

FMC Hydrogen Peroxide Filter Policy

It is FMC's policy to avoid filtering Hydrogen Peroxide (H₂O₂) solutions, unless it is absolutely necessary. Filtering removes trace impurities that may be present in the peroxide, and concentrates them on the filter media. These impurities could contain catalytic metals (e.g. Fe, Cu, Ni, Cr, Zn, Mg, Mn, etc.) and/or other incompatible materials, which do not typically pose a safety problem at the trace levels present in the peroxide; however, when these contaminants are concentrated on the filter media, they can potentially initiate a serious peroxide decomposition incident. In fact, there have been several case histories of peroxide filter explosions caused by this contaminant build-up. The hazard risk is significantly increased when the peroxide flow shuts-off, thus allowing the peroxide to remain in extended contact with any contaminants on the filter media. A rapid, adiabatic decomposition of a single gallon of 50% H₂O₂ has the potential to release in excess of 1,200-gals of pure oxygen and steam, along with a significant quantity of heat. In the confined environment of a filter housing, this rapid release of decomposition gases can result in significant pressure build-up and possible explosion.

If it is determined that filtering H₂O₂ is required, FMC Engineering Services (716-879-0494 or 0495) can provide more specific guidelines outlining the engineering and administrative controls needed to ensure the safe operation of H₂O₂ filtering systems. Engineering controls include: Specification of proper materials of construction for the filter element and all other "wetted" H₂O₂ filter components; implementation of temperature & pressure monitoring systems with alarms; and an overpressure protection system (e.g. rupture disk, PRVs, etc.). Administrative controls include: Development of routine operating & maintenance procedures (incl. specification of safe temperature & pressure operating ranges); routine shutdown procedures (incl. draining/flushing/venting provisions); and emergency procedures.

Please call FMC Engineering Services for assistance at (716) 879-0494 / (716) 879-0495 or visit the FMC website at www.fmcchemicals.com for more information