

**42 - Chromium speciation in natural and anthropogenic
Cr-bearing soils, using micro-XAS, micro-XRF, and micro-XRD**

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Chromium (III) oxidization to Cr(VI) by manganese oxides is an important process in natural environments. To assess the potential toxicity of chromium in soils, one not only needs to determine Cr oxidation states, but also how the Cr is distributed, what phases it is associated with, and possible mineral phases that are present. Such information can be achieved using micro-X-ray Absorption Spectroscopy (micro-XAS), micro-X-ray fluorescence spectroscopy (micro-XRF) and micro-X-ray diffraction (micro-XRD). In this paper we have used these techniques to investigate Cr in serpentine soils, that naturally contain Cr, in a solid waste fill from a ferrochrome alloy production site, and in Cr contaminated soil samples excavated from Wilmington, DE urban areas.

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