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| **Analyte groups** | **Matrix challenges** | **Calibration materials and solutions** |
|  | **Water/aqueous** | **High Silica content (e.g. Soils, sediments, plants, …)** | **High salts content (e.g. Seawater, urine, …)** | **High organics content (e.g. high carbon) (e.g. Food, blood/serum, cosmetics, …)** | **Metals, alloys, and difficult to dissolve metals (Autocatalysts, …)** | **High volatile matrices (e.g. solvents, fuels, ...)** |
| **Group I and II: Alkali and Alkaline earth**(Li, Na, K, Rb, Cs, Be, Mg, Ca, Sr, Ba) |   |   |   |   |   |   |  |
|  |  |  |  |  |  |  |
| **Transition elements**(Sc, Ti, V, Cr, Mn, Fe, Co, Ni, Cu, Zn, Y, Zr, Nb, Mo, Tc, Ag, Cd, Ta, W, Au, Hg, Al, Ga, In, Sn, Tl, Pb, Po) |   |   |   |   |   |   |  |
|  |  |  |  |  |  |  |
| **Platinum Group elements**(Ru, Rh, Pd, Os, Ir, Pt) |   |   |   |  |   |   |  |
|  |  |  |  |  |  |  |
| **Metalloids / Semi-metals**(B, Si, Ge, As, Sb, Te, Se) |   |   |   |  |   |   |  |
|  |  |  |  |  |  |  |
| **Non-metals**(P, S, C, N, O, H) |   |   |   |  |   |   |  |
|  |  |  |  |  |  |  |
| **Halogens**(F, Cl, Br, I) |   |   |   |  |   |   |  |
|  |  |  |  |  |  |  |
| **Rare Earth Elements**(Lanthanides, Actinides)  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| **Inorganic species (elemental, anions, cations)** |   |   |   |   |   |  |  |
|  |  |  |  |  |  |  |
| **Small organo-metallics** |   |   |   |  |   |  |  |
|  |  |  |  |  |  |  |
| **Proteins** |   |   |   |  |   |  |  |
|  |  |  |  |  |  |  |
| **Nanoparticles** |  |  |  |  |  |  |  |
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| **Low level** (e.g. below 50 µg/kg) |
| **High level** (e.g. above 50 µg/kg) |