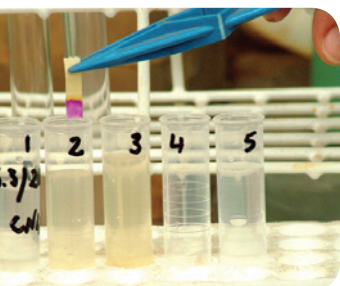


TerraLeach™ Partial Digest Geochemistry



Valued Quality. Delivered.



Intertek offers cost-effective partial digest TerraLeach™ technology to complement its range of high quality analytical services to the minerals industry.

TerraLeach™ technology is designed to remove the “mobile ion” component from soil with a view to detecting metal dispersion from a buried ore-body.

Low detection instrumentation such as ICP-MS make low cost commercial determination of these ions possible.



“Mobile ions” is a term used to describe ions which have migrated into the weathering zone and which are only weakly or loosely attached to the surfaces of soil particles. Studies in Australia and overseas have shown that these ions have the ability to disperse through un-mineralised rock (e.g. hundreds of meters vertically) possibly by micro-bubble, vapour, ground-water flow, capillary rise or electrochemical processes. The technique therefore has the capacity to indicate buried mineralisation. The ions generally occur in very low, typically ppb concentrations in the surface soil and are probably initially associated with soil moisture. Evaporation of moisture during the diurnal cycle may assist in concentrating these ions. Unfortunately they may also be depleted by major rainfall events or periodic flooding in soils. With extended time, metals of interest may become coated with secondary soil minerals resulting in total occlusion. In this case it may be necessary to use stronger reagents to dissolve the coating minerals.

Samples are normally collected in the top 10cms of the soil profile. However, horizons enriched in organics, iron and manganese oxides, carbonates can be important. Soil profile interfaces could also be considered. Sample sites should be uncontaminated and undisturbed. Typical samples are not pulverized. Media can be fine grained to enhance the abundance of fine amorphous minerals and to reduce the influence of barren quartz. Media should be kept dry to avoid bacterial reduction.



Partial digests tend to be efficient for certain element suites and specific element species. Inappropriately matched soil and digest solution can adversely affect the recovery of targeted elements.

Before commencing any new partial digest program we recommend consultation with Intertek. An orientation study to help select the optimum sample media and digestion technique is a good investment.

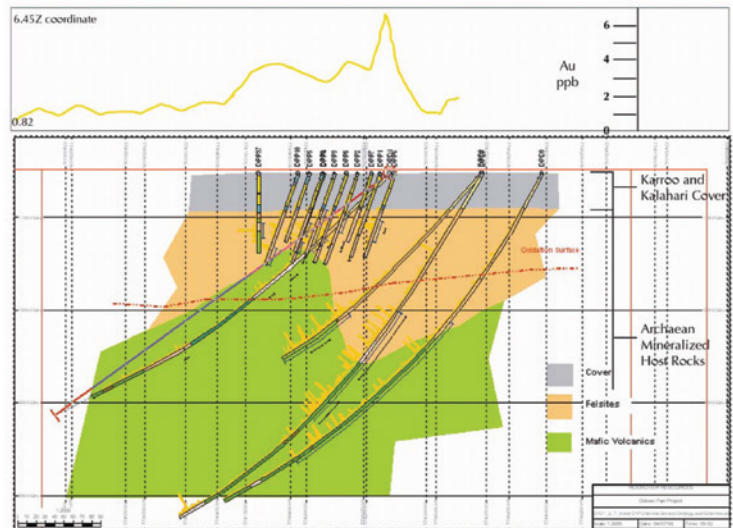


Partial digests enable preferential high recovery of these ions in comparison to poor recovery of ions that are lithologically sourced and more tightly bound. Anomaly contrast when compared with conventional geochemistry is generally superior.

Soil pH normally controls the resulting speciation of the metal. The mineralogy and organic content of the soil determines the binding site. Metals occupy binding sites on minerals in a similar manner to the binding of plant nutrient elements or to the binding of polluting metals falling out from industrial sites. The extraction approaches in agricultural and environmental sciences are therefore similar.

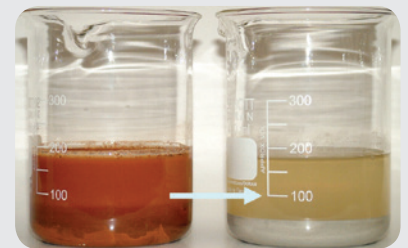


Drill Cross-section, Archaean Gold under Karroo and Kalahari Cover. Low level gold feature defined by partial digest TL1 on soil fine fraction. Data courtesy Rockover Resources.



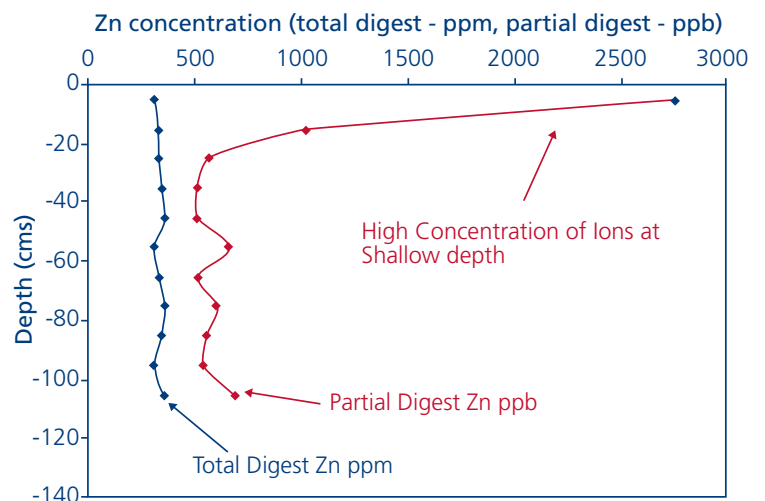
Selective Dissolution of Iron Materials

Certain elements accumulate on the surfaces of iron and manganese minerals. They may also become occluded within them. Selective dissolution of those minerals can assist in preferentially enhancing the recovery of ore elements.



Sample depth may be critical. In many cases ions may be concentrated very close to surface and depths below 10 cms are not recommended. Residual soils on Palaeozoic sediments, Northern Australia.

Before commencing any new partial digest program we recommend consultation with Intertek. An orientation study to help select the optimum sample media and digestion technique is a good investment.



Intertek

15 Davison Street,
Maddington,
Western Australia

Ed Dronseika

T: + 61 8 9251 8100
F: +61 8 9251 8110
E edward.dronseika@intertek.com

For more information please visit www.intertek.com or contact us at edward.dronseika@intertek.com, or call us +61 8 9251 8100.

To find an office or laboratory in a particular country, please visit www.intertek.com/contact.