

# Global Mining Solutions

Innovative Solutions for Flotation

 **BASF**  
The Chemical Company

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# BASF's Mining Solutions at a glance

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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.



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

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## Apatite

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. The Lupromin® FP A range is sulfosuccinate-based, which supports the necessary hydrophilic/lipophilic balance for effective flotation. The combination of the foaming power of the Lupromin® FP A range and its chemistry promotes the necessary selectivity for the flotation process. The Lupromin® FP A range is supplied as a viscous liquid at room temperature.

## Barite

**Lupromin® FP B 715** is a neutral fatty alcohol sulfate collector supplied as a viscous liquid that promotes high-selectivity barite flotation.

**Lupromin® FP 199** is a collector for direct barite flotation based on alcohol ethoxy sulfate sodium salt and N-tallow alkyl sulfosuccinamate chemistry.

**Lupromin® FP E** is a granulate containing fatty alcohol sulfates (especially sodium cetyl stearyl sulfate).

## 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.

## 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.

**In the event of specific flotation challenges, BASF is able to develop tailor-made solutions in collaboration with customers via test work in laboratories, pilot plants and industrial operations.**



MINERAL	BASF SOLUTION
Apatite	Direct flotation using <b>Lupromin® FP A</b> range
Barite	Direct flotation using <b>Lupromin® FP B 715</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



## Flotation process aids

### Frothers

BASF produces a vast array of surfactants, short-chain aliphatic alcohols, and polyglycol ethers supplied as neutral frothers that prevent bubbles from collapsing.

**Lupromin® FF LS 24** and **Lupromin® FF LT 054** are fatty alcohol alkoxyates used to control foam during the cassiterite (tin oxide mineral) flotation process.

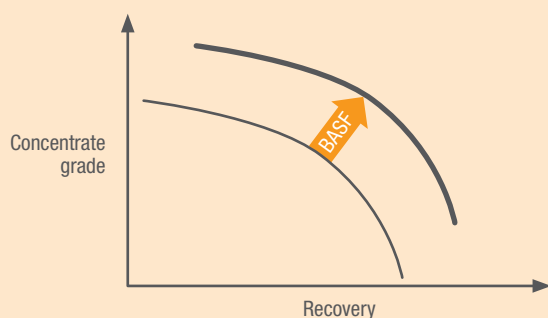
Among BASF's aliphatic alcohols, its 2-ethylhexanol is regarded as a highly selective general frother for the flotation market.

### Dispersants

**Lupromin® FD 100** is an aqueous solution of sodium polyacrylate that acts as an effective dispersant for flotation slurries and other mineral suspensions of base metals.

The **Lupromin® L** range disperses clay particles that are covering mineral particles and hence reduces the slime coating effect, which has a detrimental effect on the flotation process.

It should also be noted that BASF's triblock copolymers are a type of non-ionic dispersant, which can also increase pulp and froth stability. BASF offers you a wide range of molecular weights and composition ratios.



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



## **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 three BASF Global Competence Centers, based in Tucson (North America), Ludwigshafen (Europe), and Perth (Australia).

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.

## Europe

### **BASF Performance Products plc.**

Cleckheaton Road  
Low Moor, Bradford  
BD12 0JZ, Great Britain  
Phone: +44 1274 417 000  
Fax: +44 1274 606 499

## North America

### **BASF Corporation**

2430 N. Huachuca Drive  
Tucson, Arizona 85745, US  
Phone: +1 520 622 8891  
Fax: +1 520 624 0912

## South America

### **BASF CHILE S.A.**

Av. Carrascal N° 3851  
Quinta Normal  
Santiago, Chile  
Phone: +56 2 2640 7000  
Fax: +56 2 775 3095

## Africa

### **BASF South Africa (Pty) Ltd.**

852 Sixteenth Road  
Midrand, P O Box 2801  
Halfway House 1685, South Africa  
Phone: +27 11 203 2400  
Fax: +27 11 203 2431

## Australia

### **BASF Australia Ltd.**

Level 12, 28 Freshwater Place  
VIC 3006, Southbank, Australia  
Phone: +613 8855 6600  
Fax: +613 8855 6511

For further information:

[miningsolutions@basf.com](mailto:miningsolutions@basf.com)  
[www.basf.com/miningsolutions](http://www.basf.com/miningsolutions)