**Table 3: Linear Combination Fitting (LCF)-XANES Analysis (%) of soil samples**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Treatment | Beudantite | Arsenosiderite | Arsenopyrite | As(V)-hematite | As(III)-ferrihydrite | R-factor |
| *Untreated* | | | | | | |
| Before SBRC | 17 | 51 |  | 31 | 5 | 0.0037 |
| After SBRC-G | 19 | 25 | 32 | 23 |  | 0.0113 |
| After SBRC-I | 19 | 54 |  | 22 | 6 | 0.0079 |
| *Phosphoric acid* | | | | | | |
| Before SBRC | 16 | 71 |  | 11 | 3 | 0.0060 |
| After SBRC-G | 12 | 68 |  | 19 | 3 | 0.0114 |
| After SBRC-I | 15 | 62 |  | 21 | 6 | 0.0060 |
| μZVI | | | | | | |
| Before SBRC | 13 | 63 |  | 18 | 6 | 0.0051 |
| After SBRC-G | 12 | 81 |  | 9 | 5 | 0.0071 |
| After SBRC-I | 11 | 81 |  | 5 | 7 | 0.0036 |
| *nZVI-1* | | | | | | |
| Before SBRC | 18 | 62 |  | 20 | 4 | 0.0152 |
| After SBRC-G | 11 | 75 |  | 14 | 4 | 0.0087 |
| After SBRC-I | 13 | 81 |  | 4 | 5 | 0.0071 |
| *nZVI-2* | | | | | | |
| Before SBRC | 16 | 61 |  | 12 | 14 | 0.0060 |
| After SBRC-G | 12 | 70 | 14 |  | 6 | 0.0114 |
| After SBRC-I | 13 | 71 |  | 6 | 10 | 0.0060 |
| *1% Fe WTR* | | | | | | |
| Before SBRC | 11 | 75 |  | 11 | 4 | 0.0062 |
| After SBRC-G | 9 | 78 |  | 11 | 4 | 0.0085 |
| After SBRC-I | 19 | 61 |  | 18 | 6 | 0.0051 |
| *2% Fe WTR* | | | | | | |
| Before SBRC | 9 | 77 |  | 10 | 5 | 0.0034 |
| After SBRC-G | 8 | 77 |  | 17 | 5 | 0.0047 |
| After SBRC-I | 16 | 72 |  | 10 | 5 | 0.0055 |
| *1% Al WTR* | | | | | | |
| Before SBRC | 10 | 78 |  | 9 | 5 | 0.0047 |
| After SBRC-G | 9 | 77 |  | 15 | 4 | 0.0079 |
| After SBRC-I | 11 | 79 |  | 6 | 5 | 0.0039 |
| *2% Al WTR* | | | | | | |
| Before SBRC | 8 | 83 |  | 8 | 5 | 0.0023 |
| After SBRC-G | 9 | 82 |  | 13 | 5 | 0.0053 |
| After SBRC-I | 9 | 86 |  | 4 | 4 | 0.0043 |

KEY:

SBRC – Solubility Bioaccessibility Reserach Consortium – In-vitro assay developed to predict Pb and As bioavailability

‘Before SBRC’ – Speciation in sample prior to exposure in SBRC test

‘After SBRC-G’ – Speciation in sample after the gastric phase of the SBRC test

‘After SBRC-I’ – Speciation in sample after the intestinal phase of the SBRC test

R-factor – fitting error of the linear combination fitting

ZVI – micron-sized zerovalent iron particles

nZVI – nanometer-sized zerovalent iron particles

Fe-WTR – Iron-based water treatment residual

Al-WTR – Aluminum-based water treatement residuals