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 diverse flotation range includes collectors, frothers, dispersants, and modifiers and is backed by a strong production platform of aliphatic alcohols, glycols and surfactants which makes BASF a natural partner for the coal industry.
Benefits for the coal industry

Comprehensive product portfolio

Our flotation product portfolio offers operational, economic and environmental advantages to the coal industry.

**Operational**
- Robust performance with variation of plant feeds
- Improved dewatering through coarse particle capture

**Economical**
- Reduced dose rates
- Site-specific formulations for increased yield
- Integrated chemical portfolio reduces total cost of ownership

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

Leading technical service

Based on leading experience in flotation application and testing protocols the BASF expert team provides advice and technical expertise to the coal industry. Our 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). With our chemistry, equipment, process and application expertise BASF offers a range of innovation capabilities:

- Lab scale mechanical and column flotation cells to evaluate reagent performance in both agitated mechanical cells and unagitated cells to better mimic plant conditions
- Plant surveys – gas hold-up, superficial gas velocity to determine aeration requirements and optimum frother dosages
- Froth stability – half life, for characterization of residual frothing characteristics
- Bubble size viewer for determination of bubble sizes, bubble size distributions and critical coalescence concentration and plant surveys

Backward integration and global distribution network

With a worldwide distribution network and backward-integration into key raw material for flotation reagents, BASF’s Mining Solutions offer maximum supply chain reliability. Steady product improvement assures best product performance, now and in the future.
BASF’s coal flotation solutions

The coal industry is driven by the need to maximize yield whilst minimizing ash content. A new range of frother and collector formulations have been developed by BASF to achieve these objectives.

These formulations have shown the ability to deliver improvements on a range of coal types, including those traditionally difficult to float. BASF’s extensive backward integration into the building blocks of flotation chemistries 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 into the future. BASF Mining Solutions provides specific reagent blends tailored to individual sites, mineralogy and process conditions to optimize yield.

Innovative BASF frothers for the coal industry

The new frother range is able to achieve superior performance at reduced dose rates and costs. This is achieved through customized formulations that improve froth characteristics, such as bubble size, bubble coalescence, induction time and froth stability, which is typically not possible with a single component frother. The new frother range offers safer materials handling requirements based on their GHS classified Category 4 flammable liquid (60–93 °C flashpoint) rating.

Fig. 1: Frother flotation performance

BASF frother offers comparable performance to MIBC. A reduction in frother dose achieves a higher mass yield at lower ash content.
Innovative BASF collectors for the coal industry

BASF Lupromin® FP coal collectors have two major performance advantages: improved dispersion through the pulp allowing more efficient collector performance, and the ability to tailor adsorption characteristics towards the less hydrophobic coal minerals. This leads to efficient collectors that more effectively adsorb to the partially hydrophilic surfaces present in difficult to float coals, and offer the ability to greatly increase yield and product quality at reduced dose rates.

The Lupromin® FP collector range demonstrates a significant reduction in consumption in comparison to diesel. Increases in mass yields are also realized, in conjunction with improved capture of coarse particles.

Fig. 2: **Recovery profile for varying collector dose**

Fig. 3: **Flotation performance from coal production plant**
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