

# *Nasaco International LLC*

Nasaco International LLC produces and markets chemicals for froth flotation of minerals. Its strength lies in its ability to develop, together with mining companies, chemical formulations that are specific to individual operations. We concentrate on providing solutions to metallurgical problems by developing formulations of frothers, collectors and depressants. Our company has a branch office in Switzerland, and we have subsidiary and associate companies situated in Southern Africa, Mexico and Chile, as well as representative offices in Germany, the United States of America, the Philippines and Australia.

Nasaco has two production units: one producing thionocarbamate collectors and the other all our formulated products. Other chemicals are produced under license using Nasaco technology. Additionally we represent several major chemical companies in the mining chemicals area, among which is the Dow Chemical Company.

For the process of froth flotation, Nasaco supplies a range of **NASCOL** collectors. These include standard thio collectors (xanthates, dithiophosphates and thionocarbamates). Nasaco licenses specialty collectors from Pennsylvania State University for the selective flotation of metallic minerals away from pyritic minerals. Nasaco also produces specific collectors for the flotation of industrial minerals, particularly fluorspar, apatite, calcite and scheelite. Nasaco supplies a wide range of frother products. The Dowfroth™ range of glycol and glycol ether frothers is extended with **NASFROTH** frothers, based on formulations of alcohols and glycols, which give frothers specific to different applications. In the flotation of coal, Nasaco has licensed technology from patents awarded to associate companies in Southern Africa. The **NASMIN** range of depressants is widely used in the control of siliceous gangue minerals, activators and surfactants in this range are used in promoting flotation and in electrowinning and electrorefining operations.

The broad product range allows Nasaco to address specific mineral processing problems by providing the best chemical solution. Our flexibility means that we are able to draw on the widest range of quality raw materials to provide the best products for our partners. We are able to source our products on a global basis which gives us, and our customers, economic benefits as well as security of supply.

Nasaco supports its products with technical service in terms of testing new and developmental products as well as developing custom products for individual mines. Normally this work is carried out together with mine personnel so that the problems are addressed using knowledge from both the operational as well as the chemical side. In this way specific formulations for individual mines are developed. We consider the safety, industrial hygiene and environmental aspects of our products to be of paramount importance. We work with our suppliers in a process of continual improvement in these areas, providing data for the safe handling, storage, industrial hygiene and safe disposal of chemicals.

Logistically, Nasaco supports its customers by running a fleet of ISO containers, which allows delivery of bulk products to customer sites.

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