

N395. Decontamination Of Large Metal Objects

Decommissioning a nuclear power station generates large amounts of waste whose disposal costs are very high. Therefore it is of considerable value to decontaminate as many items as possible and free release them using an appropriate process. Proper chemical decontamination can result in free release of most activated metal objects. The radwaste generated can be minimized with proper processing. Recovery of valuable resources is an added economic benefit.

A process that decontaminates metal objects very effectively is called CORPEX. It is based on a new patented molecular structure, a polyacetylhydrazide of an aminopholycarboxylic acid. The large metal objects that may be chemically decontaminated using this process include:

- BWR Low pressure turbine blades
- BWR CRD support housing
- Large bore piping and valves
- PWR Radwaste evaporator
- PWR Main cooling pump impellers
- Uranium foundry extrusion bar cutters and rollers
- Uranium foundry gear boxes, furnace components, and pump housing

The CORPEX process functions by forming coordination compounds with polyvalent metal ions, thereby solubilizing them. An oxidizing agent is used to process radwaste resulting in the destruction of virtually 100% of the organics in the decontamination agent and precipitation of more than 99.8% of the sequestered radioactive metal ions and their oxides and hydroxides. After filtering this precipitate, the filtrate is polished by ion exchange and free released.

For more, "Decontamination of Large Metal Objects," Nuc. Plant Jr., July-August 1995, pp 33-36.