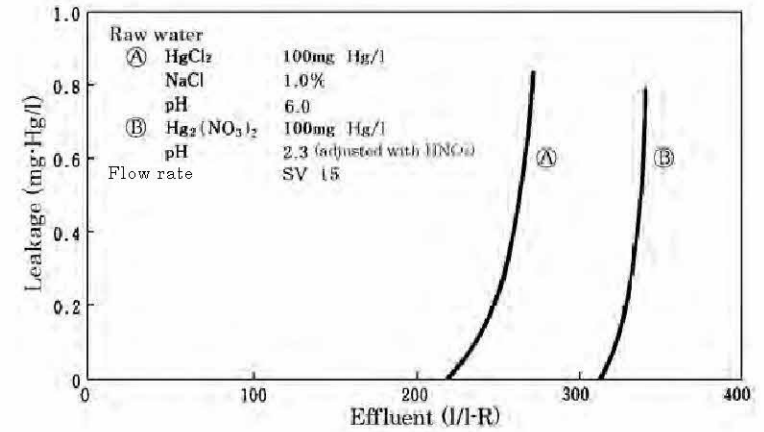


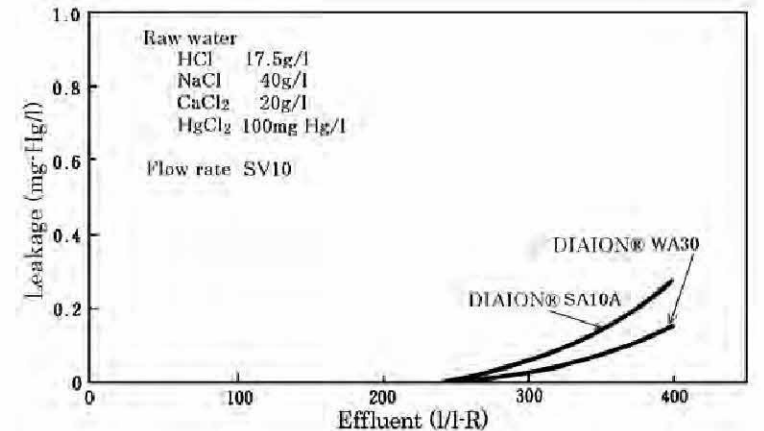
# Mercury Removal

(Extracted from the Diaion Manuals Pages 212 to 213)

with cheap mercury adsorption resins or activated carbons in order to prevent the secondary pollution by the waste water from the regeneration process. It is recommended to entrust specialized recovery agents of mercury with the treatment of such resins.



[Fig.VI-6-1] Removal of Mercury with DIAION® CR10



[Fig.VI-6-2] Removal of Mercury with AERs

## 6. Treatments of Mercury waste waters

Chelate resins and IERs can be used to remove and collect mercury in the mud and waste waters excreted from mercury cell factories. Mercury exists not only as cations but also as complex anions in concentrated HCl solutions or NaCl solutions. Mercury as cations can be removed with chelate resins such as DIAION® CR11 or CR20. The affinity of mercury with chelate resins is rather strong, and thus the resins that adsorb mercury are difficult to be regenerated by mineral acids only. Hence, ammonium solutions, 20%NH<sub>4</sub>OH with 5%NH<sub>4</sub>Cl, are usually applied for regeneration. (82)(83) Double or triple-fold amount of regenerants would be enough. Fig.VI-6-1 is the result of the treatment of mercury waste waters with DIAION® CR10, not on sale and CR11 is on sale as this substitute.

Mercury in mud turns into HgCl<sub>4</sub><sup>2-</sup> by when it is extracted with HCl solutions. This complex anion is can be removed from HCl solutions with SBAERs (DIAION® SA10A) or WBAERs (DIAION® WA30). Fig.VI-6-2 shows a model experiment of such treatments. Mercury adsorbed by AERs can be collected after reduction. Recommended is the regeneration by ammonia solutions as well as chelate resins. Mercury in metal state cannot be removed by these operations, and thus dissolution or other methods should be considered.

The regeneration of the resins that adsorb mercury should not be done