

Clariant Mining Solutions

A global specialty chemical leader delivering customized solutions focused on enabling sustainable mining

Clariant at a Glance

Globally Leading Company in Specialty Chemicals

5 198

Sales 2022¹ (CHF m)

810

EBITDA 2022¹ (CHF m)

15.6%

EBITDA margin 2022¹

3

Business
Units

11 148

Total staff 2022¹ (FTEs)

70

Production sites 2022¹

0.64

Scope 1 & 2 GHG
emissions 2022^{1,2}
(m t CO₂e)

2.58

Scope 3 (category 1) GHG
emissions 2022^{1,3}
(m t CO₂e)

¹ Continuing operations

² This includes 0.02 m t of biogenic CO₂ emissions.

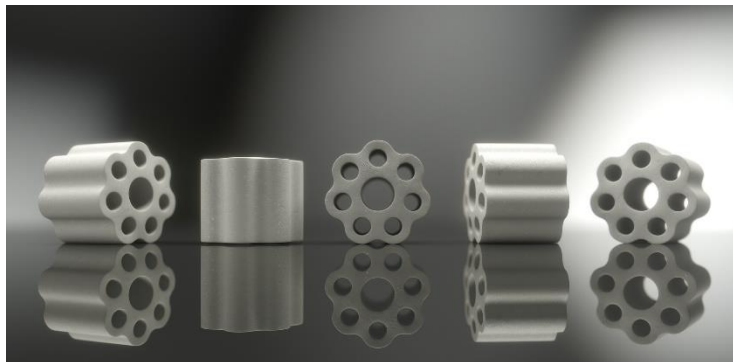
³ Category 1 = emissions from purchased goods and services

Three Business Units – our portfolio for long-term sustainable growth



Care Chemicals

The Business Unit Care Chemicals consists of the business segments Personal & Home Care, Crop Solutions, Industrial Applications, Base Chemicals, Oil Services and Mining Solutions. The Business Unit has a clear focus on highly attractive, high-margin, and low-cyclical segments with a large share of the business being consumer-facing in Consumer Care and Industrial Applications.



Catalysts

The Business Unit Catalysts includes the business segments Propylene, Specialties, Syngas & Fuels, Ethylene, Biofuels & Derivatives and Applied Catalyst Technology. The Business Unit contributes significantly to value creation in our customers' operations, ensuring that finite raw materials and energy are used efficiently and, in turn, ensuring the quality and yield of processes.

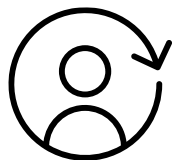


Adsorbents and Additives

The Business Unit Adsorbents & Additives comprises the business segments Purification, Foundry & Specialties, and Cargo & Device Protection in the regions EMEA, APAC and Americas on the Adsorbents side, as well as Coatings & Adhesives, Plastics and E-Mobility & Electronics in Additives. The Business Unit creates value through enhanced sustainability benefits, for example by enabling material circularity and by reducing customers' dependency on fossil resources to reduce CO₂ emissions.

Clariant's Purpose: "Greater Chemistry – between People and Planet"

Four themes underpin Clariant's purpose-led strategy



Customer focus

We are shaping the future with our customers.

Together with our customers, we collaborate for meaningful impact.

1



Innovative chemistry

We are accelerating innovation.

Our innovative chemistry expands what is possible to the benefit of all.

2

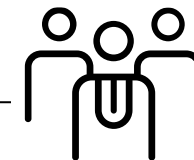


Leading in sustainability

We are leading the transition toward sustainability.

Our capabilities position our customers and us at the forefront of a sustainable world.

3



People engagement

We are building a culture of possibilities.

Our shared passion and our engaging and inclusive environment empower everyone to achieve greater outcomes.

4

Clariant Mining Solutions is a global provider of solutions to improve the sustainability and metallurgical performance of mines



Flotation Reagents

Uniquely formulated solutions for each customer's ore



Process Aids

Improve dewatering and filtration, reduce energy consumption and improve pellet quality and throughput



Emulsifiers for Explosives

High-performance, tailor-made emulsifiers and ready-to-use fuel phase solutions

Improving Sustainability

Tailings Management Program to reduce and recover tailings and improve filtration and handling
Lower toxicity replacements for xanthates and NaSH to improve safety

Technologies to reduce energy and water consumption in flotation and pelletizing

Supporting the Energy Transition

Decarbonization Minerals Program focused on reagents for processing of main decarbonization minerals, including copper, lithium, nickel, cobalt, rare earths, and alumina

7

Production Sites

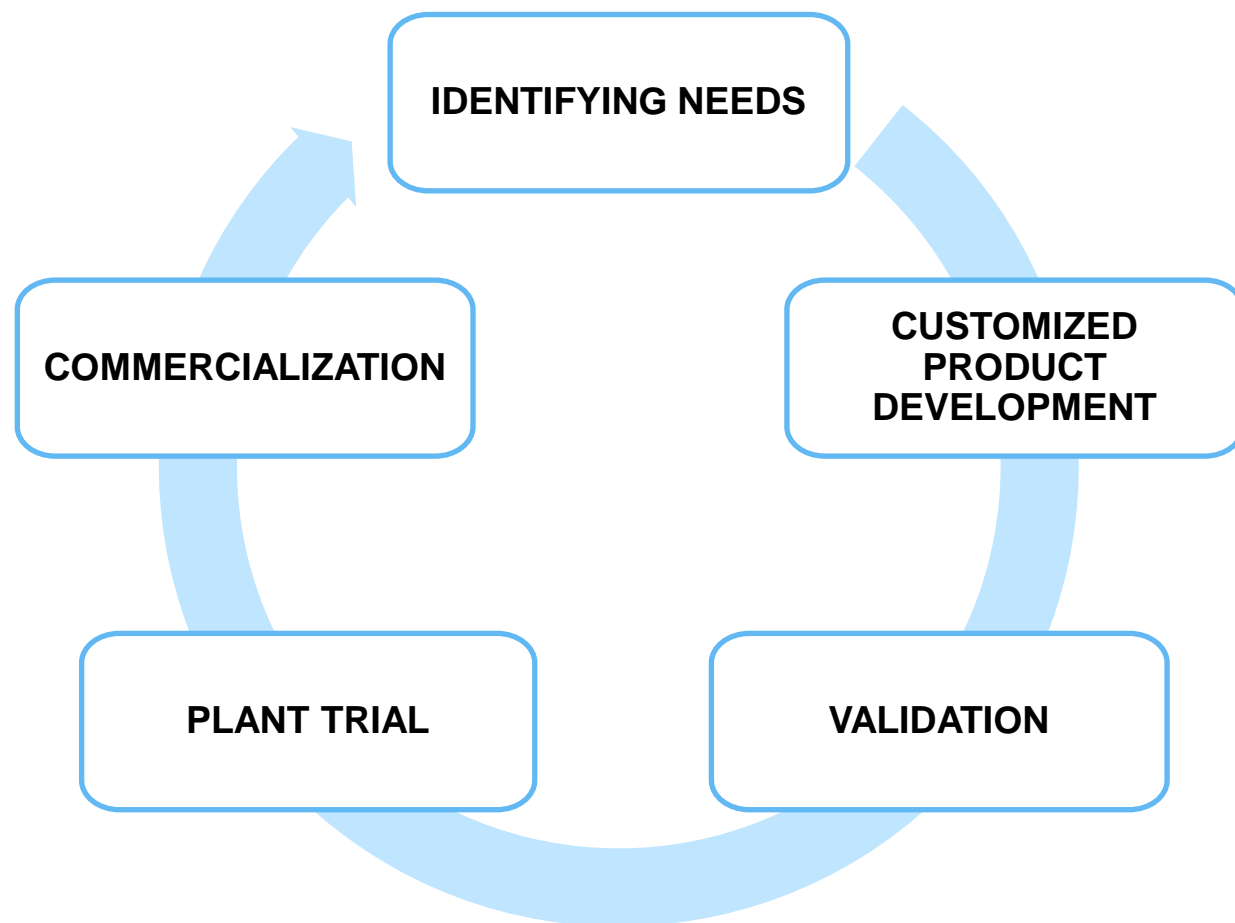
7

Application & Development Centers

5

Research and Competence Centers

Customized Solution Development



Identifying Needs

Clariant Metallurgists walk the plant and interview plant personnel to understand the needs of the plant

Customized Product Development

Clariant Chemists develop experimental reagents that are tested in Clariant laboratories on customer mineral samples

Validation

Customized reagents are evaluation in the customer's own laboratories or pilot lines

Plant Trial

Plant trials conducted with Clariant support to confirm the results

Commercialization

Ongoing support to continue to optimize the solution as the ore changes

Innovative Chemistry – Accelerating Innovation

Innovation figures end of 2022¹

160 m

of R&D expenditures
in CHF

3.1%

of group sales
spent in R&D

>5.5%

Growth through innovation²

3

Clariant Innovation Centers

>785

People in R&D
in FTEs

>65

Scientific collaborations

>4 300

Patents
year-end

10

R&D Centers and dedicated
Technology Centers

>45

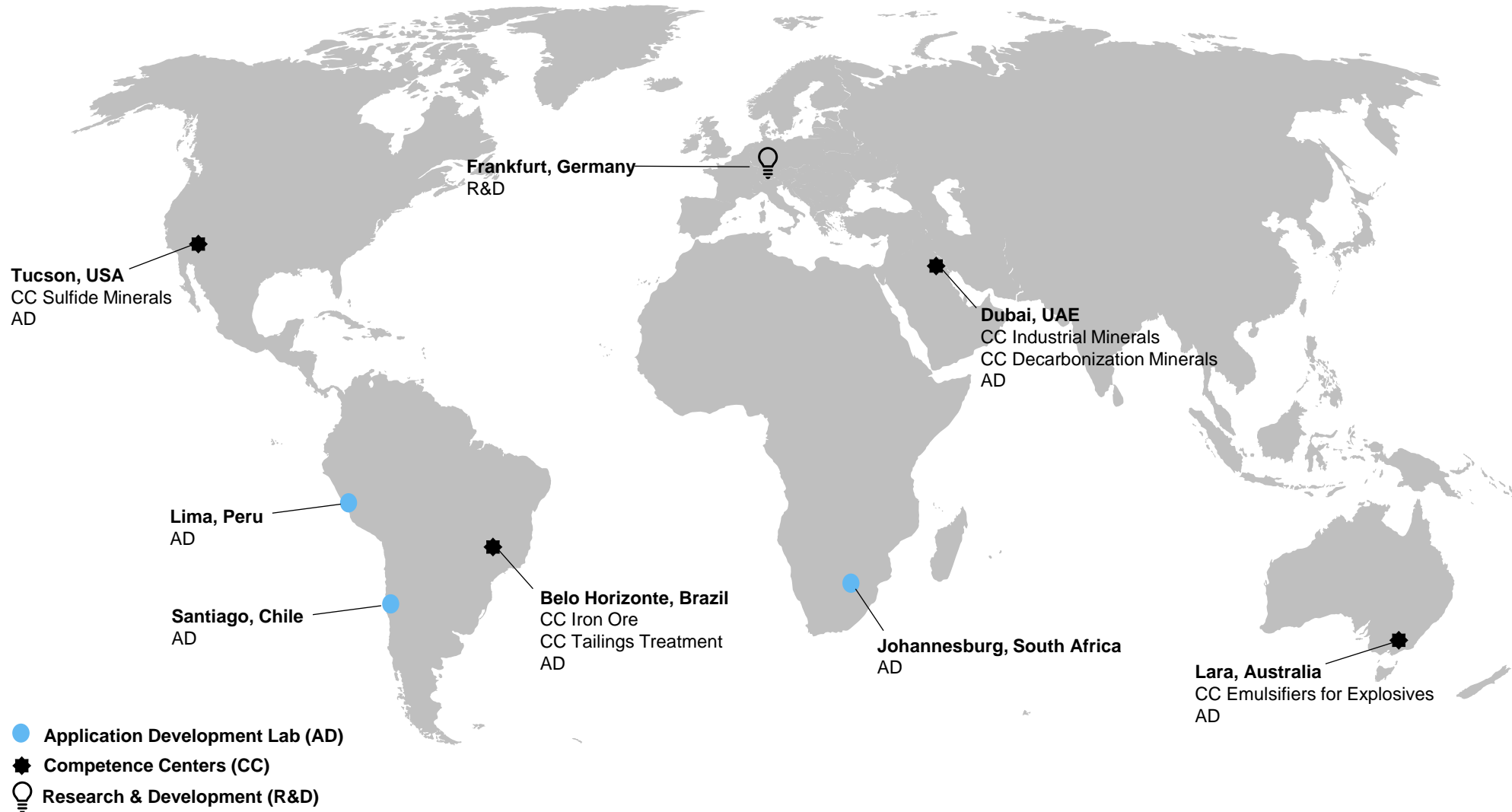
Technical Centers

¹ For continuing operations

² Contains the contribution to growth of the innovation portfolio from both Top Line Innovation and Life Cycle Innovation. Potential cannibalization of existing sales by Life Cycle Innovation has not been excluded.

Clariant Mining Solutions

GLOBAL APPLICATION & DEVELOPMENT CENTERS



Clariant Innovation Center,
Frankfurt



Competence Center for
Tailings Treatment, Belo Horizonte



Competence Center for
Decarbonization Minerals, Dubai

Clariant Mining Solutions

WORLD LEADERS IN INNOVATION



**SULFIDE
ORES**



**IRON
ORE**



**INDUSTRIAL
MINERALS**

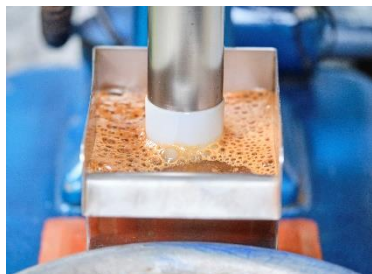


**EMULSIFIERS
FOR EXPLOSIVES**

Key Markets we Serve

Clariant has a broad portfolio of flotation chemicals, process aids and emulsifiers to help the mining industry optimize its operations and become more sustainable.

Tailings Management Program



FLOTIGAM™
FLOTINOR™
FLOTICOR™ FA
FLOTICOR™ RM
FLOTICOR™ MS

Decarbonization Minerals Program



FLOTINOR™
FLOTICOR™ DW
FLOTICOR™ DF
FLOTICOR™ FA
HOSTAFLOT™
FLOTANOL™

Iron Ore



FLOTIGAM™
FLOTANOL™
FLOTINOR™
FLOTICOR™ FA
FLOTICOR™ FL
FLOTICOR™ PA
FLOTICOR™ RM
FLOTICOR™ SI

Sulfide Ore



HOSTAFLOT™
FLOTANOL™
FLOTICOR™ FA
FLOTICOR™ DP
FLOTICOR™ EX
FLOTICOR™ RM

Emulsifiers for Explosives



ARKOMON™ XP
ARKOMON™ XE
ARKOMON™ XB
ARKOMON™ V

Industrial Minerals



FLOTINOR™
FLOTIGAM™
FERTALA™
FLOTICOR™ FA
FLOTICOR™ SI
FLOTICOR™ DF

Clariant Mining Solutions

100+ customers worldwide

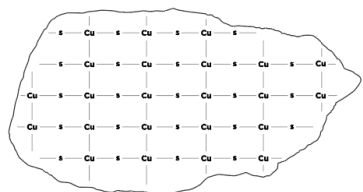


Sulfide Ores

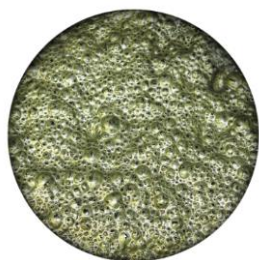
OPTIMIZE RECOVERY AND IMPROVE GRADE



Increased recovery and concentrate quality utilizing our innovative range of HOSTAFLOT® collectors for the flotation process



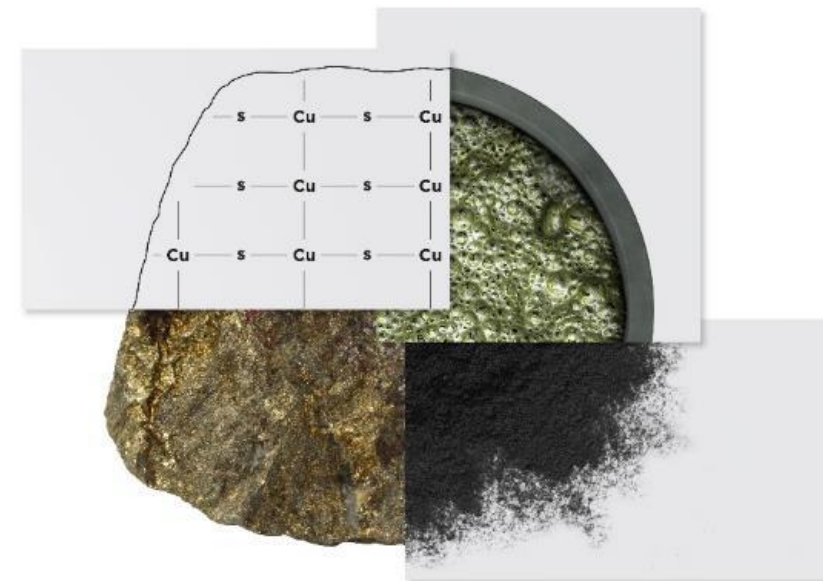
HOSTAFLOT® Xanthate Replacement collectors offer sustainable solutions for optimized grade and valuable mineral recovery



Improved flotation performance with FLOTANOL® frothers to help achieve the right froth and maximize recovery

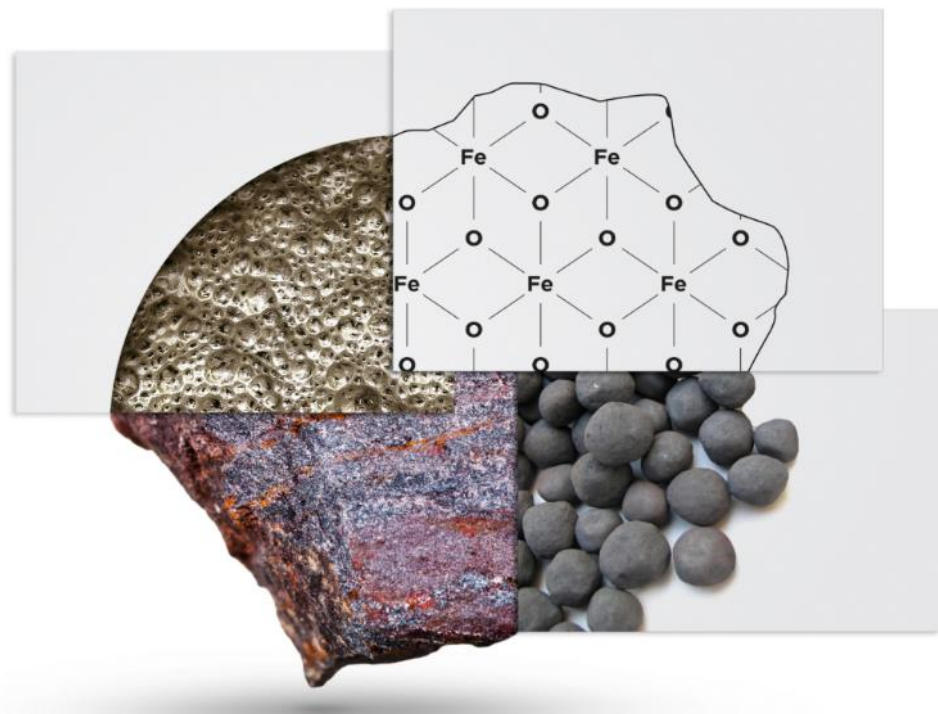


Tailor-made collectors formulated to meet concentrate specifications



Iron Ore

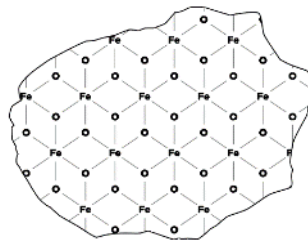
GLOBAL SUPPLIER IN IRON ORE FLOTATION REAGENTS, FILTER AIDS, AND AGGLOMERATION ADDITIVES



Tailored chemical solutions for different iron ore types and process conditions



Increased recovery and concentrate quality utilizing our comprehensive range of FLOTIGAM® collectors for flotation process



Improved throughput and reduced filter cake moisture with the selection of the right filter aid product



Enhanced agglomeration process with our additives and binders for iron ore pelletizing

Industrial Minerals

SPECIALIZED REAGENTS TO ENHANCE VALUE IN YOUR FROTH FLOTATION OPERATIONS

Our FLOTINOR® and FLOTIGAM® collectors are formulated to achieve the best possible recovery and grade in your mineral processing operations, and our FLOTANOL® frothers give you the right froth stability.

PHOSPHATE

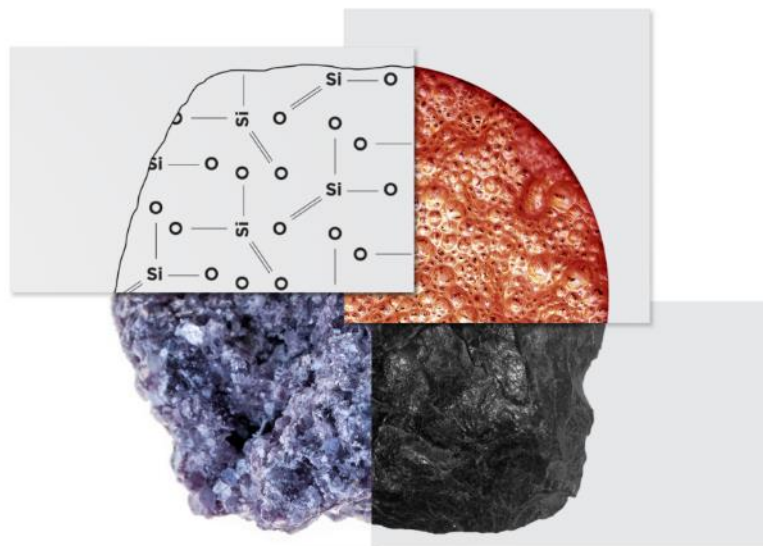
Remove carbonates and silicates to optimize your phosphate beneficiation plant

POTASH

Summer and winter amine collectors formulated to help you get the most out of your potash flotation operations

LITHIUM

Collectors designed to remove mica or other silicates from your spodumene ores



RARE EARTHS

Specially formulated to optimize rare earth operations, including monazite, xenotime and bastnaesite ores

NIOBIUM

Collectors formulated to achieve the best possible recovery and grade in complex pyrochlore beneficiation operations

FERTILIZER ADDITIVES

Designed for nitrogen, phosphates and potash fertilizers to improve handling by preventing caking and dusting

Emulsifiers for Explosives

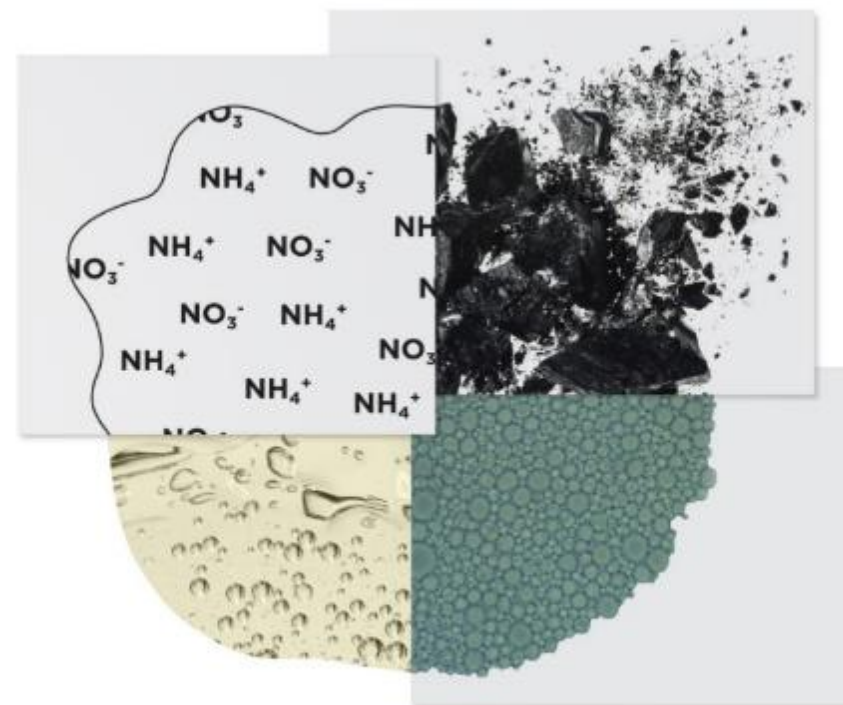
GLOBAL PRODUCER OF EMULSIFIERS FOR BULK EMULSIONS, PACKAGED EXPLOSIVES AND SPECIALIZED APPLICATIONS

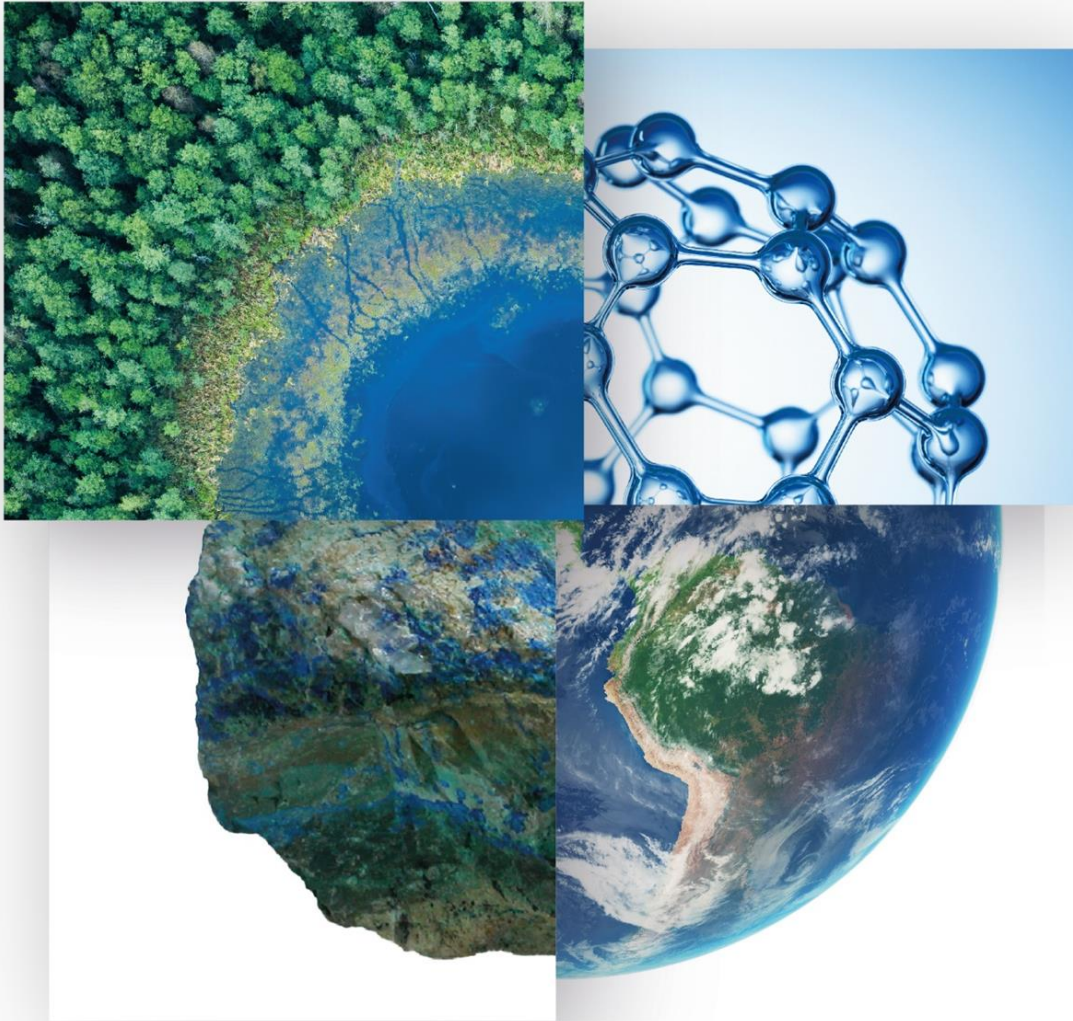
Improved stability, water resistance and chemical gassing using our range of high performance emulsifiers and tailored products for single salt and dual salt emulsion explosives

Excellent long-term stability with ammonium nitrate grades containing troublesome additives and contaminants using our specially-developed range of robust emulsifiers

Enhanced viscosity, stability and sensitization of packaged emulsion explosives using our range of blended PIBSA and SMO-based emulsifier systems

Optimum shear-thickening, adhesion and stability for underground up-hole applications using our specialized emulsions





Sustainability/Tailings Management Program

**Working together to build
the future of mining**

Clariant's Tailings Management Program (TMP) offers multiple technology platforms on the path to improved efficiency and sustainable mining



Flotation

- Allow secondary mining of existing tailings
- Avoid disposal of slimes into tailings ponds
- Improve recovery rates of existing flotation plants



Magnetic Separation

- Enhance magnetic separation performance of overcoated tailings minerals



Dewatering

- Enable disposal of tailings minerals into dry stacks instead of tailings dams
- Increase the speed of dewatering



Rheology Modification

- Increase the solids content of tailings in pipelines

FLOTICOR™ DP

Sulfide Depressant for Differential Molybdenum Flotation

Commercial track record

- Over 400 metric tons sold
- Industrial operation running 100% on FLOTICOR™ DP (completely NaSH free)
- 40 Molybdenum Bags produced with Mo grade higher than 48% with mechanical cells (no columns)
- Flotation gas is air instead of Nitrogen, reducing operational costs and complexity

New plant built with:

- No special engineering changes
- No extra CAPEX
- No lengthy environmental impact studies

