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### 微细粒钛铁矿的自载体浮选

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**摘 要:** 研究了0-20  $\mu\text{m}$ 微细粒钛铁矿浮选中的自载体作用及机理。结果表明: 钛铁矿浮选中粗细粒交互作用受二者相对含量影响显著, 粗粒载体比例达50%以上时体现出良好的自载体作用; 在该浮选体系中, 载体作用对载体粒度并不敏感, 20-100  $\mu\text{m}$ 粒级可不经分级直接作为载体; 以载体浮选工艺处理攀枝花难处理微细粒钛铁矿实际矿石, 与细粒矿物单独浮选相比, 0-20  $\mu\text{m}$ 粒级钛铁矿回收率由52.56%提高到61.96%。调浆前后的矿浆粒度分析及颗粒间相互作用计算表明, 捕收剂在矿物表面吸附产生疏水力, 从而使部分细粒粘附于载体, 改善了矿浆粒度组成, 优化了浮选环境。

**关键字:** 钛铁矿; 油酸钠; 自载体浮选

### Autogenous-carrier flotation of fine ilmenite

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**Abstract:** The autogenous-carrier effect in fine ilmenite (0-20  $\mu\text{m}$ ) flotation was investigated. The results show that the relative contents of the fine and coarse particles exert significant influence on the interaction between the fine and coarse particles, and good floatation effect can be realized when the carrier proportion is more than 50%. The floatability is insensitive to carrier size, and the coarse particles with size of 20-100  $\mu\text{m}$  can be used as carrier without classification. Compared with the fine ilmenite separating flotation, the recovery rate of fine ilmenite with size of 0-20  $\mu\text{m}$  increases from 52.56% to 61.96% by using autogenous-carrier flotation for Panzhihua ilmenite ore. Particle size distribution analysis before and after pulp condition and the calculation of interactions between particles show that the hydrophobic force produced by adsorption of collector leads to the adhesion of fine particle to carrier, and optimizes the environment of flotation.

**Key words:** ilmenite; sodium oleate; autogenous-carrier flotation

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