

Flange guards – their use and applicability in managing hazardous area zoning

What are flange guards and why are they used?

Pipe safety shields, also known as flange guards, are used in a variety of industries where their primary application is the prevention of harmful spray-outs and mist formation from failing pipe joints. For materials that are only combustible if a mist forms, there is obvious benefit in the use of a flange guard in limiting the extent of a spray and associated mist formation. This raises the question, if a flange guard avoids the spray, is the hazardous zone removed? It is worth noting that this question is not relevant for low flash point liquids which would not require a mist-forming spray to generate a flammable atmosphere.

Can flange guards remove the need for hazardous area zoning?

Although flange guards can significantly reduce the chance and extent of a flammable zone, it is argued that they won't remove the requirement for zoning as they are not fixed measures, and might be defeated for example due to potential failure to replace them following maintenance. There is currently no guidance from the HSE or from industry bodies on the use of flange guards for controlling hazardous area classification requirements. So, we wouldn't suggest their use can result in the removal of zones. Flange guards could however be a good intermediate measure while equipment is being replaced, and are certainly a worthwhile consideration from an ALARP perspective. Rather than totally eliminating the need for hazardous area zoning, the installation of flange guards is believed to lower the frequency at which hazardous zones occur.

If we were to adopt a position where flange guards were used to argue that a hazardous area zone was removed, flange guards would need to be regarded as safety critical equipment with appropriate inspection and maintenance procedures to ensure integrity.

It is unclear whether there needs to be more regulation in terms of functionality testing and maintenance to ensure testing is carried out across the board to a consistent level so that guards are having the intended impact. After all, replacing or installing a flange guard incorrectly could be equivalent to not having it there at all, still allowing spray and mist formation. Development of standards or guidance may be necessary to achieve this. In addition to further regulation on testing, it would seem sensible for there to be standards available for the design of flange guards to ensure they are fit for purpose. Depending on the specific site, substances held and conditions under which they are handled (i.e. temperature and pressure), different flange guard specifications are available to achieve optimum protection.

Are flange guards worth installing?

Although flange guards may not lower the HAC zone of your site or even remove the need for zoning completely, they can still be of benefit from a safety perspective. So long as a compatible design is chosen, the guards are installed correctly and suitable inspection and maintenance procedures are in place, flange guards will be effective in reducing the extent of a hazardous zone. The proven function of flange guards alongside their relatively low cost makes them a worthy investment for any site operating with relevant substances.

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