# Preparation of Rock and Core / slag (1-2 kg of sample required for analysis)

Rock and core samples are crushed in entirety to -10 (Tyler) mesh and mechanically riffled to obtain a representative sample which is then pulverized to -150 (Tyler) mesh. Cleaner sand is used after each sample to eradicate contamination.

| | |
|---|---|
| Complete Sample Preparation (per kg) | $ 1800.00 |
| Pulverize only | $ 1500.00 |
| Crush only | $ 1200.00 |
| Hand pulverize (below 100grams) | $2,000.00 |
| Pulverize (ceramic) | $2,000.00 |
| Without Analysis, add | $ 1,000.00 |
| Oversize charge per kg | $ 600.00 |
| Batelling (per 10 kg material) | $3,000.00 |

# Preparation of soil, stream sediment (1-2 kg of sample required for analysis)

These samples are dried and crushed if necessary and mechanically riffled to obtain a representative sample. This is then pulverized to -150 (Tyler) mesh. Cleaner sand is used after each sample to eradicate contamination.

| | |
|---|---|
| Complete Sample Preparation (per kg) | $ 1500.00 |
| Drying and sieving, -120 (USA) mesh | $ 1200.00 |
| Pulverize only | $ 1200.00 |
| Without Analysis, add | $ 800.00 |
| Oversize charge per kg | $ 600.00 |

For submissions of over 100 samples (any type), randomization can be requested at an additional cost of$500.00 per sample. The data is re-sorted after analysis according to sample number. Samples submitted in a disorganized manner will attract a fee of $500.00 per sample for sorting.

# Particle Size Distribution

| | |
|---|---|
| Dry Sieve Analysis (1:V2 set of sieves) per kg | $2,500.00 |
| For wet samples, add per kg | $500.00 |

Sample size can range from 1 kg to 10 kg with concessions being granted for large samples at the discretion of Management. Usually the Tyler equivalent set of screens are used but special requests can be made for other sieve sizes and combinations.

| | |
|---|---|
| Wet Sieve Analysis, per kg | $5,000.00 |
| Gold size fraction, per 10 grams | $6,000.00 |

## Bulk Density Test

| | |
|---|---|
| up to 1 kg | $2,000.00 |
| for each additional kg – add | $1,000.00 |

## Specific Gravity Test $2,000.00

## Moisture Content Determination of Soils $2,500.00

## Loss on Ignition Determination (L.O.I.) $3,000.00

## Precious Metal Analysis

The following equipment is available:-

- Fire Assay Furnace – 25 KW
- Bullion Assay Furnace – 20KW
- Cupellation / Annealing furnace – 15 KW
- PE Atomic Absorption Spectrometer (detection limit - 0.001 p.p.m.)
- Mettler PB 303 Top Loading Balance (readability 1mg)
- Mettler AE100 Analytical Balance (readability 0.1mg)
- Ohaus Semi – micro Balance (readability 0.01mg)
- Cahn Microbalance (readability 0.001mg)
- Heavy duty Electronic Top Loading Balance (readability 0.1g)

## *Fire Assay up to 2 kg

| | |
|---|---|
| Gold – Fire Assay/AA | $4,500.00 |
| Gold – Fire Assay/Gravimetric | $5,000.00 |
| Silver – Fire Assay/Gravimetric | $3,500.00 |
| Platinum - Fire Assay/AA | $6,000.00 |
| Palladium - Fire Assay/AA | $6,500.00 |

## Gold Bullion Assay 500mg

| | |
|---|---|
| Gold Bullion (raw Gold – jewellery) | $5,500.00 |

## *Geochemical Methods 1 kg

| | |
|---|---|
| Gold – Aqua Regia/MIBK/AA | $3,000.00 |
| Silver – Aqua Regia /AA | $2,500.00 |

# Gold Purification/ Extraction

| | |
|---|---|
| Amalgamation and Parting (up to 100g) | $2,000.00 |
| Oversize charge for (a) per 100g | $1,000.00 |
| Extraction from slag (per kg slag) | $8,500.00 |
| Refining to 99.9 % purity (per oz) | $4,500.00 |

# Silver Extraction / Refining

| | |
|---|---|
| Extraction/refining from sludge, films (per g Ag) | $300.00 |

Please note that the above charges (*) exclude Sample Preparation Fees which must be paid additionally wherever applicable.

# Gold Conversion Factors

| | |
|---|---|
| 1 ppb | 0.001g/tonne |
| 1 ppm | 1g/tonne |
| 1 oz/ton | 34.286 g/ton |
| 1 g/tonne | 0.0292 g/ton |
| 1 $g/m^3$ | 0.0421 $oz/yd^3$ |

# Base Metal Analysis

Method – Dissolution in Aqua Regia and utilizing AA instrumentation for readout of results.

Instrumentation – PE Model A Analyst 100 Spectrometer (detection limit - 0.001 ppm.)

| | |
|---|---|
| Suite of eight base metals (Ag, Cu, Cr, Mn, Co, Ni, Pb, Zn) | $2,500.00 |

# Major Oxides Determination

Method – Dissolution in Hydrofluoric acid and utilizing AA instrumentation to obtain results.

| | |
|---|---|
| Eight Major Oxides – $SiO_2$; $Al_2O_3$; $Fe_2O_4$; $Na_2O$; $K_2O$; $Li_2O$; MgO; CaO. | $3,000.00 |

# Chemical Conversions for Major Oxides Determinations

| **Element** | **Oxide** | **Factor** |
|---|---|---|
| Al | $Al_2O_3$ | 1.889 |
| Ca | CaO | 1.399 |
| Fe | $Fe_2O_3$ | 1.430 |
| K | $K_2O$ | 1.205 |
| Mg | MgO | 1.658 |
| Na | $Na_2O$ | 1.348 |
| Mn | MnO | 1.291 |

# Weight and Carat Determination on Gold Jewellery and Alloys by the Specific Gravity Method

## Gold Jewell

| | |
|---|---|
| Rings, earrings and pendants up to 5 dwts | $500.00 |
| Rings, earrings and between 5 and 10 dwts | $600.00 |
| Rings, earrings and pendants between 10 and 15 dwts | $1,000.00 |
| Bands, chains, bracelets, etc. up to 10 dwts | $1,000.00 |
| Bands, chains, bracelets, etc. between 10 and 15 dwts | $1500.00 |
| Bands, chains, bracelets, etc. between 15 and 20 dwt | $2,000.00 |
| All types of jewellery between 20 and 25 dwts | $2,500.00 |
| All types of jewellery between 25 and 30 dwts | $3,000.00 |
| All types of jewellery over 30 dwts | $3,500.00 |

## Alloys

| | |
|---|---|
| Wire alloys (up to 5 dwts) | $500.00 |
| Bar alloys (up to 10 dwts) | $1,000.00 |
| Bar alloys between 10 and 20 dwts | $1,500.00 |

NB -

1. Articles weighing over 30 dwts must be accepted for testing on recommendation by the Senior Chemist.
2. Jewelry with insets or inlays of stones, plastic, or any other material of unknown weight and density cannot be analyzed by the method.

## Water Testing

The following equipment is available: -

1. Vacuum Pump – General Electric; 1/6 hp
2. Vacuum Filtration Manifold for three positions
3. Vacuum filtration Flasks
4. Vacuum Filtration Funnels
5. Digital Waterproof pH meter Turbidimeter – HACH 2100P
6. Drying Oven – Floor Model
7. Analytical Balance – Mettler AE100

| | |
|---|---|
| Water Analysis for pH | $1,000.00 |
| Water Analysis for Total Suspended Solids | $1,200.00 |
| Water Analysis for Turbidity | $1,500.00 |