

# Mining Solutions

## Luprofroth™ Frothers



 **BASF**

We create chemistry

# BASF 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. Our technical presence in over 100 countries allows BASF to offer technical support 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. Our combined production platforms, industry-leading formulation expertise and extensive mining solutions sales force make BASF a natural partner for frother applications.



## Frother chemistry

BASF's Luprofroth™ frother range is based on the various aliphatic alcohols and glycols that are manufactured in our global production network.

Our Luprofroth™ frothers offer different performance characteristics and flammability ratings to suit differing customer needs. Our product portfolio is formulated with polyethylene and polypropylene glycols of various molecular weights along with corresponding alkyl ethers. Buying from BASF's Mining Solutions unit means buying from the manufacturer, ensuring reliability of supply, product quality and value.

# Our Luprofroth™ range

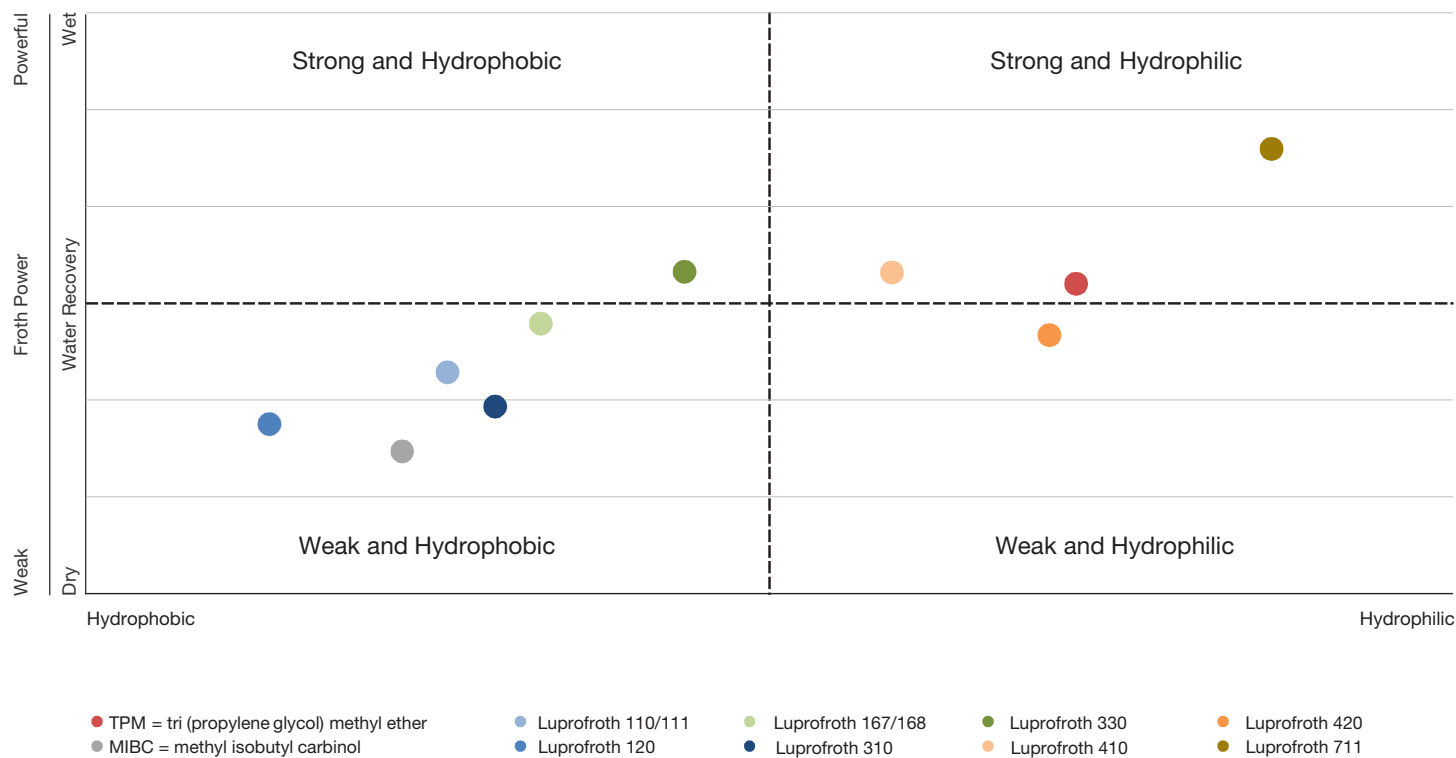


We have carefully formulated a range of frothers to deliver optimum performance for all base metal sulfidic minerals, platinum group metals, and precious minerals.

Customised formulation ensures that our frothers are able to achieve superior performance at reduced dose rates and costs. This is done by maximizing frother performance across the range of properties that influence flotation performance such as bubble size, bubble coalescence, induction time and froth stability, which a single chemical is not able to do.

Safety and handling aspects are carefully considered during frother formulation. All Luprofroth™ frother products are classified (GHS) as a Category 4 flammable liquid with a flash point between 60 °C and 150 ° C. This reduces the handling complications that are prevalent with more flammable alternatives. We also strive to ensure toxicity and ecotoxicity values are as low as possible.

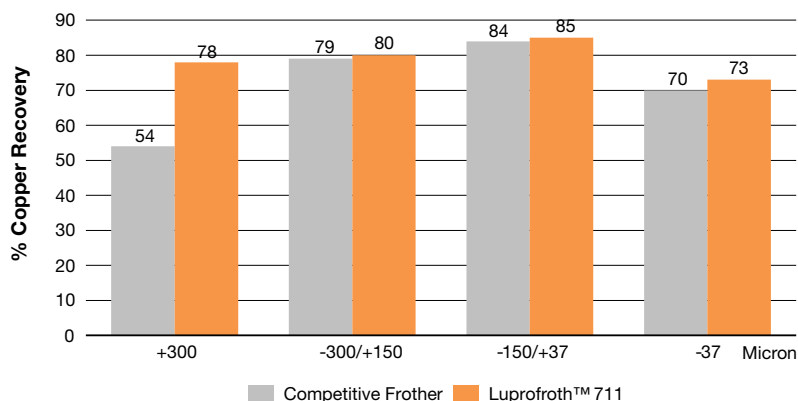
Fig. 1: Range of frother chemistries and properties cater for all flotation challenges





# Luprofroth™ performance

Fig. 3: Luprofroth™ 711 Coarse Particle Recovery



Frother selection has a major impact on flotation performance. BASF frothers offer significant process advantages and dose efficiency compared to commonly used frothers. Improvements in the grade recovery profile and growth in operational profitability are realized.

## Benefits of Luprofroth™ formulations

In addition to our current range of frothers, the Mining Solutions product development team can develop tailor-made frothers in collaboration with customers for test work in laboratories, pilot plants and industrial operations. Our product range is extensive and covers all operational challenges, particle size ranges and selectivity requirements.

### Operational

- Site-specific formulations for increased grade and recovery
- Improved particle retention due to bubble stability

### Economical

- Reduced dose rates
- Integrated chemical value chain reduces total cost of ownership
- Dose-efficient bubble stabilization in comparison to conventional frothers

### Environmental

- Reduced handling complexity – GHS classified Category 4 flammable liquid with flashpoint between 60 – 93 °C



## Technical support

We provide advice and technical expertise to the mineral processing industry worldwide. Our global team is driven by a common goal to provide the best solution to meet our customers' processing needs. With technical representation in over 100 countries, BASF provides expertise on a local basis.

## Comprehensive research, laboratory and testing capabilities

BASF's extensive backward integration into the building blocks of mineral processing product chemistries enables us to effectively apply our knowledge and chemical experience to develop both conventional and innovative formulations to meet the technical and commercial challenges faced by the industry, both today and moving towards the future. Our specialized Product Development and Technical Support personnel are located around the globe and are complemented by two Global Competence Centers for Mining Solutions, based in Tucson (North America) and Ludwigshafen (Europe). Our Flotation testing capabilities comprise:

- Mechanical and column flotation cells to evaluate frother performance in both agitated mechanical cells and unagitated cells.
- Bubble size viewer for determination of bubble sizes, bubble size distributions and critical coalescence concentration and plant surveys.
- Plant surveys – gas hold-up, superficial gas velocity to determine aeration requirements and optimum frother dosages.
- Froth stability – half life

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