CORROSION PRODUCTS PHASE IDENTIFICATION OF CORROSION PRODUCTS OF IRON USING MICRO-RAMAN AND FTIR

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Abstract:

Phase identification of corroded objects might be problematic; present corrosion products are complex mixture of different phases each of different amount. Furthermore some of present phases may be either semi-crystalline or amorphous. The most suitable procedure is to use the XRD for analysing crystalline structure of phases in bulk; then use Raman spectroscopy to obtain information on smaller scale and given location. Raman spectroscopy identifies crystalline and semi-crystalline phases. The last step is to apply the Mossbauer spectroscopy to find amorphous phases. If Mossbauer spectroscopy is not available and it is reasonable to assume the contained phases are not strictly amorphous; the XRD and Raman should be sufficient. Should using FTIR in addition to Raman give a suitable advantage? The methods may be interchangeable to some point. But is it safe to assume all phases present can be detected?