

PRODUCT SHEET

TK225 Resin

Main Applications:

- Removal of radiolanthanides from acidic solutions

Packing

Order N°.	Form	Particle size
TK225-B25-B, TK225-B50-B, TK225-B100-B, TK225-B200-B	25g, 50g, 100g and 200g bottles TK225 Resin	100-200 µm
TK225-R10-T	10 2mL TK225 Resin cartridges Cartridges with larger or smaller volumes are available upon request	50-100 µm

Physical and chemical properties

Density: 0.39 g/mL TK225 Resin

Conditions of utilization

Recommended T of utilization: room temperature

Flow rate: B grade: ≥ 0.6 mL/min

Storage: Dry and dark, room temperature

TK225 RESIN

The TK225 Resin is based on a mixture of a diglycolamide and an ionic liquid. The organic phase is impregnated onto an inert support containing aromatic groups for increased stability against radiolysis.

The main application of the TK225 Resin is the removal of radiolanthanides from acidic solutions, particularly from solutions of elevated HNO_3 concentration, for decontamination purposes.

Graphs 1 – 6 show the selectivity of the TK225 Resin for a wide range of elements in HNO_3 (fig. 1 – 3) and HCl (fig. 4 – 6). All D_w shown in these graphs were obtained through ICP-MS measurements.

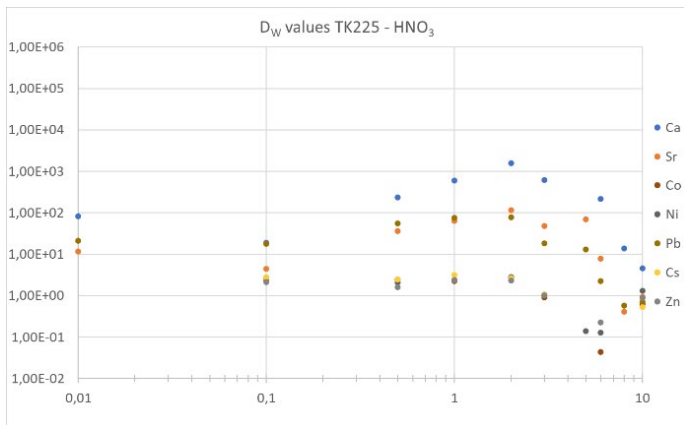


Figure 1: D_w values of selected elements on TK225 in HNO_3

Out of the tested elements only Ca is quite strongly retained at elevated HNO_3 concentrations. Sr and Pb, too are retained under these conditions to a lesser extent though.

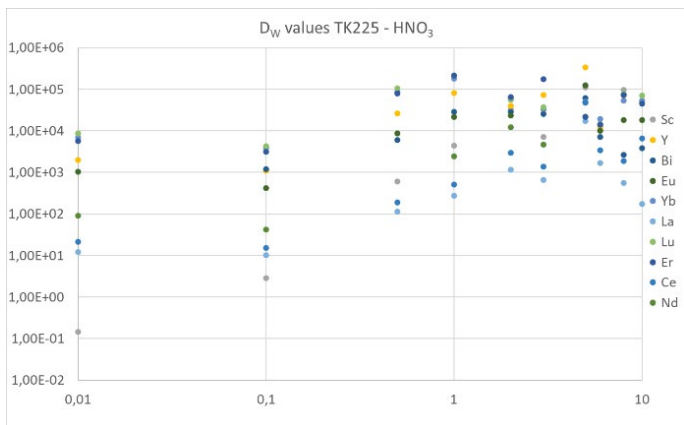


Figure 2: D_w values of selected elements on TK225 in HNO_3

Lanthanides, especially heavy lanthanides, Y and Sc are very strongly retained from HNO_3 of elevated concentration. Especially for heavy lanthanides the D_w values remain very high, even at low HNO_3 concentrations.

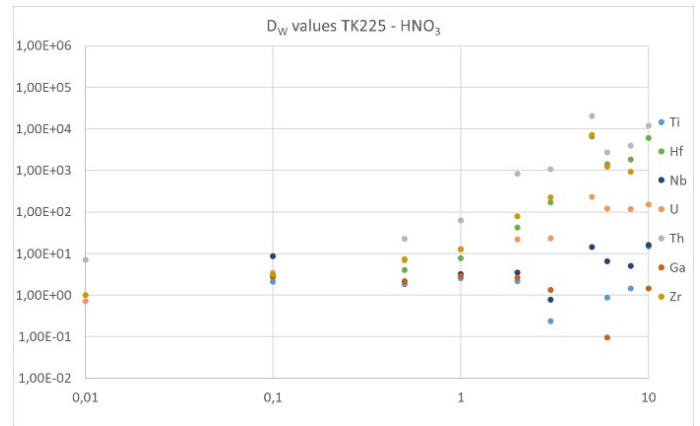


Figure 3: D_w values of selected elements on TK225 in HNO_3

The TK225 Resin generally retains tetravalent elements such as Zr, Hf and Th at elevated HNO_3 concentrations quite strongly.

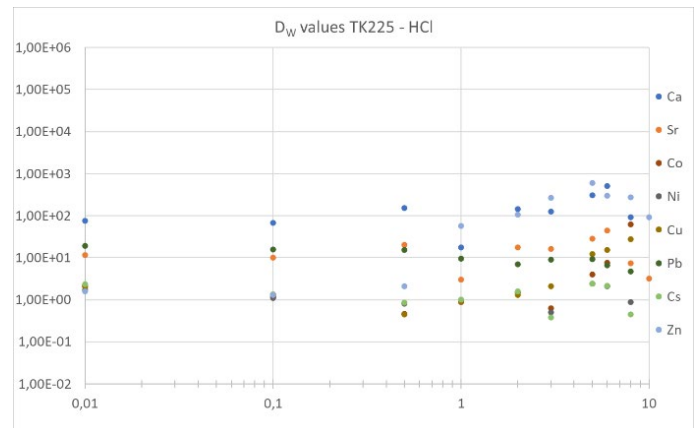


Figure 4: D_w values of selected elements on TK225 in HCl

The TK225 Resin shows elevated retention of Ca and Zn at high HCl concentrations. Other elements shown are not or only very weakly retained.

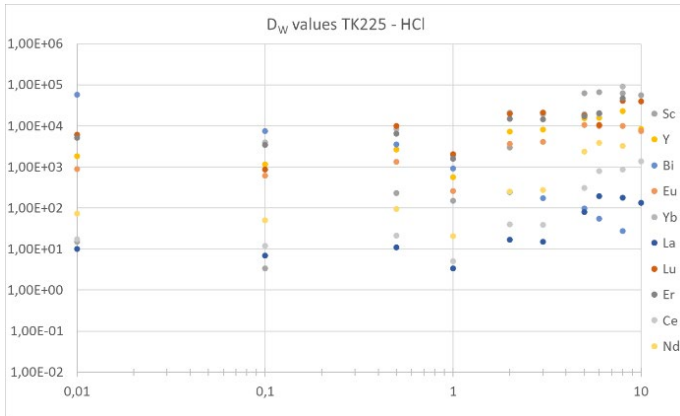


Figure 5: D_w values of selected elements on TK225 in HCl

Especially heavy lanthanides are well retained over a broad HCl concentration range, with highest retention being observed at high HCl concentrations.

At high HCl concentrations Y, Sc and lighter lanthanides are well retained, too.

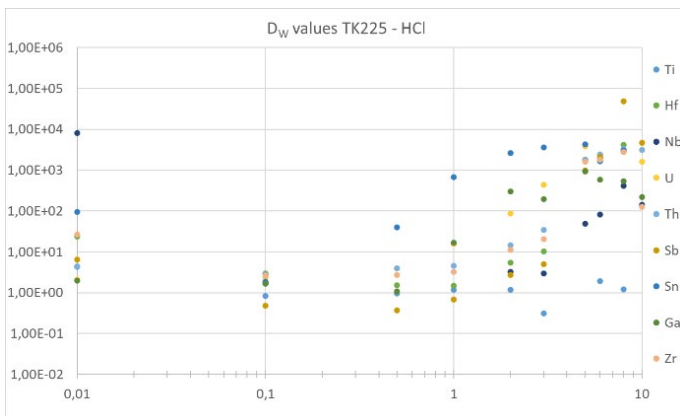


Figure 6: D_w values of selected elements on TK225 in HCl

Higher valent elements such as Sb, Sn, Zr and U are well retained at high HCl concentrations, while showing very little retention at low HCl concentrations.

TK225 Resin is mainly used for the removal of radiolanthanides, especially heavy radiolanthanides such as Lu-177, Yb-175, Tb-161,... from acidic solutions.

Especially the heavy lanthanides are near impossible to elute, accordingly the resin is mainly suitable for the decontamination of acidic effluents and waste solutions.