**Table 1:** Proximate and ultimate analysis of feed coal slurry sample on dry basis

|  |  |
| --- | --- |
| Proximate Analysis | |
| Ash% | 35.50 |
| VM % | 20.80 |
| FC % | 42.90 |
| C % | 52.73 |
| GCV (kcal/kg) | 5130 |
| Ultimate Analysis | |
| H% | 3.63 |
| S% | 0.55 |
| N% | 1.05 |

**Table 2:** Design of flotation experiment

|  |  |  |
| --- | --- | --- |
| Experiment  Run Number | Collector dosage (kg/ton) | Frother dosage (kg/ton) |
|  | 0.32 | 0.32 |
|  | 0.48 | 0.32 |
|  | 0.64 | 0.32 |
|  | 0.80 | 0.32 |
|  | 0.32 | 0.48 |
|  | 0.48 | 0.48 |
|  | 0.64 | 0.48 |
|  | 0.80 | 0.48 |
|  | 0.32 | 0.64 |
|  | 0.48 | 0.64 |
|  | 0.64 | 0.64 |
|  | 0.80 | 0.64 |
|  | 0.32 | 0.80 |
|  | 0.48 | 0.80 |
|  | 0.64 | 0.80 |
|  | 0.80 | 0.80 |

**Table 3:** Actual and coded values of operating variables and levels

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Sl no | Operating Parameter | Units | Levels | | | |
| 1 | Collector Dosage | kg.t-1 | 0.32 | 0.48 | 0.64 | 0.8 |
| 2 | Frother Dosage | kg.t-1 | 0.32 | 0.48 | 0.64 | 0.8 |

**Table 4: Experimental results**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Experiment Run Number | Collector Dosage (kg/t) | Frother Dosage (kg/t) | Froth Hieght (cm) | Froth density (g/cm3) | Ash (%) | Recovery (%) |
| 1 | 0.32 | 0.32 | 4.40 | 0.16 | 13.60 | 34.00 |
| 2 | 0.32 | 0.48 | 4.50 | 0.17 | 16.00 | 53.40 |
| 3 | 0.32 | 0.64 | 4.80 | 0.22 | 18.40 | 73.00 |
| 4 | 0.32 | 0.80 | 5.00 | 0.24 | 20.80 | 90.00 |
| 5 | 0.48 | 0.32 | 4.10 | 0.20 | 14.20 | 41.00 |
| 6 | 0.48 | 0.48 | 4.30 | 0.22 | 16.40 | 60.00 |
| 7 | 0.48 | 0.64 | 4.50 | 0.24 | 18.50 | 76.00 |
| 8 | 0.48 | 0.80 | 4.70 | 0.26 | 20.70 | 93.00 |
| 9 | 0.64 | 0.32 | 3.80 | 0.23 | 14.80 | 49.00 |
| 10 | 0.64 | 0.48 | 4.00 | 0.24 | 16.64 | 64.00 |
| 11 | 0.64 | 0.64 | 4.20 | 0.26 | 18.70 | 78.00 |
| 12 | 0.64 | 0.80 | 4.40 | 0.27 | 20.60 | 93.00 |
| 13 | 0.80 | 0.32 | 3.60 | 0.25 | 15.40 | 57.70 |
| 14 | 0.80 | 0.48 | 3.80 | 0.26 | 17.20 | 69.80 |
| 15 | 0.80 | 0.64 | 4.00 | 0.28 | 18.90 | 81.00 |
| 16 | 0.80 | 0.80 | 4.20 | 0.26 | 20.50 | 93.00 |

**Table 4:** ANOVA Results for Responses

