# Ion-exchange chromatography protocol for separating lead

The protocol is based on the work of Strelow and Toerien 1996. It is a single-step protocol which uses anion-exchange columns using the AG1-X8 (100–200 mesh) resin. Pre-cleaned Teflon beakers, double-distilled acids, and ultrapure water (MQ water) are used for the handling of samples throughout the protocol.

## Reference

Strelow, F. W. E., and Toerien, F. V. S., 1966, Separation of Lead(II), from Bismuth(III), Thallium(III), Cadmium(II), Mercury(II), Gold(III), Platinum(IV), Palladium(II), and Other Elements by Anion Exchange Chromatography, Analytical Chemistry, 38(4), 545–8.

Created by Sabine Klein, Thomas Rose
Last updated: 25 September 2023

| **Date:** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample name | | | | | | | | | | | | |
| Preparation of sample for IEC | | | | | | | | | | | | |
| Dissolve sample in 1 ml 7N HBr overnight at 90°C | | | | | | | | | | | | |
| Evaporate to dryness | | | | | | | | | | | | |
| Dissolve sample in 0.5 ml 0.6N HBr for about 1 h | | | | | | | | | | | | |
| Preparation of columns | | | | | | | | | | | | |
| Rinse columns with MQ water | | | | | | | | | | | | |
| Fill columns with resin AG1x8 | | | | | | | | | | | | |
| Washing | | | | | | | | | | | | |
| 1 ml MQ water | | | | | | | | | | | | |
| 1 ml 6N HCl | | | | | | | | | | | | |
| 1 ml MQ water | | | | | | | | | | | | |
| 1 ml 6N HCl | | | | | | | | | | | | |
| 1 ml MQ water | | | | | | | | | | | | |
| 1 ml 6N HCl | | | | | | | | | | | | |
| 1 ml MQ water | | | | | | | | | | | | |
| Conditioning | | | | | | | | | | | | |
| 1 ml 0.6N HBr | | | | | | | | | | | | |
| Load sample | | | | | | | | | | | | |
| Add prepared sample solution | | | | | | | | | | | | |
| Eluate Cu + matrix | | | | | | | | | | | | |
| Change beakers if to be kept | | | | | | | | | | | | |
| 3 times 1 ml 0.6N HBr | | | | | | | | | | | | |
| Collect Pb | | | | | | | | | | | | |
| Change beakers | | | | | | | | | | | | |
| 4 times 1 ml 6N HCl | | | | | | | | | | | | |
| Drive off $Br_2$ & organics | | | | | | | | | | | | |
| Evaporate collected fractions | | | | | | | | | | | | |
| Dissolve in 1 ml 6N $HNO_3$ at 90°C | | | | | | | | | | | | |
| Evaporate to dryness at 90°C | | | | | | | | | | | | |