From Waste to Best: Excellent Desulfurization Performance of Spent FCC Catalyst

*Baochuan Su, Li Shi,,Xuan Meng, Xin Wang and Naiwang Liu\*.*

State Key Laboratory of Chemical Engineering,

East China University of Science and Technology, Shanghai 200237, China

**Table S1** The element analysis of FC, WC and WC-C

|  |  |  |
| --- | --- | --- |
|  | Raw data | Processed data |
| Element content/% | FC | WC | WC-C | FC | WC | WC-C |
| Si | 30.495 | 27.7721 | 26.8375 | 100.0000 | 100.0000 | 100.0000 |
| O | 37.94 | 32.804 | 30.6053 | 124.4138 | 118.1185 | 114.0393 |
| Al | 25.0236 | 24.9215 | 24.3527 | 82.0580 | 89.7357 | 90.7413 |
| P | 1.9445 | 1.6691 | 1.791 | 6.3765 | 6.0100 | 6.6735 |
| La | 2.4435 | 2.7798 | 3.3644 | 8.0128 | 10.0093 | 12.5362 |
| Fe | 0.6091 | 1.2725 | 1.7299 | 1.9974 | 4.5819 | 6.4458 |
| Ni | 0.0093 | 1.7799 | 2.3262 | 0.0305 | 6.4089 | 8.6677 |
| Ti | 0.9247 | 1.0174 | 1.0274 | 3.0323 | 3.6634 | 3.8282 |
| V | 0 | 1.0079 | 1.8994 | 0.0000 | 3.6292 | 7.0774 |
| Ca | 0.0532 | 2.6204 | 2.233 | 0.1745 | 9.4354 | 8.3204 |
| Zr | 0.0532 | 0.0777 | 0.0875 | 0.1745 | 0.2798 | 0.3260 |
| Cu | 0.0052 | 0.0948 | 0.1591 | 0.0171 | 0.3413 | 0.5928 |
| Zn | 0.0079 | 0.0451 | 0.0519 | 0.0259 | 0.1624 | 0.1934 |
| Sr | 0.0121 | 0.0525 | 0.0385 | 0.0397 | 0.1890 | 0.1435 |
| Ce | 0 | 0.1382 | 0.1722 | 0.0000 | 0.4976 | 0.6416 |
| Co | 0 | 0.0888 | 0.0847 | 0.0000 | 0.3197 | 0.3156 |
| Sb | 0 | 0.58 | 0.9528 | 0.0000 | 2.0884 | 3.5503 |
| Mn | 0 | 0.0752 | 0.0646 | 0.0000 | 0.2708 | 0.2407 |
| Ga | 0.0125 | 0.0258 | 0.0223 | 0.0410 | 0.0929 | 0.0831 |
| K | 0.0844 | 0.1738 | 0.1327 | 0.2768 | 0.6258 | 0.4945 |
| Pb | 0.0045 | 0.0103 | 0.0141 | 0.0148 | 0.0371 | 0.0525 |
| S | 0.0725 | 0.1404 | 0.1764 | 0.2377 | 0.5055 | 0.6573 |
| Na | 0.1377 | 0.4974 | 0.4893 | 0.4515 | 1.7910 | 1.8232 |
| Mg | 0 | 0.1398 | 0.6806 | 0.0000 | 0.5034 | 2.5360 |
| Gd | 0 | 0.1412 | 0.2354 | 0.0000 | 0.5084 | 0.8771 |