Diagram of froth flotation cell. Numbered triangles show direction of stream flow. A mixture of ore and water called pulp [1] enters the cell from a conditioner, and flows to the bottom of the cell. Air [2] or nitrogen is passed down a vertical impeller where shearing forces break the air stream into small bubbles. The mineral concentrate froth is collected from the top of the cell [3], while the pulp [4] flows to another cell.

.

flotation is a process for separating minerals from gangue by exploiting differences in their [hydrophobicity](https://en.wikipedia.org/wiki/Hydrophobicity" \o "Hydrophobicity). Hydrophobicity differences between valuable minerals and waste gangue are increased through the use of surfactants and wetting agents. The flotation process is used for the separation of a large range of [sulfides](https://en.wikipedia.org/wiki/Sulfide" \o "Sulfide), [carbonates](https://en.wikipedia.org/wiki/Carbonate) and [oxides](https://en.wikipedia.org/wiki/Oxide" \o "Oxide) prior to further refinement. [Phosphates](https://en.wikipedia.org/wiki/Phosphates) and [coal](https://en.wikipedia.org/wiki/Coal" \o "Coal) are also upgraded (purified) by flotation technology. "Grade-recovery curves" are tools in weighing the trade-off of producing a high grade of concentrate vs cost. These curves only compare the grade-recovery relations of a specific feed grade and feed rate.[[3]](https://en.wikipedia.org/wiki/Froth_flotation#cite_note-3)