

Hazarsolve Surge Protector Inspection Criteria

Scope

The purpose of this document is to outline general guidelines for the inspection of Hazarsolve surge protectors at regular intervals.

Recommendations

Hydrochloric Acid/Other Services:

1. The inspection process should start after 5 years of being put in service, and continue every 5 years of service time.
2. When inspecting the surge protector, make sure to remove the entire part from the tank car. The surge protector may be discolored compared to a new part. Blue/green discoloration of the part in HCL service is to be expected.
3. Inspect a two-inch area of the tube beneath the flange for stress cracks. Stress cracks typically form where the flange meets the tube on the underside due to heightened mechanical stresses from general use.
4. If stress cracks are visually present in the inner or outer diameter of the tube, immediate replacement is recommended.
5. It is recommended that the surge protector is replaced every 10 years. A surge protector can be used after the listed recommended life span, at the equipment owner's discretion, if the part is inspected to the above criteria.

Bleach and Bleach-Like Services:

Note: Bleach and bleach-like services include, but are not limited to, bleach (Sodium Hypochlorite), Sodium Chlorite, or other services that use commodities that result in a Chlorine by-product.

1. The inspection process should start after 5 years of being put in service. While most Salco PE parts in these services last much longer than the initial 5 years, instances have been found that parts have had signs of needing to be replaced.
2. When inspecting the surge protector, make sure to remove the entire part from the tank car. Surge protectors may be discolored compared to a new part.
3. Inspect a two-inch area of the tube beneath the flange for stress cracks and chemical attack. Chemical attack will present itself as excessive whitening. Stress cracks typically form where the flange meets the tube on the underside due to heightened mechanical stresses from general use.
4. If stress cracks are visually present in the inner or outer diameter of the tube, immediate replacement is recommended.
5. After the first 5 years of service, it is recommended that the surge protector be checked at a regular interval. Stress cracks enhanced by chemical attack have been noted in some Salco PE parts as early as 6 years of service.

Revision Level	Rev. By	Rev. Date	Rev. Section	Change Made