

*Performance
Mining Reagents*



SNF FLOMIN™

PERFORMANCE MINING REAGENTS

FloMin, Inc.

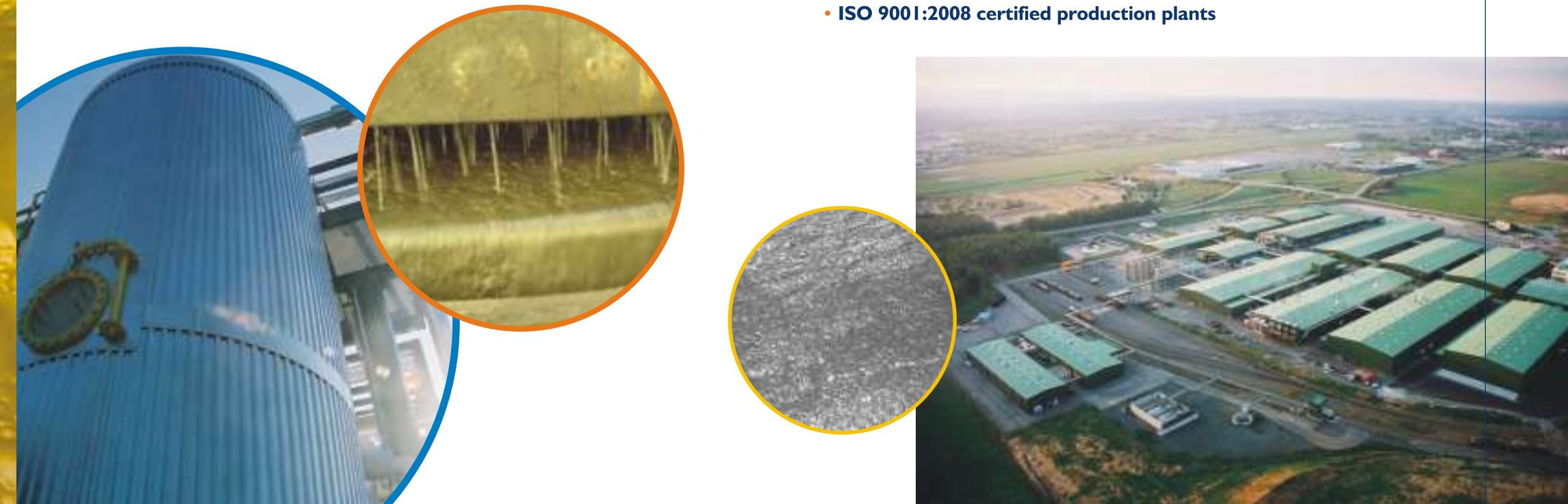
Solving Problems in the Mineral Processing / Metal Extraction Industries with Customer-driven Solutions

It is no wonder that major mines around the world have turned to FloMin to satisfy their needs. Finally, there is a service-oriented company with excellent manufacturing capabilities who is willing to listen, customize, and deliver on its promises. When you need solutions and not the status quo, FloMin is ready.

FloMin, Inc., a subsidiary of the SNF group of companies - www.snf-group.com, manufactures quality value-based reagents and provides services for the mineral processing industry. Headquartered in the USA, FloMin production sites are strategically located in the United States, China, North, Central and South America, with affiliated sites in other countries. Technical sales professionals are based in North America, Asia, Europe, Southern Africa, South America, and Australia.

FloMin Offers:

- **Wide range of mineral processing/metal extraction reagents**
- **Worldwide team of mining technical experts**
- **Full-time start-up and product trial support at your mine site**
- **R&D facilities to provide customized solutions to meet your goals**
- **Manufacturing facilities in United States, China, North, Central and South America**
- **Unparalleled customer service and logistics expertise**
- **Top to bottom commitment to Safety, Health and Environmental issues – our manufacturing plants have been cited for consecutive years of outstanding performance and zero lost-time incidents**
- **ISO 9001:2008 certified production plants**



Flotation Reagents

Collectors

Xanthates

SNF FloMin operates a large production facility in Qingdao, China and has grown to be the leading customized supplier of Xanthates worldwide.

- **SEX**
- **SIPX**
- **SIBX**
- **PAX**
- **SNBX**
- **Midas® Series FloMin C 6630 and C 6505**

Dithiophosphates

Dithiophosphates and Monothiophosphates are effective in alkaline flotation circuits and are more selective than xanthates.

DTP	FloMin C 2210	Sodium Diethyl Dithiophosphate
	FloMin C 2330	Sodium Diisopropyl Dithiophosphate
	FloMin C 2420	Sodium Di-sec-butyl Dithiophosphate
	FloMin C 2430	Sodium Diisobutyl Dithiophosphate
	FloMin C 2761	Ammonium Dicresyl Dithiophosphate
MTP/DTP	FloMin C 5432	MTP/DTP Blend

Thionocarbamates

Thionocarbamates are oily liquids that function well in basic and acidic flotation circuits and in particular with porphyritic copper, Cu/Mo, Cu/Au.

FloMin C 4132	Isopropyl Ethyl Thionocarbamate (Cu)
FloMin C 4146	Proprietary Thionocarbamate (Ag / Cu / Au)
FloMin C 4150	Allyl Isobutyl Thionocarbamate (Cu / Au)
FloMin C 7446	Proprietary Thionocarbamate / Ester Blend (Cu / Mo)

Formates/Esthers

These are specialty oily collectors for low pH Copper and Gold circuits.

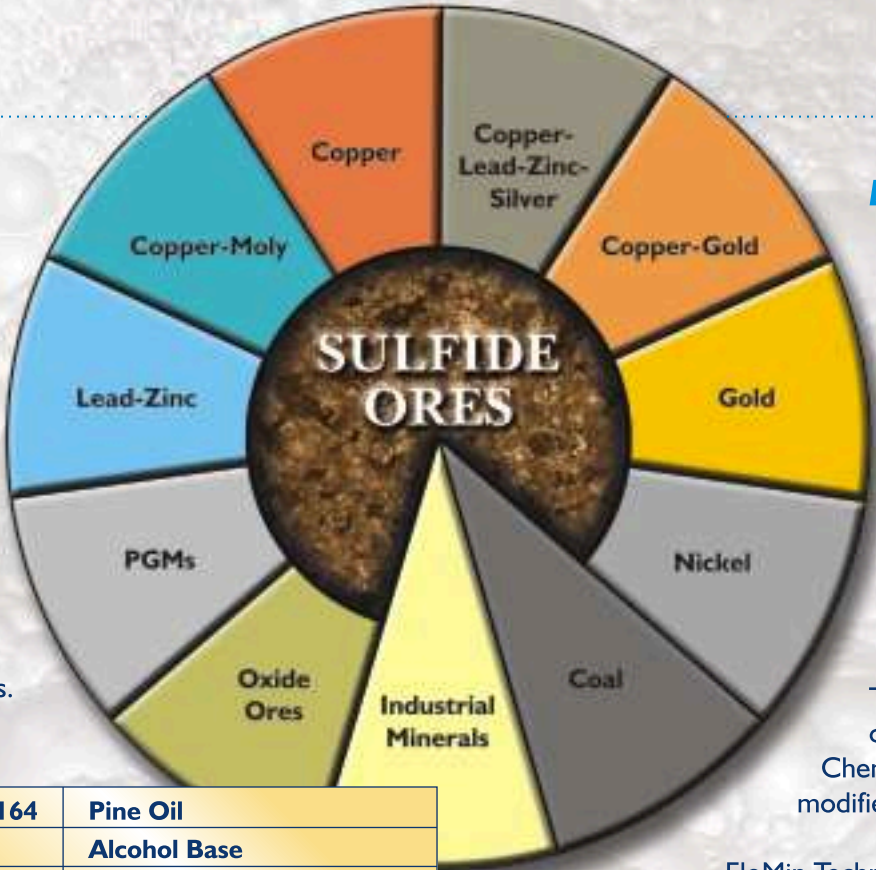
FloMin C 4930	Isopropyl Xanthogen Ethyl Formate
FloMin C 4410	Allyl Amyl Xanthate Ester
FloMin C 7931	Specialty Blend for Copper and Gold
Other Customized Blends Available	

Frothers

SNF FloMin provides a wide range of alcohol, ethoxylated alcohols, polyglycol and polyglycol ether-type products, as well as formulations to provide the best performance based on the needs of the circuit.

Certain frothers like Dowfroth 250 and MIBC have become scarce or relatively expensive. SNF FloMin have developed proprietary blends that have demonstrated excellent improvement in frothing capabilities. Contact us for details.

Pine Oil	FloMin F 161/164	Pine Oil
Alcohols	FloMin F 422	Alcohol Base
	FloMin F 430	Coal Frother
	FloMin F 500	MIBC
	FloMin F 810	Cyclical Alcohol
Ethoxylated Alcohols	FloMin F 237	2EH Blend
Glycols	FloMin F 583	OTX-140 Type
	FloMin F 742	Polypropylene Glycol Ether
	FloMin F 533	X-133 Type
Glycol Ethers	FloMin F 650	DF 250 Type
Customized Blends		Match to Competitors' Offerings



Depressants, Dispersants and Activators

These include depressants for iron, copper, and lead sulfides in primary and by-product molybdenite flotation circuits. Also, some can be used in combination or as a replacement for sodium hydrosulfide, ferrocyanide, and sodium cyanide.

Solvent Extraction

CuPRO MEX™

Performance Copper Solvent Extractants

FloMin introduces a new range of Copper Solvent Extractants

The CuPRO MEX™ line of hydrometallurgical extractants compliments the industry leading range of FloMin Mining Chemicals already available world-wide. These products are based on modified Aldoximes and a range of Aldoxime/Ketoxime formulations.

FloMin Technical Service laboratories are in place in Antofagasta, Chile and Johannesburg, South Africa. These laboratories include a full range of capabilities comprising solvent extraction mini-plants, CuPRO-Sim™ computer simulations for most of the flowsheets that can be conceived, full analytical support, and CuPRO-Form™ reagent formulation systems to optimize formulations for any given plant configuration. FloMin's R&D laboratory in Baytown, Texas provides the sophisticated analytical tools that are required to analyze organic and aqueous phases for complete knowledge of the reagent systems that can be encountered in the industry.

DEHPA®	Highly-effective extractant to recover Uranium, Vanadium, Beryllium, Yttrium, Cobalt, Zinc, rare earths and other valuable metals
IONQUEST® 290	Phosphinic acid solvent capable of extracting several metals via a cation exchange mechanism similar to DEHPA®. Used primarily to separate Co from Ni but also great for Zinc, Cadmium, Mn and Mg by pH control.

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FloMin D 633	Proprietary Blend to Replace Nokes
FloMin D 800	70% Sodium Hydrosulfide (NaHS Flakes)
FloMin D 910	Nokes Reagent (25% Solution)
FloMin D 640	D8 Type
Others	Available Upon Request

CuPRO MEX™

CuPRO MEX 3302	Modified 5-Nonylsalicylaldoxime Formulation
CuPRO MEX 3304	Modified 5-Nonylsalicylaldoxime Formulation
CuPRO MEX 3406	Non-Modified 5-Nonylsalicylaldoxime Formulation
CuPRO MEX 3206	5-Nonylacetophenoneoxime Formulation
CuPRO MEX 3506	Mixture of 5-Nonylsalicylaldoxime and 5-Nonylacetophenoneoxime Formulation
CuPRO MEX 5400	Alkyl-betadiketone Formulation

Tertiary Amines

AMEX 300	Tri-n-octyl Amine
AMEX 304	Tri-lauryl (C12) Amine
AMEX 308	Tri-iso-octyl Amine
AMEX 310	Tri-iso-decyl Amine
AMEX 336	Blend of C8/C10 Amine

The "CuPRO MEX" Range of Extactants

- Products formulated to extract value from scarce resources in the most cost effective manner
- These versatile formulated products have a long history of commercial application.
- Capable of highly selective copper extraction from leach solutions containing a wide range of copper value at various levels of acidity.
- The products strip with ease using spent tankhouse electrolyte
- The products exhibit excellent chemical stability



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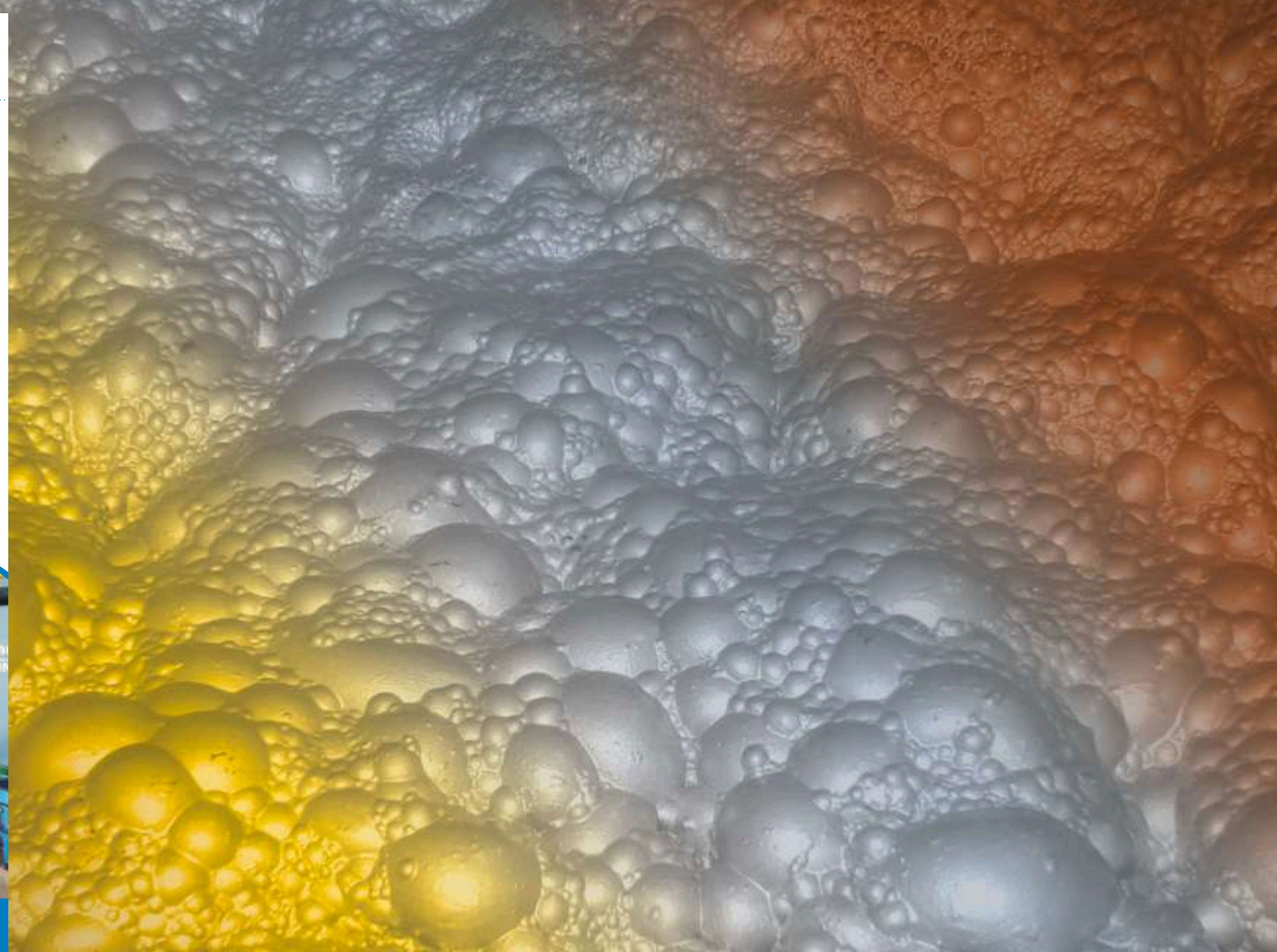
Sales, Service, Logistics

Whatever your requirements may be, and through our regional offices and highly-experienced metallurgical, research and development and logistics personnel, we are confident we can satisfy your needs. Additionally, via our Vendor Management service program, reagent plant engineering and, local inventory stores, we have established ourselves as a full service provider of reagents.

- Address existing technical problems with customized/optimized blends, unique flowsheets, and analytical/simulation tools
- Provide high level of technical support and routine testing analysis

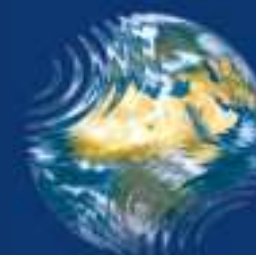
FloMin is capable of providing full vendor management services.

- **Monitoring of inventories**
- **Transport**
- **On and off-site warehousing**
- **Reagent storage and dosing equipment engineering/maintenance**
- **Flocculant makeup design and thickener dosing control systems**
- **On-site reagent preparation**
- **Contracted chemical handling management and workforce**
- **Performance testing and reporting**
- **Reagent suite development and improvement**
- **Quarterly cost/price control and governance**
- **Electronic single invoice billing**



Headquarters

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