Mining Solutions

DRIMAX[®] Alumina Trihydrate Pan Filter Dewatering



DRIMAX[®]

BASF's DRIMAX® dewatering aids are highly effective surfaceactive agents specifically designed to reduce the moisture content of filter cakes and centrifuge solids. BASF's Dewatering and Filtration Solutions includes expert consultation, engineering equipment, supply and commissioning services along with on-site technical and commercial support.

Benefits include

- Reduced cake moistures
- Reduced filtration cycle times
- Reduced freight charges associated with drier mineral concentrates
- Improved solids handleability
- Ease of filter cake discharge
- Prolonged filter cloth life
- Decreased thermal drying costs



Principle uses & applications

lowered.

DRIMAX® products are used to reduce the viscosity of the moisture between particles in the filter cake in order to release

more liquor in less time. The hydrophilic head of the molecule is

attracted to the liquor surrounding the gibbsite particle surface.

When multiple molecules align the same way, the hydrogen bonding in the liquor is interrupted, and the surface tension

Þ **Reduction in surface tension** of wash water





Improved capillary flow and





BASF's Mining solutions at a glance



BASF's Mining Solutions business offers a diverse range of mineral processing chemicals and technologies to improve process efficiencies and aid the economic 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.

Our chemical and process expertise includes reagents, equipment, process technologies and know-how. All of which are focused on hydrometallurgy, solid liquid separation, tailings management, materials handling, flotation and digital mining solutions.

Highlights of DRIMAX[®] performance

- Industry-leading filter cake moisture reduction
- Clean water recovery for recycling back to the process
- Safer transportation when entrained moisture levels are critical
- Potential for maximizing filtration throughputs

Technical service

Full technical service and advice in all aspects of product selection, equipment design, reagent application laboratory tests and plant trials will be provided.

Benefits

Economical	Proven cost-performance benefit across many users		
	Reducing energy consumption in calcination		
	More consistent plant performance		
Operational	Reduced filter cake moisture to deliver dryer cake for calcining		
	Better wash efficiency		
	Easy to handle product		
	Non-hazardous product		
	Potential filtration capacity increase		
Environmental	Lower CO ₂ emissions		
	Reduced caustic loss		
	DRIMAX [®] 1239 NF is non flammable		
	Low vapour pressure – significantly reduced risk by inhalation		

Products and application

BASF offer several different surfactant products for Bayer circuit conditions, they can be used alone, or in conjunction with Alclar flocculants and coagulants. The application of DRIMAX[®] products is most efficient when added through cake wash spray bars after a short inline hydration period in which condensate is used as a diluent. In situations where no spray bar addition is possible, they can be applied to filter feed slurry and achieve equivalent results.



All DRIMAX $^{\otimes}$ products are supplied in liquid form and are delivered via bulk tankers or in 1000 kg IBC's.

Product	Application	Dissolution time in water at 30°C (sec)	Dissolution time in water at 70° C (sec)	Flammability
DRIMAX [®] 1234	Trihydrate/Tailings	93	96	Flammable
DRIMAX [®] 1238	Trihydrate/Tailings	85	55	Non-flammable
DRIMAX [®] 1239 NF	Trihydrate/Tailings	15	15	Non-flammable

Site performance

DRIMAX[®] products have been supplied to the alumina industry for many years and deliver consistent performance, which is illustrated below by the moisture results obtained over four years

of service visits at a customer site where DRIMAX[®] enabled the filter performance targets to be met and maintained.



Fig. 1: Weekly service moisture results using DRIMAX® over 4 years

Fig. 2: Laboratory dose response



In this example both products that were tested performed similarly to each other with results from both laboratory tests and site trials achieving consistent results and meeting the moisture targets required. The trend in recent years has been towards

DRIMAX® 1239 NF

- Non-flammable
- Hydrates more quickly
- More stable in cold temperatures
- Not susceptible to gelling and line-blockages compared to other commonly used dewatering aids

Application on site

Basic DRIMAX[®] addition requires little more than a cavity pump and flow meter. Most typically for trihydrate applications it is diluted with condensate to optimize distribution and dosage. BASF can recommend and supply pumps and set up the appropriate configuration for each plant. The storage and dosing station typically has a tight footprint which is important for long-standing operations where space is often at a premium. Customers may opt to integrate the dose and flow data with their DCS so that live data is available and controllable, and historical data can be collected.



Dosing pump and flow meter



Fig. 3: Process data – average moisture % across 6 filters



the newer product, DRIMAX[®] 1239 NF. This is due to its improved safety (lower flash point) and easier application (faster activation time).

Your local BASF representative can assist in optimising DRIMAX[®] addition by adjusting variables such as

- Dosing levels and dilution
- Spray nozzle design and configuration
- Hydration time

DRIMAX[®] IBC

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