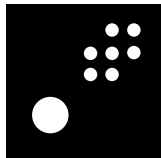


**kaō**

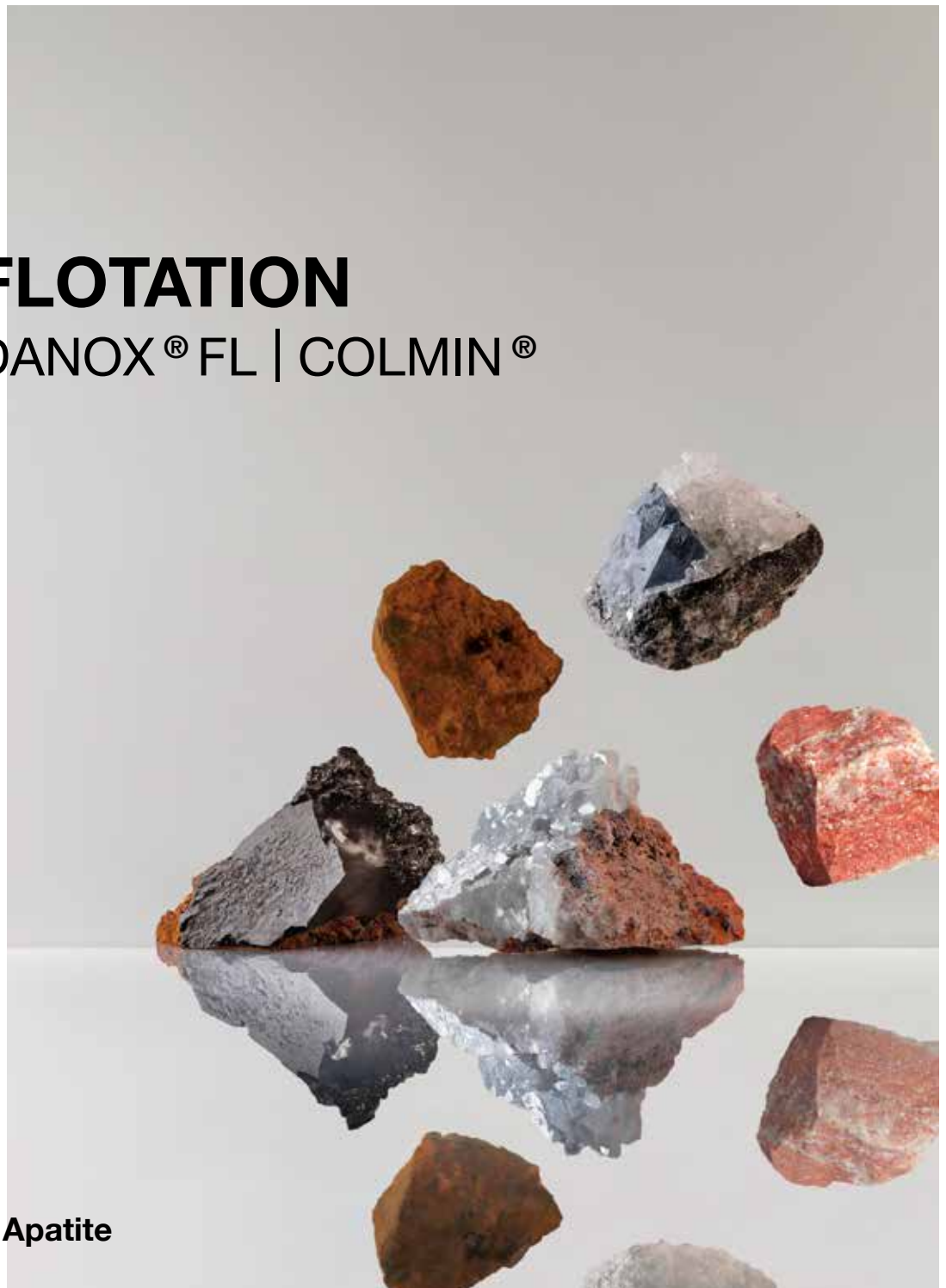
Kirei—Making Life Beautiful

Kao  
Chemicals Europe

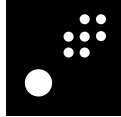


# FLOTATION

DANOX<sup>®</sup> FL | COLMIN<sup>®</sup>



**Phosphate / Apatite**  
**Potash**  
**Feldspar**  
**Iron Oxide**  
**Niobium**  
**Germanium**  
**Zinc**



## MINERAL FLOTATION SOLUTIONS WITH FULL TECHNICAL SUPPORT

Kao has more than 45 years' experience in the mineral flotation market. We provide our customers with full support from first technical evaluation to final project delivery.

Our portfolio contains superior product formulations for improved mineral grade and recovery.

### THE KAO COMMITMENT

**Our expertise, driven by R&D,** is continuously available to mining industry producers through established partnerships worldwide. Aligned with the philosophy of Kao, we are always ready to develop tailored solutions for the challenges of mineral processing.

# KAO SURFACTANT TECHNOLOGY

Chemical solutions that bring value to global industry

### KAO CORPORATION

Founded in Japan in 1887, Kao Corporation is a multinational chemical company with a long history of innovation. Today, more than 33,000 employees worldwide are dedicated to satisfying customer needs around the globe.

**«We design and provide solutions that promote sustainable development anticipating our customers' needs and providing comprehensive responses».**

## Fully Integrated Support

Customer challenge

KAO R&D Technical Study

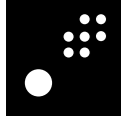
KAO Solution Proposal

Lab Proposal

Industrial Validation

Free Flow





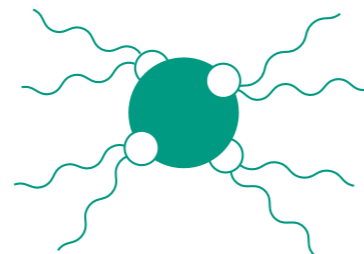
# MINERAL FLOTATION

Putting our clients first

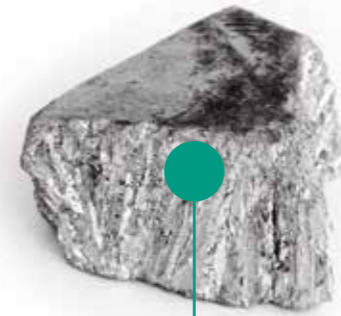
Kao is committed to helping our clients optimize their yields and improve purity with cost-effective solutions for the global mining industry.

Froth flotation is the most efficient method for mineral separation, being a physic-chemical process based on the difference of surface properties between the valuable minerals and unwanted gangue minerals. Collectors are one of the most important flotation reagents used in the process, modifying the surface properties of the minerals and selectively separating hydrophobic materials from hydrophilic.

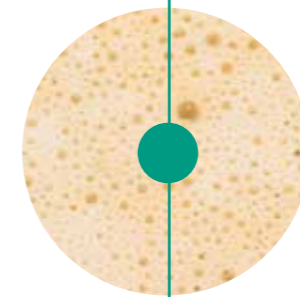
The selection of the correct collector is critical for an effective separation by froth flotation. These surfactants can be generally classified, depending on their ionic charge, including anionic, cationic and non-ionic. Combining innovation with delivery, our technical specialists will work with your operators to help you maximize recovery and grade in your froth flotation operations.



**«We work closely with our customers to effectively address ecological, regulatory and economic targets».**



Ore

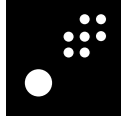


Flotation



Mineral Separation





# DISCOVER OUR SOLUTIONS

Kao can significantly improve the collection of raw minerals obtained through solid-solid mining. This improvement in efficiency is directly dependent on the selectivity of collectors for fine particle components present in the overall mixture of particles. Kao's collectors selectively control and boost the enrichment of targeted components in water-based systems for both direct and reverse flotation processes. Through experience and validated results worldwide, Kao's expertise has long contributed to the optimization and yield improvement of mineral purification in the flotation industry, following analysis of the mineral ore. Thanks to the specific characteristic of the **DANOX® FL** and **COLMIN®** range, Kao, led

by R&D expertise, provides cost-effective, high-performance solutions challenging foam control, mineral selectivity and recovery. Beyond collector additives for Potash, Feldspar, Phosphates and Iron Oxide, Kao technology also includes co-collectors, foam controllers, frothers and extensors.

## General collectors

Kao mineral flotation solutions **DANOX® FL** and **COLMIN®** collectors are formulated to achieve the best possible recovery and grade in your mineral processing operations.

<b>Phosphate / Apatite</b>	Reverse flotation beneficiation containing silicates, carbonates, iron impurities.
<b>Potash</b>	Cationic collectors formulated to help to get out potash impurities.
<b>Feldspar</b>	Direct flotation of minerals.
<b>Iron Oxide</b>	Reverse flotation beneficiation containing silicate impurities.
<b>Niobium</b>	Direct flotation with cationic collectors.
<b>Germanium</b>	Beneficiation of minerals.
<b>Zinc</b>	Direct flotation with cationic collectors.



Kao is a proactive solutions provider committed to mineral processing through creative problem-solving. We offer a wide range of innovative products to meet your needs, including custom mineral collector formulations and expert technical support.

We perform comprehensive mineral flotation testing and reagent evaluation at **Kao's advanced R&D** laboratories and at our customers' plants to adapt the collector formulations to each ore and plant operating parameters.





For requests and further inquiries about our products, scan the QR code to connect with Kao

