CHRYSOS CORPORATION

Assays at the speed of light

Performance Note PN-001

Chrysos PhotonAssay™ Gold Services

PAAU02: Gold Assay

Service Code: PAAU02

System Settings: 15 s Irradiation, 15 s Measurement, 2-cycles, 8.5 MeV

Max Throughput: 72 samples/hour

Description: Gold assay. The performance is defined for well characterised certified reference materials with very low to zero concentration of background elements (see note below). The performance metrics are applicable to dry samples and solution samples.

Gold Performance, PAAU02

Parameter	Typical Value
Lower Detection limit (2σ), blanks	0.010 ppm
Precision @ 0.1 ppm	12%
Precision @ 0.3 ppm	6.5%
Precision @ 1 ppm	4.0%
Precision @ 3 ppm	2.5%
Precision > 10 ppm	<2%
Upper Detection Limit	350 ppm
Upper Detection Limit, PAAU02H	3,500 ppm
Upper Detection Limit, PAAU02HH	10,000* ppm

Precision percentages are reported at 1 SD.
*For samples above 10,000 ppm, contact Chrysos for service information.

PAAU04: Gold Assay

Service Code: PAAU04

System Settings: 15 s Irradiation, 15 s Measurement, 4-cycles, 8.5 MeV

Max Throughput: 36 samples/hour

Description: Gold assay. The performance is defined for well characterised certified reference materials with very low to zero concentration of background elements (see note below). The performance metrics are applicable to dry samples and solution samples.

Gold Performance, PAAU04

Parameter	Typical Value
Lower Detection limit (2σ), blanks	0.008 ppm
Precision @ 0.1 ppm	8.5%
Precision @ 0.3 ppm	4.6%
Precision @ 1 ppm	2.8%
Precision @ 3 ppm	<2%
Precision > 10 ppm	<2%
Upper Detection Limit	350 ppm
Upper Detection Limit, PAAU02H	3,500 ppm
Upper Detection Limit, PAAU02HH	10,000* ppm

Precision percentages are reported at 1 SD.
*For samples above 10,000 ppm, contact Chrysos for service information.

PAAU08: Gold Assay

Service Code: PAAU08

System Settings: 15 s Irradiation, 15 s Measurement, 8-cycles, 8.5 MeV

Max Throughput: 18 samples/hour

Description: Gold assay. The performance is defined for well characterised certified reference materials with very low to zero concentration of background elements (see note below). The performance metrics are applicable to dry samples and solution samples.

Gold Performance, PAAU08

Parameter	Typical Value
Lower Detection limit (2σ), blanks	0.005 ppm
Precision @ 0.1 ppm	6.0%
Precision @ 0.3 ppm	3.2%
Precision @ 1 ppm	2%
Precision @ 3 ppm	<2%
Precision > 10 ppm	<2%
Upper Detection Limit	350 ppm
Upper Detection Limit, PAAU02H	3,500 ppm
Upper Detection Limit, PAAU02HH	10,000* ppm

Precision percentages are reported at 1 SD.
*For samples above 10,000 ppm, contact Chrysos for service information.

Background Elements

- The presence of uranium, thorium or barium will decrease the gold precision, particularly at lower grades, and increase the detection limit.
- Refer to Technical Note TN-106 Chrysos PhotonAssay™ for Gold measurement and impact of Interfering Elements.

Interfering Elements

- Elevated levels of bromine or erbium will flag “Interfering Element Corrected (IEC)”. Gold values are still reported. The correction assumes low levels of high-atomic number elements such as lead.
- Significantly elevated levels of bromine or erbium will flag “Interfering Element (IE)”, with no gold value reported.

Moist samples

- Substantially solid (non-liquid) samples with moisture levels up to approximately 30% can be measured.
- The typical moisture error is 3.0-3.5 wt% which will add between 0.5% (at low grade levels less than 0.3 ppm) to 2% (at higher grade levels greater than 10 ppm) to the relative Au precision.

- Moisture calibration and its impact on gold precision is site specific and depends on whether hydrogen is present in the sample in a form other than water that is released during drying, so the quoted impacts on Au precision are indicative only.