# Alkyl dimethyl betaine activates the low-temperature collection capacity of sodium oleate for scheelite

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**Table S1. XRF analysis results of a scheelite single mineral**wt%

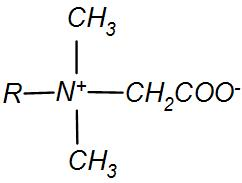
|  |  |  |  |
| --- | --- | --- | --- |
| WO3 | CaO | SiO2 | Fe |
| 77.56 | 20.92 | 0.43 | 0.57 |

**Table S2. XRF characterization of the actual ore** wt%

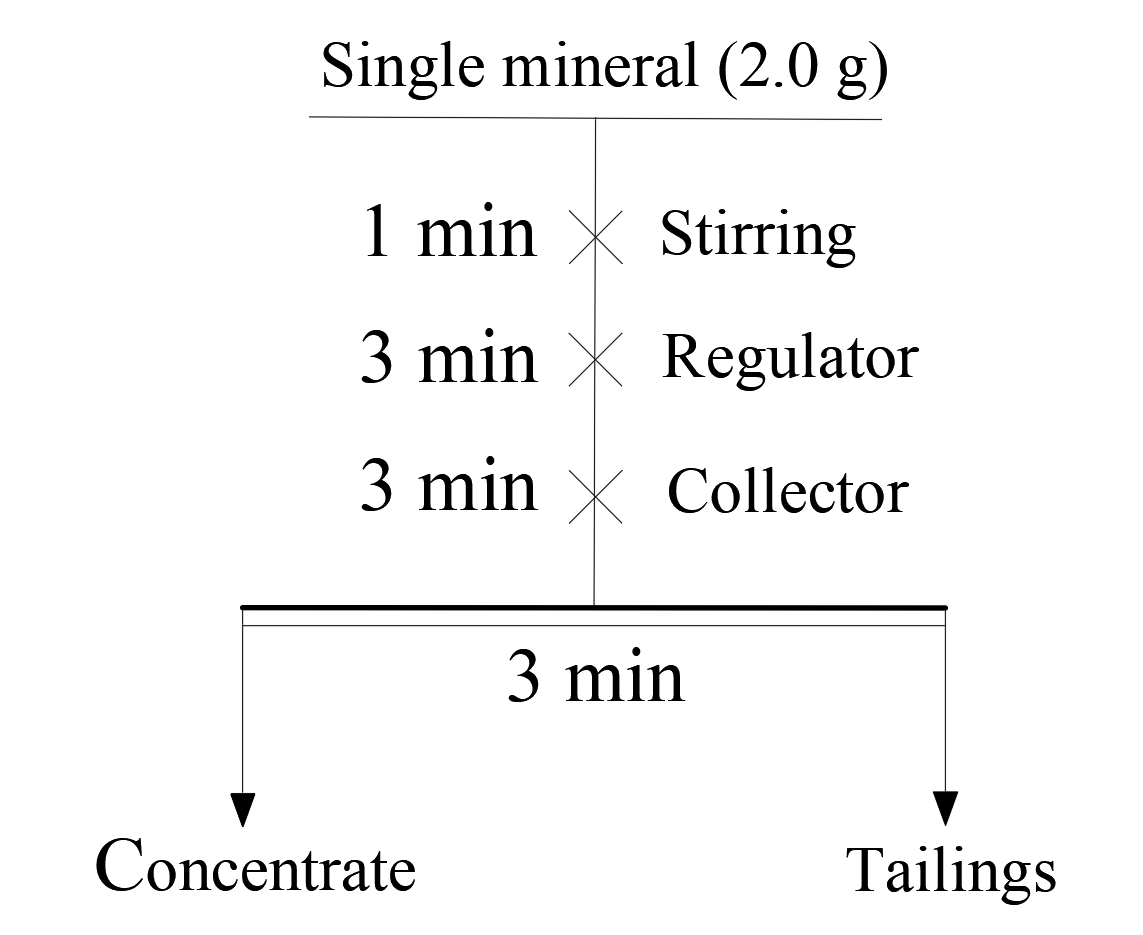
|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| F | Na | Mg | Al | Si | P | S | K |
| 0.386 | 0.727 | 1.108 | 2.52 | 19.243 | 0.185 | 0.185 | 0.983 |
| Ca | Ti | Mn | Fe | Cu | Zn | Rb | Sr |
| 21.054 | 0.224 | 1.027 | 6.619 | 0.013 | 0.051 | 0.009 | 0.005 |
| Y | Zr | Mo | W | Hg | Pb | O |  |
| 0.002 | 0.014 | 0.135 | 0.052 | 0.007 | 0.012 | 31.135 |  |

**Table S3. Mineral liberation analysis of the actual ore** wt%

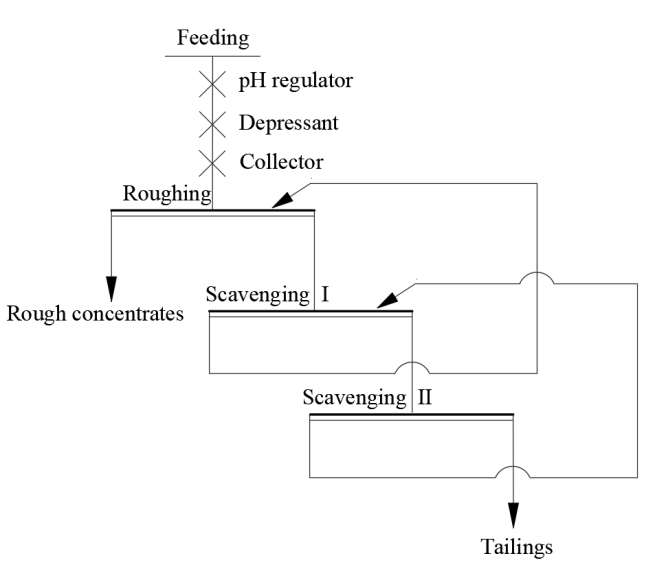
|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Scheelite | Wolframite | Molybdenite | Powethite | Pyrite | Pyrrhotite |
| 0.12 | Occasional | 0.24 | 0.03 | 0.41 | 0.41 |
| Blende | Hematite/  lignite | Garnet | Wollastonite | Pyroxene | Hornblende |
| Trace | 0.19 | 21.03 | 35.32 | 13.78 | 1.21 |
| Quartz | Feldspar | Mica | Calcite/  dolomite | Fluorite | Chlorite |
| 8.50 | 4.21 | 2.40 | 5.21 | 2.74 | 0.35 |
| Montmorillonite | Talc | Serpentine | Titanite | Apatite | Others |
| 2.70 | 0.34 | 0.12 | 0.10 | 0.43 | 0.28 |



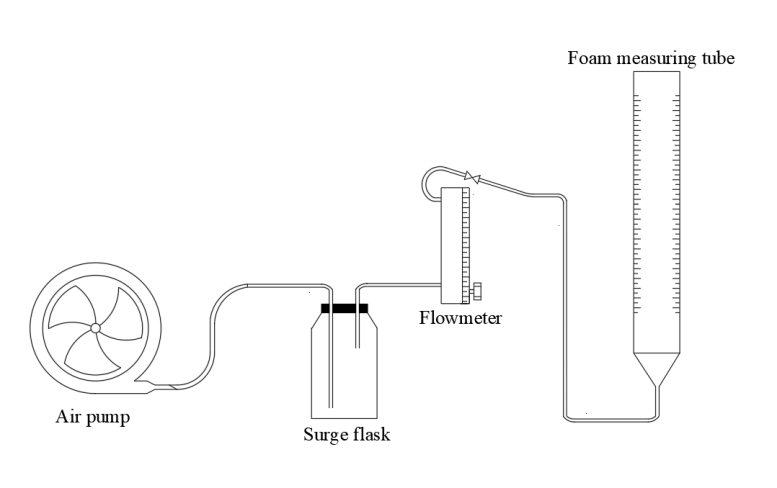
**Fig. S1.** **Structural formula of ADB.**



**Fig. S2. Flowsheet of the micro-flotation test.**



**Fig. S3. Scheelite roughing process.**



**Fig. S4. Device used in testing the foaming performance.**