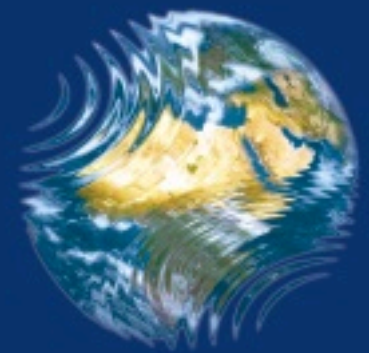




*Performance
Mining Reagents*



SNF FLOMIN

About FloMin, Inc.

As a subsidiary of SNF, the leading manufacturer and supplier of polyacrylamide flocculants, and with two operating production units for specialty mining reagents, FloMin, Inc. is well positioned to service all of your mining reagent needs.

With full service metallurgical laboratories in the USA and Chile, and local technical service representatives in over ten countries and on every continent, FloMin delivers technical solutions and process improvements to help you strengthen your revenues through increased recoveries and grades. FloMin's research and development laboratories in the USA, France and China develop custom and novel reagents for your most complex problems. Through our affiliated company FloQuip, our engineers will design and manufacture custom reagent handling, make-up and dosing equipment to your specifications. Our global customer service group in Baytown, Texas, will assure on-time delivery of your product requirements to any port worldwide.

FloMin offers many advantages and benefits:

- **Manufacturing facilities world wide**
- **Wide range of mining reagents**
- **State-of-the-art R&D facilities to develop customized solutions for your ore**
- **Full-time start-up and product trial support at your mine site anywhere in the world**
- **Unparalleled customer service and logistics expertise**
- **Top to bottom commitment to Safety, Health and Environmental issues - SNF manufacturing plants have been recognized for consecutive years of outstanding performance and zero lost-time incidents.**

SNF Floerger

SNF Floerger is among the world's leading manufacturers of synthetic flocculants used in water treatment. SNF is backward integrated to produce all of the key intermediates for polyacrylamide production including acrylonitrile, acrylamide and monomers, ensuring a strong supply chain of vital raw materials necessary to produce anionic, cationic and nonionic polyacrylamides as well as DADMAC, polyamines and acrylates.

Fully integrated world-class facilities in France, USA, and China, and more than fourteen specialty manufacturing operations guarantee a continuous supply of flocculants to our customers worldwide. More than 30 subsidiaries, together with a strong network of agents and distributors, provide the highest level of service for our customers in more than 140 countries worldwide.

SNF continually enhances the effectiveness and quality of its product line through cooperation with its customers, industrial organizations, and governmental agencies. A strong research and development effort, combined with state-of-the-art engineering, allows SNF to offer its customers the highest value possible in water treatment polymers.

Key Figures:

- **Turnover approximately 1.2 billion Euros**
- **Customers 30,000**
- **Serving more than 300,000 end users**
- **Servicing 140 countries**
- **Consolidated production (100% active): over 300,000 metric tons**
- **Number of production facilities: 18**
- **Personnel worldwide: 2750**



FloMin Mining Reagents

FloMin, Inc.

In order to better serve our customers in the mining industry, FloMin, Inc. extends the strong leadership position of SNF into the manufacture and supply of mining reagents, allowing us to provide a one-stop source able to supply most of your specialty chemical requirements. In addition to a full line of collectors, frothers and other reagents, FloMin, Inc. provides custom manufacturing services. As with our parent company, FloMin is built on a strong foundation of wholly-owned production facilities with a continuous improvement philosophy that provides our customers with the highest level of value in the industry. Whether it is a single product or a full vendor management program, FloMin will meet your every demand with quality products, technical service and supply.

Collectors and Promoters

SNF Flomin C products are widely used for the flotation of copper, lead, zinc, gold, nickel, platinum group elements and others. Although the base line of products consists of the traditional known chemistries, SNF also has active programs in place for developing site-specific blends and new products across the froth flotation spectrum.

- **Xanthates - all types**
- **Dithiophosphates - all types**
- **Thionocarbamates**
- **Mercaptobenzothiazole**
- **Xanthogen formates**
- **Xanthic esters**
- **Blends**



FloMin Xanthate Plant in Qingdao, China

Xanthates

Xanthates provide a wide range of collection power, enabling the flotation metallurgist to cope with practically any problem involving sulfide minerals. However, the best xanthate for any particular problem must be determined by actual test. Experimental testing at FloMin laboratories can narrow the choices of the other xanthates and/or specialty collectors.

FloMin operates a large production facility in Qingdao, China and has grown to be one of the leading suppliers of xanthates worldwide. Xanthate solutions are manufactured in Baytown, Texas. A network of toll manufacturing agreements allows us to meet the high demand for xanthates.

Flomin C 3200	SEX	Sodium ethyl xanthate
Flomin C 3330	SIPX	Sodium isopropyl xanthate
Flomin C 3430	SIBX	Sodium isobutyl xanthate
Flomin C 3505	PAX	Potassium amyl xanthate
Flomin C 3500	SAX	Sodium amyl xanthate
Flomin C 3410	SNBX	Sodium n-butyl xanthate

Dithiophosphates

Dithiophosphates are available as water-soluble salts that exhibit a wide range of properties with respect to selectivity and froth character. Dithiophosphates are effective in alkaline flotation circuits and are more selective than xanthates.

Monothiophosphates (MTPs) are effective copper collectors in acid circuits and help improve gold recovery.

- **Improved recovery of valuable metals such as Pb, Cu, Zn, PGM's and Ni.**
- **Typical pH usage range is neutral to alkaline.**
- **Selective against iron sulphides.**

Monothiophosphates	Flomin C 4343	Sodium diisobutyl monothiophosphate
	Flomin C 4370	Sodium dicresyl monothiophosphate
Dithiophosphates	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 2530	Sodium diisoamyl dithiophosphate
	Flomin C 2630	Sodium di-methylamyl dithiophosphate
	Flomin C 2750	Sodium dicresyl dithiophosphate
	Flomin C 2760	Ammonium dicresyl dithiophosphate
	Flomin C2810	Zinc dithiophosphate

FloMin Mining Reagents

Specialty Collectors

Certain product mixtures are particularly useful as flotation reagents; specifically collectors in the flotation of molybdenum-bearing copper ores, where molybdenum recovery has been increased by more than 10% without adverse effects on copper recovery.

- Use as a collector in most base and precious metal flotation circuits
- Improve recovery of copper in lower pH circuits
- Excellent secondary collector in porphyry copper operations
- Ideal as blend component in frothers

Flomin C 4920	Ethyl xanthogen ethyl formate
Flomin C 4930	Isopropyl xanthogen ethyl formate
Flomin C 4940	Isobutyl xanthogen ethyl formate
Flomin C 4950	Amyl xanthogen ethyl formate

Specialty Collectors



Xanthic Esters

- Excellent collector for metallic copper, molybdenite, and sulfidized base metal oxides
- Effective in both acid and alkaline solutions
- Insoluble in water (oily compound)

Flomin C 4410	Allyl amyl xanthate ester
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This ester is used blended with formates, thionocarbamates and/or our MCO collector Flomin C 4000.

Frothers

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.

FloMin has developed proprietary blends that have demonstrated excellent improvement in frothing capabilities and which are readily available. FloMin technicians are trained to develop and formulate the optimal frother for your flotation.



Frother Storage at FloMin

Alcohols	Flomin F 110	C6 alcohol
	Flomin F 410	C8 alcohol
	Flomin F 420	C5 alcohol
	Flomin F 500	MIBC
Ethoxylated Alcohols	Flomin F 210	2EH
	Flomin F 222	2EH replacement
	Flomin F 237	MIBC replacement
	Flomin F 112/113	C6 ethoxylates
Glycols	Flomin F 515	Glycol blend
	Flomin F 530	Glycol blend
	Flomin F 533	Glycol blend
	Flomin F 742	Polypropylene glycol
Glycol Ethers	Flomin F 672 (670/673/674)	Methyl glycol ether (ca. 250 MW)
	Flomin F 660	Methyl glycol ether (ca. 200 MW)
	Flomin F 661	Butyl glycol ether
Special Blends	On request	

The SNF Commitment

SNF is fully committed to serving customers' needs worldwide with high-quality value-added products and services. A philosophy of continual improvement with regard to processes, products and service results in operational efficiency, market responsiveness and the highest value for our customers.

SNF's mission is to develop, produce and market polymers for water treatment across a broad range of industries that includes mining and paper, and enhanced oil recovery, while respecting the environment and the satisfaction of customers. These products widely contribute to controlling water pollution and water recycling in our everyday lives.

SNF has implemented an environmental process following these principles and guidelines:

- **Sustained development that guarantees long-term stability between environment, business and social well-being**
- **Evaluation of environmental impact before any construction of a manufacturing facility**
- **Permanent improvement of environmental performances including neighborhood relationship and maximum prevention of nuisances**
- **Implementation and improvement of methods of production for reduced environmental impact**
- **Train and inform all employees on environmental issues**
- **Develop and actualize emergency plans**
- **Recycle and reduce residual waste and its treatment under controlled conditions**
- **Involve all personnel - especially management, to favor activities respectful of the environment and of Federal, State and Local legislation**
- **Transparent communication and co-operation with all local bodies and public authorities**
- **SNF has joined the United Nations' initiative Global Compact. It is a principle-based framework for businesses, stating ten principles in the areas of human rights, labor, the environment and anti-corruption. With this commitment, SNF fulfills the current and future obligations and expectations of a modern industrial company.**