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Universal chromatographic system – paper impregnated with N,N,N',N'-Tetraoctyl Diglycolamide is an useful tool for Ge/Ga separation that may serve as validated QC method for radionuclide generators eluate as well as other Ga/Ge mixtures. The ^{68}Ge decays according to a scheme:

$$^{68}Ge \xrightarrow[271\ d]{\varepsilon} {}^{68}Ga \xrightarrow[68\ m]{\beta^+} {}^{68}Zn_{stab.}$$

Thus ^{68}Ga may be separated from ^{68}Ge in a radionuclide generators. More than 85 % of the nominal activity is reached every 3 hours in the generator so multiple elutions in one day are possible.

Single 2 × 20 cm DGA-sheet was used or separation of low activity ^{68}Ge/^{68}Ga sample (collected decayed ^{68}Ge/^{68}Ga eluates with very low ^{68}Ge breakthrough). Mobile phase was the 6M HNO_3. After the sheet elution, first measurement was performed on a standard radio-TLC scanner (see Fig.1). Further, the sheet was re-measured after few hours in the same position to allow to decay/growth the ^{68}Ga in the respective peaks of ^{68}Ga and ^{68}Ge. In pure ^{68}Ga solutions no activity should remain at the start of the radio-chromatogram.

Fig. 1. Separation of ^{68}Ge/^{68}Ga mixture using 2 × 20 cm DGA-sheet with 6M HNO_3 as a mobile phase.