

Corrosion Monitoring of Oil Field Equipment Using XRD Phase Analysis, István E. Sajó,^{a*} Nuri Al-Robaa,^b Rehab Elalem^b and Assma Marei^b, ^a*Chemical Research Centre of Hungarian Academy of Science, Budapest, Hungary*, and ^b*Petroleum Research Centre, Tripoli, Libyan Arab Jamahiriya*. E-mail: sajo@chemres.hu

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Oil field production equipment is run in highly corrosive environment. Downhole and surface corrosion damage and related expenses can be minimized monitoring the corrosion processes. Solids formed during the corrosion processes can be collected from scales and deposits adhering inner surfaces and filtering recirculated water. A full profile fitting XRD evaluation method was developed (XDB) [1], and applied to identify and quantify the components of oil field related corrosion products. A reference database of corrosion specific phases was compiled to support and facilitate reliable phase quantification. Powder diffraction scans of corrosion samples were taken and evaluated for quantitative phase composition. The use of this approach is illustrated on a few characteristic examples, representing the major types of corrosion occurring in oil field production environment.

[1] F.Feret, M. Authier-Martin & I. Sajó, *Clays and Clay Minerals*, **45**: 418-427 (1997)