

Flotation—Depressants

Flotation selectivity for controlled mineral separation of sulfide ores



Even small amounts of entrained gangue can affect ore concentrate quality and process stability, requiring precise control of flotation behavior.

Flotation depressants prevent unwanted minerals from attaching to air bubbles and reporting to the froth. By suppressing naturally floating gangue and penalty elements, they act as control tools in complex flotation circuits. Depressant selection focuses on the suppression of unwanted minerals efficiently while balancing stability and reagent interaction.

What our chemistry delivers

Controlled suppression of unwanted minerals
Depressant chemistry inhibits naturally hydrophobic gangue minerals—such as talc and carbonaceous materials—while allowing valuable minerals to float.

Designed for complex flotation systems
Formulations perform across variable ore types and water chemistries to deliver higher recovery-grade while maintaining stability across flotation reagents.

Integrated reagent system performance
Depressants operate alongside collectors, frothers, modifiers, and pH regulators as part of an integrated reagent suite.

Why it matters to flotation circuits

Control of flotation selectivity
Targeted suppression limits gangue recovery while preserving flotation of valuable minerals.

Management of penalty elements
Reducing recovery of naturally floating gangue, such as MgO , Cr_2O_3 or carbon, helps reduce impurities that impact concentrate quality.

Stability under variable conditions
Consistent depressant performance supports stable flotation operation despite changing ore composition.

Operational outcomes

- Reduced entrainment of penalty elements such as talc and carbonaceous materials
- Improved consistency in concentrate quality across variable ore conditions
- Controlled metallurgical performance (recovery-grade)

How this works in practice

Across different ore types and flotation systems, these chemistries deliver consistent performance in application-specific operating conditions.

The example on page 2 shows how our solutions deliver results in real conditions.

Evaluate your flotation circuits and start a technical discussion at nouryon.com/mining/depressants

Core brands:

- Celect® flotation depressants
- Finnfix® flotation depressants

Case Example: Selective carbon depression for improved copper performance

Challenge

Naturally floating carbon reports to concentrate, reducing copper grade and process efficiency.

Solution

Celect® CMC-based depressant enables selective carbon suppression at low dosage.

Proven performance

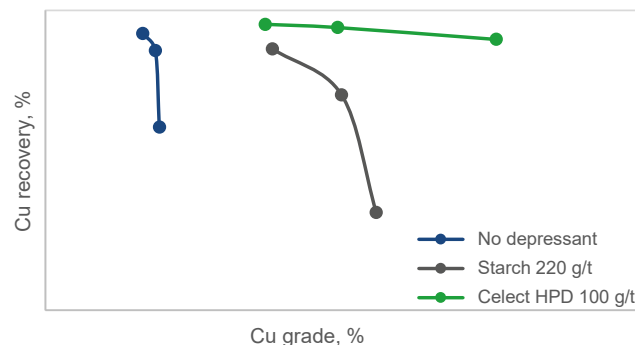
- Reduced carbon recovery
- Improved copper grade-recovery vs. starch
- Effective at lower dosage levels

Impact

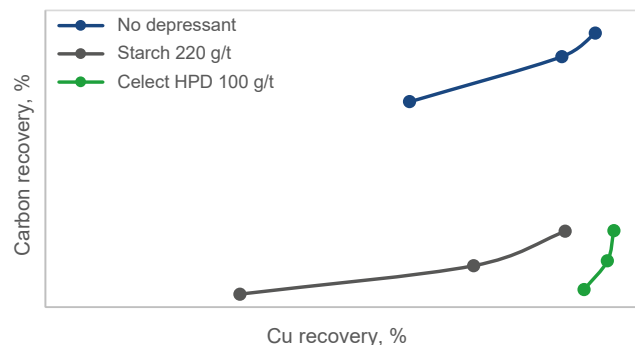
- Improved copper (Cu) recovery
- Higher concentrate quality
- Lower reagent consumption
- More stable flotation performance

Selective depression of carbon improves Cu recovery and concentrate quality.

Selective depression leading to improved Cu recovery



Selectivity curve (recovery of gangue vs recovery of valuable mineral)



Review your flotation circuit conditions—
request technical assistance at
nouryon.com/mining/depressants

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