

## LIMITES DE DETECTION \_ μFLUORESCENCE X

|                |  |                 |  |                                                                                                                                                                           |  |                 |  |               |  |                 |  |                  |  |                 |  |                 |  |                    |  |                |  |                  |  |                 |  |                 |  |                  |  |                 |  |                   |  |                   |  |               |  |                   |  |                 |  |                  |  |
|----------------|--|-----------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------|--|---------------|--|-----------------|--|------------------|--|-----------------|--|-----------------|--|--------------------|--|----------------|--|------------------|--|-----------------|--|-----------------|--|------------------|--|-----------------|--|-------------------|--|-------------------|--|---------------|--|-------------------|--|-----------------|--|------------------|--|
| 1 1.0079       |  |                 |  |                                                                                                                                                                           |  |                 |  |               |  |                 |  |                  |  |                 |  | 2 4.0026        |  |                    |  |                |  |                  |  |                 |  |                 |  |                  |  |                 |  |                   |  |                   |  |               |  |                   |  |                 |  |                  |  |
| H<br>Hydrogène |  |                 |  |                                                                                                                                                                           |  |                 |  |               |  |                 |  |                  |  |                 |  | He<br>Hélium    |  |                    |  |                |  |                  |  |                 |  |                 |  |                  |  |                 |  |                   |  |                   |  |               |  |                   |  |                 |  |                  |  |
| 3 6.939        |  | 4 9.0122        |  | <div>Elements analysés en µfluorescence X</div> <div>Limites de détection:<div>0.5 - 2%<div>1000-10000 ppm</div><div>100 - 1000 ppm</div><div>50-100ppm</div></div></div> |  |                 |  |               |  |                 |  |                  |  |                 |  | 5 10.811        |  | 6 12.011           |  | 7 14.007       |  | 8 15.999         |  | 9 18.998        |  | 10 20.183       |  |                  |  |                 |  |                   |  |                   |  |               |  |                   |  |                 |  |                  |  |
| Li<br>Lithium  |  | Be<br>Béryllium |  |                                                                                                                                                                           |  |                 |  |               |  |                 |  |                  |  |                 |  | B<br>Bore       |  | C<br>Carbone       |  | N<br>Azote     |  | O<br>Oxygène     |  | F<br>Fluor      |  | Ne<br>Néon      |  |                  |  |                 |  |                   |  |                   |  |               |  |                   |  |                 |  |                  |  |
| 11 22.99       |  | 12 24.312       |  |                                                                                                                                                                           |  |                 |  |               |  |                 |  |                  |  |                 |  | 13 26.982       |  | 14 28.086          |  | 15 30.974      |  | 16 32.064        |  | 17 35.453       |  | 18 39.948       |  |                  |  |                 |  |                   |  |                   |  |               |  |                   |  |                 |  |                  |  |
| Na<br>Sodium   |  | Mg<br>Magnésium |  |                                                                                                                                                                           |  |                 |  |               |  |                 |  |                  |  |                 |  | Al<br>Aluminium |  | Si<br>Silicium     |  | P<br>Phosphore |  | S<br>Soufre      |  | Cl<br>Chlore    |  | Ar<br>Argon     |  |                  |  |                 |  |                   |  |                   |  |               |  |                   |  |                 |  |                  |  |
| 19 39.09       |  | 20 40.08        |  | 21 44.96                                                                                                                                                                  |  | 22 47.90        |  | 23 50.94      |  | 24 52.00        |  | 25 54.94         |  | 26 55.85        |  | 27 58.93        |  | 28 58.71           |  | 29 63.54       |  | 30 65.37         |  | 31 69.73        |  | 32 72.59        |  | 33 74.92         |  | 34 78.96        |  | 35 79.90          |  | 36 83.80          |  |               |  |                   |  |                 |  |                  |  |
| K<br>Potassium |  | Ca<br>Calcium   |  | Sc<br>Scandium                                                                                                                                                            |  | Ti<br>Titane    |  | V<br>Vanadium |  | Cr<br>Chrome    |  | Mn<br>Manganèse  |  | Fe<br>Fer       |  | Co<br>Cobalt    |  | Ni<br>Nickel       |  | Cu<br>Cuivre   |  | Zn<br>Zinc       |  | Ga<br>Gallium   |  | Ge<br>Germanium |  | As<br>Arsenic    |  | Se<br>Sélénium  |  | Br<br>Brome       |  | Kr<br>Krypton     |  |               |  |                   |  |                 |  |                  |  |
| 37 85.47       |  | 38 87.62        |  | 39 88.905                                                                                                                                                                 |  | 40 91.22        |  | 41 92.906     |  | 42 95.94        |  | 43 99            |  | 44 101.07       |  | 45 102.91       |  | 46 106.4           |  | 47 107.87      |  | 48 112.41        |  | 49 114.82       |  | 50 118.69       |  | 51 121.75        |  | 52 127.6        |  | 53 126.9          |  | 54 131.3          |  |               |  |                   |  |                 |  |                  |  |
| Rb<br>Rubidium |  | Sr<br>Strontium |  | Y<br>Yttrium                                                                                                                                                              |  | Zr<br>Zirconium |  | Nb<br>Niobium |  | Mo<br>Molybdène |  | Tc<br>Technétium |  | Ru<br>Ruthénium |  | Rh<br>Rhodium   |  | Pd<br>Palladium    |  | Ag<br>Argent   |  | Cd<br>Cadmium    |  | In<br>Indium    |  | Sn<br>Etain     |  | Sb<br>Antimoine  |  | Te<br>Tellure   |  | I<br>Iode         |  | Xe<br>Xénon       |  |               |  |                   |  |                 |  |                  |  |
| 55 132.91      |  | 56 137.34       |  | 57 138.91                                                                                                                                                                 |  | 72 178.49       |  | 73 180.95     |  | 74 183.85       |  | 75 186.2         |  | 76 190.2        |  | 77 192.2        |  | 78 195.09          |  | 79 196.97      |  | 80 200.59        |  | 81 204.37       |  | 82 207.19       |  | 83 208.98        |  | 84 210          |  | 85 210            |  | 86 222            |  |               |  |                   |  |                 |  |                  |  |
| Cs<br>Césium   |  | Ba<br>Baryum    |  | La<br>Lanthane                                                                                                                                                            |  | Hf<br>Hafnium   |  | Ta<br>Tantale |  | W<br>Tungstène  |  | Re<br>Rhénium    |  | Os<br>Osmium    |  | Ir<br>Iridium   |  | Pt<br>Platine      |  | Au<br>Or       |  | Hg<br>Mercure    |  | Tl<br>Thalium   |  | Pb<br>Plomb     |  | Bi<br>Bismuth    |  | Po<br>Polonium  |  | At<br>Astate      |  | Rn<br>Radon       |  |               |  |                   |  |                 |  |                  |  |
| 87 223         |  | 88 226          |  | 89 227                                                                                                                                                                    |  |                 |  |               |  |                 |  |                  |  |                 |  |                 |  |                    |  |                |  |                  |  |                 |  |                 |  |                  |  |                 |  |                   |  |                   |  |               |  |                   |  |                 |  |                  |  |
| Fr<br>Francium |  | Ra<br>Radium    |  | Ac<br>Actinium                                                                                                                                                            |  |                 |  |               |  |                 |  |                  |  |                 |  |                 |  |                    |  |                |  |                  |  |                 |  |                 |  |                  |  |                 |  |                   |  |                   |  |               |  |                   |  |                 |  |                  |  |
|                |  |                 |  |                                                                                                                                                                           |  |                 |  |               |  |                 |  |                  |  |                 |  | 58 140.12       |  | 59 140.91          |  | 60 144.24      |  | 61 147           |  | 62 150.34       |  | 63 151.95       |  | 64 157.25        |  | 65 158.92       |  | 66 162.5          |  | 67 164.93         |  | 68 167.26     |  | 69 168.93         |  | 70 173.04       |  | 71 174.96        |  |
|                |  |                 |  |                                                                                                                                                                           |  |                 |  |               |  |                 |  |                  |  |                 |  | Ce<br>Cérium    |  | Pr<br>Praséodyme   |  | Nd<br>Néodyme  |  | Pm<br>Prométhium |  | Sm<br>Samarium  |  | Eu<br>Europium  |  | Gd<br>Gadolinium |  | Tb<br>Terbium   |  | Dy<br>Dysprosium  |  | Ho<br>Holmium     |  | Er<br>Erbium  |  | Tm<br>Thulium     |  | Yb<br>Ytterbium |  | Lu<br>Lutétium   |  |
|                |  |                 |  |                                                                                                                                                                           |  |                 |  |               |  |                 |  |                  |  |                 |  | 90 232.04       |  | 91 229             |  | 92 238.03      |  | 93 237           |  | 94 244          |  | 95 243          |  | 96 247           |  | 97 247          |  | 98 251            |  | 99 254            |  | 100 257       |  | 101 258           |  | 102 259         |  | 103 260          |  |
|                |  |                 |  |                                                                                                                                                                           |  |                 |  |               |  |                 |  |                  |  |                 |  | Th<br>Thorium   |  | Pa<br>Protactinium |  | U<br>Uranium   |  | Np<br>Neptunium  |  | Pu<br>Plutonium |  | Am<br>Américium |  | Cm<br>Curium     |  | Bk<br>Berkélium |  | Cf<br>Californium |  | Es<br>Einsteinium |  | Fm<br>Fermium |  | Md<br>Mendélévium |  | No<br>Nobelium  |  | Lr<br>Laurencium |  |

*Les limites de détection, obtenues à partir de l'enregistrement d'un grand nombre de géostandards disponibles au laboratoire, sont données à titre indicatif car ces valeurs sont fortement dépendantes de la nature chimique de la matrice analysée (interférence entre pics, phénomène d'absorption...).*