

PGNAA Detection Limit Guidelines

1 H HYDROGEN		Ten Minute Threshold of Detectability: <i>These are estimates of the threshold of detection.</i> <i>Actual limits may be somewhat different depending upon analyzer configuration and application.</i> Excellent (<0.01%) Very Good (0.01% to 0.1%) Good (0.1% to 0.3%) Moderate (0.3% to 1%) Nominal (1% to 3%) Minimal (3% to 10%) None (>10%) Unknown																2 He HELIUM							
3 Li LITHIUM	4 Be BERYLLIUM																	5 B BORON	6 C CARBON	7 N NITROGEN	8 O OXYGEN	9 F FLUORINE	10 Ne NEON		
11 Na SODIUM	12 Mg MAGNESIUM																	13 Al ALUMINUM	14 Si SILICON	15 P PHOSPHORUS	16 S SULFUR	17 Cl CHLORINE	18 Ar ARGON		
19 K POTASSIUM	20 Ca CALCIUM	21 Sc SCANDIUM	22 Ti TITANIUM	23 V VANADIUM	24 Cr CHROMIUM	25 Mn MANGANESE	26 Fe IRON	27 Co COBALT	28 Ni NICKEL	29 Cu COPPER	30 Zn ZINC	31 Ga GALLIUM	32 Ge GERMANIUM	33 As ARSENIC	34 Se SELENIUM	35 Br BROMINE	36 Kr KRYPTON								
37 Rb RUBIDIUM	38 Sr STRONTIUM	39 Y YTTRIUM	40 Zr ZIRCONIUM	41 Nb NIOBIUM	42 Mo MOLYBDENUM	43 Tc TECHNETIUM	44 Ru RUTHENIUM	45 Rh RHODIUM	46 Pd PALLADIUM	47 Ag SILVER	48 Cd CADMIUM	49 In INDIUM	50 Sn TIN	51 Sb ANTIMONY	52 Te TELLURIUM	53 I IODINE	54 Xe XENON								
55 Cs CESIUM	56 Ba BARIUM	57 La LANTHANUM	72 Hf HAFNIUM	73 Ta TANTALUM	74 W WOLFRAM	75 Re RHENIUM	76 Os OSMIUM	77 Ir IRIDIUM	78 Pt PLATINUM	79 Au GOLD	80 Hg MERCURY	81 Tl THALLIUM	82 Pb LEAD	83 Bi BISMUTH	84 Po POLONIUM	85 At ASTATINE	86 Rn RADON								
87 Fr FRANCIUM	88 Ra RADIUM	89 Ac ACTINIUM	104 Rf RUTHERFORDIUM	105 Db DUBNIUM	106 Sg SEABORGIUM	107 Bh BOHRIUM	108 Hs HASSIUM	109 Mt MEITNERIUM	110 Ds DARMSTADIUM	111 Rg ROENTGENIUM	112 Cn COPERNICIUM	113 Uut UNUNTRIUM	114 Uuq UNUNQUADIUM	115 Uup UNUNPENTIUM	116 Uuh UNUNHEXIUM	117 Uus UNUNSEPTIUM	118 Uuo UNUNOCTIUM								
			58 Ce CERIUM	59 Pr PRASEODYMIUM	60 Nd NEODYMIUM	61 Pm PROMETHIUM	62 Sm SAMARIUM	63 Eu EUROPIUM	64 Gd GADOLINIUM	65 Tb TERBIUM	66 Dy DYSPROSIUM	67 Ho HOLMIUM	68 Er ERBIUM	69 Tm THULIUM	70 Yb YTTERBIUM	71 Lu LUTETIUM									
			90 Th THORIUM	91 Pa PROTACTINIUM	92 U URANIUM	93 Np NEPTUNIUM	94 Pu PLUTONIUM	95 Am AMERICIUM	96 Cm CURIUM	97 Bk BERKELIUM	98 Cf CALIFORNIUM	99 Es EINSTEINIUM	100 Fm FERMIUM	101 Md MENDELEVIUM	102 No NOBELIUM	103 Lr LAWRENCIUM									

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The **Thermo Scientific Elemental CrossBelt Analyzer (ECA)** is used to control the sorting and blending of coals to maximize coal resources, reduce out-of-seam dilution and control preparation plant performance. The analyzer is designed for applications requiring process accuracy at a modest cost.

- Mounts around existing conveyor belt
- Provides minute-by-minute quality analysis of your critical process streams



The **Thermo Scientific Coal Quality Manager (CQM)** is the ultimate analyzer with the best accuracy available, which allows you to minimize variations in coal quality, ensure contract compliance, and improve your efficiency. It is the product of choice for coal producers and utilities where real-time knowledge of coal quality is critical, including load-outs, auger samplers and power plant bunker feed systems.

- Most accurate online analyzer in the industry
- Ideal in loadouts, prep plant control and bunker feed applications



The **Thermo Scientific CB Omni** and **Thermo Scientific CB Omni Flex** online elemental analyzers provide a reliable and accurate means of achieving consistent stockpile and raw mix chemistry to improve kiln efficiency and minimize production costs. This unique system provides minute-by-minute composition analysis of the raw materials used in the cement manufacturing process.

- Ease of installation
- Detector flexibility
- Flexibility in source of neutrons
- Proven solutions and support
- Legacy upgrades