regimes but all too often flame arresters are not serviced regularly. Elmac recommends:

- A first inspection 3 months following commissioning
- An annual inspection is recommended as a minimum even for "clean" processes
- An inspection if there is any evidence of an explosion

Maintenance Guidelines:

- Check the arrester is correctly installed. In accordance with the flame arrester's operating conditions?
- Ensure that no modifications have been made to the arrester without the manufacturer's written consent.
- Damaged flame arresters must be taken out of operation and repaired or replaced.
- Only the original manufacturer's spares can be used in flame arresters. If obsolete (ie pre-ATEX), the whole unit will need to be replaced.
- Check flame arrester is secure within the pipework and not subject to undue strain.
- Any openings (drain ports) are securely sealed with gas-tight fittings.
- Tighten all fasteners to required torque.
- Make accurate records of work carried out.

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Common Maintenance Considerations Applicable to all Flame Arresters:

- Blockage of element with debris
- Corrosion
- Mechanical damage

Flame Arrester Maintenance on Offshore Oil Rigs

Following discussions with a number of major offshore operators, Elmac has discovered that flame arresters – essential pieces of safety equipment – are often overlooked during planned maintenance and shutdown periods.

Poorly maintained, corroded or damaged flame arresters may not be capable of providing the explosion protection they were designed for. Some of the problems we have seen include:

- Stainless steel offshore flame arresters connected to carbon steel pipes with no insulation kits fitted – this can cause major galvanic corrosion.
- Weather hoods missing from the arrester – the elements can end up badly damaged and slightly removed from the arrester body. If a flame arrester is damaged, its effectiveness to stop a flame will be impaired and it should be replaced.
- Carbon steel flame arresters suffering from heavy corrosion. The element bolting can be fixed tight on the unit indicating that it will be overlooked during planned maintenance regimes.
- Improvised flame arresters fitted to a vent line where the external section of the line heavy with surface scale. It goes without saying that only units approved to the latest standards can be used as flame arresters.



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