**SOP to prepare silica-content samples to be analyzed with ICP-MS**

ICP-MS analysis is more complex that IC operations. You need to know approximate knowledge about your matrix. As you said, silica matrix is one of the difficulties, and requires HF for complete digest. EU regulation, EN 14902 requires only HNO3+H2O2, because they try to quantify regulated elements only, namely As, Ni, Cd and Pb. However, if you are interested in Al, K and Cr, you definitely need HF for digestion. If your samples are from UAE, then you need HF if you are interested in desert dust. Keep in mind, HF is very hazardous material to work with, needs very special equipment and personal protective equipment, as well as will deteriorate you ICP-MS parts, like graphite injector, skimmers, cones etc. To avoid, you need to evaporate HF on hot block by adding diluted HNO3. On the other hand, the ICP manufacturer may allow using certain amount of HF in your samples. You need to check this with the manufacturer.

In case Cl is high in your samples, you may need matrix-modification to eliminate chlorides and double-chlorides in the plasma. It totally depends on you, on how accurate you want to measure.

I remember I wrote a very detailed SOP about the sample preparation (digestion) and ICP-MS operations when I was at JRC. You can ask Michel to send to you. I am unsure if I have those, I need to dig deeply at home.

In the literature, there are good examples of ICP-MS sample preparation and operations. You can check as well. EN 14902 is normally **not**applied for source apportionment studies due to incomplete digestion.

Hope that helps. Please do not hesitate to ask anything.