

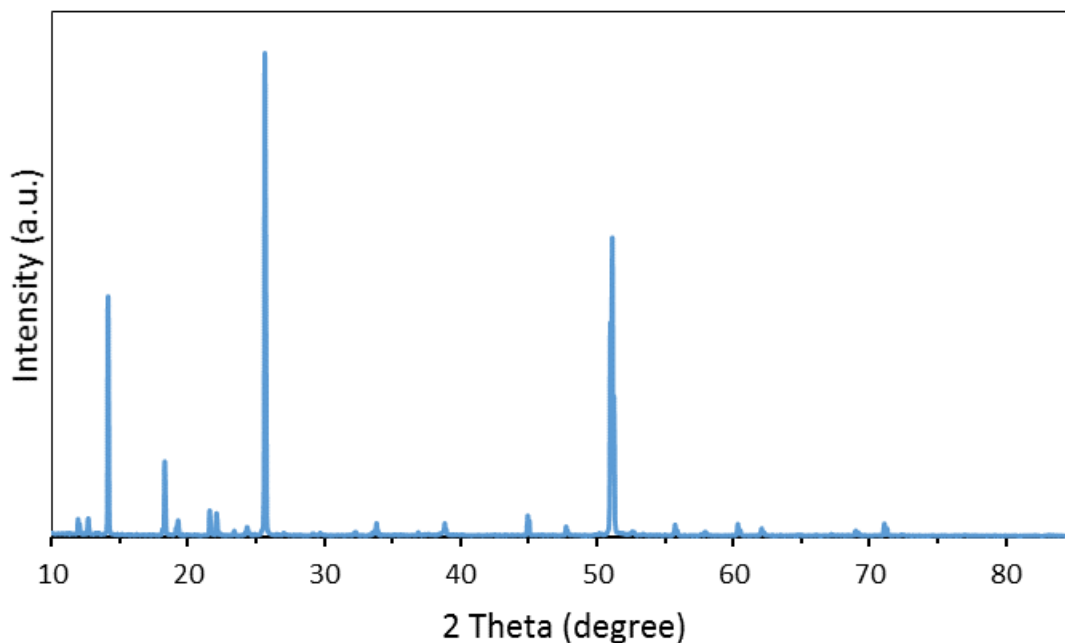
# Effects of Physical and Chemical States of Iron-Based Catalysts on Formation of Carbon-Encapsulated Iron Nanoparticles from Kraft Lignin

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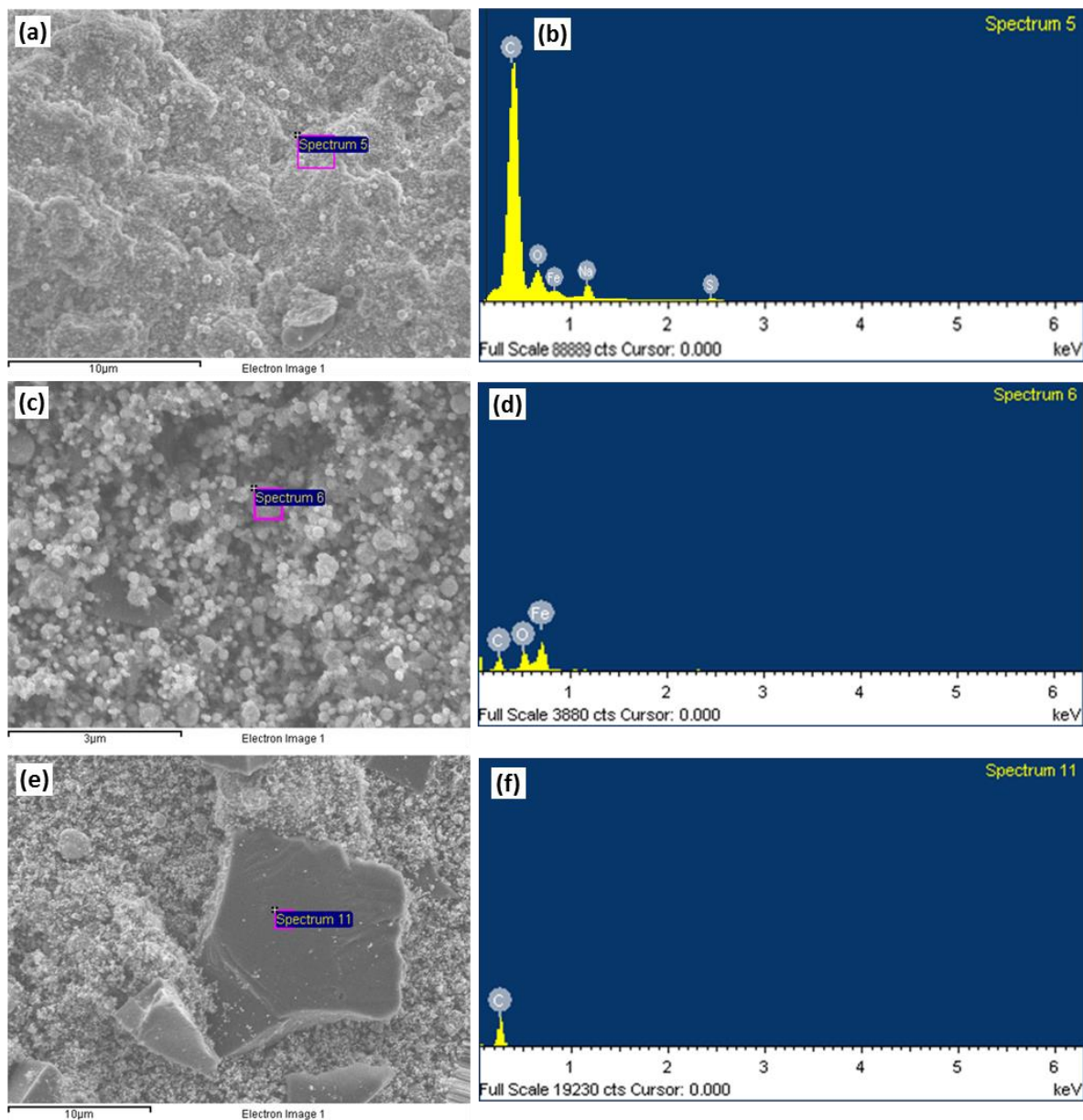
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## Supplementary Materials



**Figure S1.** XRD pattern of FeN (Iron(III) nitrate nonahydrate,  $\text{Fe}(\text{NO}_3)_3 \cdot 9\text{H}_2\text{O}$ ).



**Figure S2.** (a, c, and e) SEM images and (b, d, and f) the selected area SEM-EDS energy dispersive spectra of KL/FeN-1000 (a and b), surface nanoparticles of KL/FeP-1000 (c and d), and naked surface of KL/FeP-1000 (e and f).