

Standard types*		No. of Elements	Stock Code
Silicates & General		52	1201010
Majors:	Si, Al, Mg, Na, Fe, Mn, Ti, Ca, K, F, S, P		
Minors:	Mg, Na, Sc, V, Cr, Co, Cu, Ni, Zn, Ga, Ge, Se, As, Rb, Sr, Br, Y, Zr, Nb, Mo, Ag, Cd, Sn, Sb, Te, Cs, Ba, La, Ce, Nd, Pr, Yb, Hf, Ta, W, Bi, Cl, Pb, Tb, U.		
Iron Ores		28	1201020
Majors:	Fe, Si, Al, Ca, F, Na, Mg		
Minors:	P, S, Cl, K, Ti, V, Cr, Mn, Co, Ni, Cu, Zn, As, Br, Sn, Ba, Pb, Mo, Cd, Sb, Bi.		
Bauxite		28	1201030
Majors:	Al, Fe, Si, Ca, F, Na, Mg		
Minors:	P, S, Cl, K, Ti, V, Cr, Mn, Co, Ni, Cu, Zn, As, Br, Sn, Ba, Pb, Mo, Cd, Sb, Bi.		
Mineral Sands		38	1201040
Majors:	Ti, Fe, Zr, Si, Y, La, Ce, Nd,		
Minors:	Pr, Yb, P, F, Na, Mg, Al, S, Cl, K, Ca, Sc, V, Mn, Cr, Co, Ni, Cu, Zn, Br, As, Sr, Nb, Mo, Sn, Ba, Hf, Pb, Tb, U.		
Cement		19	1201050
Majors:	Ca, Si, Al, Mg, Fe, Na, Cl, S, F,		
Minors:	P, K, Ti, Cr, Mn, Zn, Sr, Br, Ba, Pb.		
Manganese Ores		13	1201070
Majors:	Mn, Fe, Si, Na, Mg, Al,		
Minors:	P, K, Ca, Ti, Sr, Br, Ba		
High Nickel Products		25	1201080
Majors:	Ni, Fe, S, Si, F, Na, Mg, Al,		
Minors:	P, Cl, K, Ca, Ti, Mn, Cr, Co, Cu, Zn, As, Se, Br, Mo, Ag, Pb, Bi		
Rare Earths		39	1201090
Majors:	La, Ce, Pr, Nd, Sm, Eu, Gd, Tb,		
Minors:	Dy, Ho, Er, Tm, Yb, Lu, Y, P, F, Na, Mg, Al, Si, S, Cl, K, Ca, Sc, Ti, Mn, Fe, Ni, Br, Sr, Zr, Nb, Ba, Hf, Pb, Tb, U.		
Sulphides - Lead, Zinc, Iron & Copper Ores		32	1201100
Majors:	Pb, Zn, Fe, Cu, S, Na, Mg, Al, Si, K, Ca,		
Minors:	Cl, Ti, Co, Ni, Cr, Mn, As, Se, Ag, Cd, Sn, Sb, Ba, Bi, P, U, Mo, Te, Tl, F, Sr		
*Available in both 40mm & 32mm diameter size			
Additional types & sizes available upon request.			

XRF Drift Monitors

The main use of an XRF monitor sample is to correct for instrumental drift over time. It is not necessarily a Certified Reference Material (CRM) or calibration standard as such however the monitor should have good long term stability so that XRF instrument programs can be used for long periods without recalibration.

The prime requirement of a monitor is that the count rates for the elements it contains do not change over time. It is not necessary that the count rates of the elements be near those of the samples being analysed, but certain potential errors are reduced if there is an order of magnitude correspondence between the count rates from the monitor and the samples being analysed. Apart from other considerations this minimizes counting times. There is little advantage in determining the count rate on a monitor with high precision if those from the analytes are measured with poor precision. The reverse is also true.

AUSMON monitors manufactured by XRF Scientific have excellent long term stability and this enables them to be used to monitor instrument performance and count rates over extensive periods. Where very low concentrations are being determined, the count rate of the monitor is set not to match the analytes, but it is set to obtain a counting error smaller than required for analysis in a short counting time. Where major elements are being determined, and where the spectrometer has a high sensitivity to those elements, the count rate from the monitor has been adjusted not to exceed count rates that cannot be accurately handled by modern measuring equipment.

Instrument maintenance:

Because these drift monitors do not change with time, intensity changes are indicative of some change in the instrument. A decrease in intensities may indicate instrument maintenance is required. For example, it is common for scintillation counters to decrease in efficiency due to moisture reacting with the NaI crystal. When this happens, the shorter wavelengths (eg SnK α) are minimally affected while there is a large decrease in intensity for longer wavelengths, (eg FeK α).

Checking instrument performance:

Since the monitors vary very little, different laboratories can compare intensities from the monitor to check that the instruments are giving acceptable performance.

AUSMON – “Silicates & General” contains 52 elements, so it is possible to make a comparison using all the selectable parameters, ie changing crystals, detectors and collimators, etc.

Composition: This monitor contains the following elements as majors:

Fe ₂ O ₃ 2.7%	MnO 1.0%	TiO ₂ 1.0%	CaO 1.5%	K ₂ O 1.9%	SO ₃ 1.7%
P ₂ O ₅ 1.5%	SiO ₂ 24%	Al ₂ O ₃ 11.7%	MgO 10.3%	Na ₂ O 5.7%	F 5.7%

Additionally the sample contains approximately 0.2 – 0.5% of each of the following:

Sc, V, Cr, Co, Cu, Ni, Zn, Ga, Gd, Ge, Se, As, Rb, Sr, Br, Y, Zr, Nb, Mo, Ag, Cd, Sn, Sb, Te, Cs, Ba, La, Ce, Nd, Pr, Yb, Hf, Ta, W, Bi, Pb, Sm, Th & U.

The monitor contains 52 elements and its composition is such that reasonable counting precision can be obtained for any element in a short time, generally less than 20 seconds. It also contains very little flux and therefore has good long term stability. The disc is polished optically flat so that it can be mounted precisely and consistently in the sample holder to give accurately repeatable surface presentations.