

# Mining Solutions

Innovative Solutions for  
Flotation of Industrial Minerals

 **BASF**

We create chemistry

# BASF's Mining Solutions at a glance

BASF's Mining Solutions business offers a diverse range of chemicals and technologies for mineral processing to improve process efficiencies and aid the economical extraction of valuable resources.

We offer our products and technology solutions to the global mineral processing industry along with expert advice and technical support. Our global team is driven by a common goal to provide the best sustainable solution to meet our customers' processing needs. With technical representation in over 100 countries, BASF's technical support is provided on a global, regional and local basis.

We can provide reagents, equipment, process technologies and expertise, focusing on applications such as flotation, solid liquid separation, solvent extraction, tailings management, grinding, and materials handling.

BASF's flotation range includes collectors for non-sulfide ores, frothers, dispersants, and modifiers. BASF's expertise in surfactant chemistry has resulted in a long history of innovation allowing us to provide innovative, sustainable solutions to ensure our customers' operations run more efficiently by delivering operational and financial benefits.





## **BASF's commitment to an innovative mining industry**

Innovation is at the heart of BASF's Mining Solutions business as our aim is to develop novel and innovative chemistries and technologies to effectively meet the evolving challenges that the mining industry continues to face. BASF is committed to working in close collaboration with our customers, academia, and global industry organizations.

BASF's extensive backward integration into the building blocks of product chemistries for mineral processing enables us to effectively apply our knowledge and chemical experience to develop both conventional and novel chemistries to meet the technical and commercial challenges faced by the industry, both today and in the future.

Our Product Development and Technical Support personnel are located around the globe and are complemented by two BASF Global Competence Centers, based in Tucson (North America) and Ludwigshafen (Europe) and supported by flotation laboratories in Jacarei (Brazil) and Moscow (Russia).

With our chemistry, equipment, process and application technologies, industry experience, and customer commitment, BASF can uniquely package competencies and expert offerings to effectively support the diversity of mineral processing technology developments and process challenges.

# We offer solutions for the flotation of non-sulfide minerals

## Phosphate

The **Lupromin® FP A** anionic collectors range is recommended for apatite flotation where the percentage of silicates or calcium oxide/phosphorous pentoxide ratio is high.

**Lupromin® FP A 711** is an anionic collector recommended for apatite flotation where the percentage of silicates or calcium oxide/phosphorous pentoxide ratio is high. These products ensure the necessary hydrophilic/lipophilic balance for effective flotation selectivity. The combination of the foaming power of the Lupromin® FP A 711 and its chemistry promotes the necessary selectivity for the flotation process. Collector is supplied as a viscous liquid at room temperature.

**Lupromin® FP A 212** is a fatty acid based collector applied for oxidized phosphate ore flotation. The formula of Lupromin® FP A 212 provides high selectivity and metallurgical recovery at lower dosage in comparison with typical vegetal collectors.

## Barite

**Lupromin® FP B 715** and **Lupromin® FP B 251** are neutral fatty alcohol sulfate collectors supplied as a viscous liquid that promotes high-selectivity barite flotation.

**Lupromin® FP 199** is a collector for direct barite flotation based on sodium alkyl ether sulfate salt modified with further additives to improve selectivity and dose efficiency.

**Lupromin® FP E** is a granulated solid product based on high molecular weight fatty alcohol sulfates.

## Calcite

**Lupromin® FP 18 AS** is a novel liquid polymeric esterquat applied as a reverse calcite flotation collector for the selective removal of silicacious minerals. Apart from the ecological benefits gained from using esterquats, it also offers potential economic advantages due to the faster flotation kinetics of this collector system.





## Fluorspar

**Lupromin® FP 308C** is a collector based on anionic and non-ionic molecules that allows the concentration of fluorspar to produce a commercial-grade product. Further tailor-made novel formulations are available on request (ask your local sales partner).

**For specific flotation challenges, BASF is continuously developing tailor-made solutions in collaboration with customers via test work in laboratories, pilot plants and industrial operations. Please contact our sales team for further information.**

## Pyrochlore

**Lupromin® FP N 315** is a mixture of polyglycol esters, which associated to cationic collectors, acts as an adjuvant in niobium flotation. The use of Lupromin® FP N 315 therefore significantly increases the efficiency of the pyrochlore flotation process.

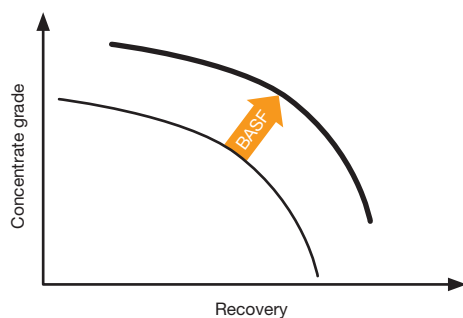
## Frothers

The BASF range of frothers allows a faster and more selective flotation. We offer custom-made solutions to improve flotation performance.

### Mineral

### BASF Solution

Phosphate	Direct flotation using <b>Lupromin® FP A</b> range. Tailor-made formulations are available for inverse carbonate flotation from phosphate ores
Barite	Direct flotation using <b>Lupromin® FP B 715</b> , <b>Lupromin® FP B 251</b> , <b>Lupromin® FP 199</b> or <b>Lupromin® FP E</b> granulate
Calcite	Silica removal through reverse flotation with <b>Lupromin® FP 18 AS</b>
Fluorspar	Direct flotation using <b>Lupromin® FP 308C</b>
Pyrochlore	Direct flotation associating <b>Lupromin® FP N 315</b> to cationic collectors



**BASF helps you to achieve the most profitable operational curve**

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