# Method 22 – Platinum Group Elements by Nickel Sulfide Fire Assay and Instrumental Neutron Activation Analysis (INAA)

**Sample Weight: 50 g**

## Summary

The sample is mixed with nickel and sulfur to collect the suite of Platinum Group Elements (PGEs). Fluxing agents are added to assist with melting and promote separation from waste (gangue) materials. After cooling, the gangue is separated and discarded as a glassy slag from the PGE-containing nickel sulfide button. This button is dissolved in concentrated hydrochloric acid, co-precipitated with tellurium and filtered. The residue is then analyzed by INAA.

## Method 22 Elements and Reporting Limits

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| Element  | Concentration (low) | Concentration (high) |
| Ir, Iridium | 1 ppb | 1,000 ppb |
| Os, Osmium | 10 ppb | 1,000 ppb |
| Pd, Palladium | 1 ppb | 10,000 ppb |
| Pt, Platinum | 1 ppb | 10,000 ppb |
| Rh, Rhodium | 1 ppb | 1,000 ppb |
| Ru, Ruthenium | 1 ppb | 20,000 ppb |

## Analytical Performance

Data will be deemed acceptable if recovery of each element is ±15% at five times the Lower Limit of Determination (LOD) and the calculated Relative Standard Deviation (RSD) of duplicate samples is no greater than 15%.