



ORGANIZATION OF HI-TECH, COMPACT, ECOLOGICALLY SAFE, WASTE-FREE CHEMICAL LIQUID ALKYL XANTHATES PRODUCTION NETWORKS AT INDUSTRIAL SITES OF NATIONAL IRANIAN COPPER INDUSTRIES CO.

Xanthates produced on NAX Technology provide:

- stable flotation process
- metal extraction increase in concentrate up to 1-5%
- cost decrease -5-10%
- environmental protection

Bench tests results of xanthates produced on NAX TECHNOLOGY In comparison with applied xanthates produced in the Russian Federation

| Consumer | Consumption y/t | Extraction increase, % |
|---|---------------------------------|---|
| JSC "Kazakhmys Corporation" c, Zhezkazgan, 1999-2000 . Project realized in 2000. | At basic level | Copper: + 1,72 |
| JSC "Kolskaya MMC" c. Zapolyarny, 2017. Project at the verification stage | Decrease in consumption - 6,46% | Nickel: +4,0 Copper: +0,69 Cobalt +8,72 |
| JSC Comapny "Polyus Gold" c. Krasnoyarsk, 2008. | Decrease in consumption - 11,1% | Gold: +2,5 |
| JSC «MMC "Norilsk Nickel", c. Norilsk, 2010 r. | At basic level | Nickel: +1,1 Copper: +0,74 |

Note: properties of 11 types of xanthates were analyzed from 2000 to 2010

Project NAX TECHNOLOGY will additionally provide:

- exception of xanthate delivery problems to the remote areas of the Russian Federation
- rapid production of a given xanthate for ore current production
- simultaneous production of several specific xanthates types including mixtures used in RP technology
- decrease in xanthate stock at RP warehouse to minimum. (Reserve)
- xanthate shipping to the reagent department of RP - "Door to Door"
- elimination of labor-intensive, environmentally dangerous stage in the xanthate working solution preparation in the reagent compartment of PF and its replacement by repulping operation (water dilution).
- xanthates supplied developer's support at on-site application
- operative interaction with RP technicians

Innovative NAX TECHNOLOGY:

Is based on a number of know-how:

- special equipment
- balance of raw materials loading
- technology of components dispensing
- time of technological processes
- single-stage synthesis in one device

Provides:

- waste-free production with full conversion of the substances
- flexible production of various types of xanthates, including mixed with the set properties for specific composition of ores

Allows:

- to create ecologically safe, compact, hi-tech productions at the consumer's industrial site
- to deliver the necessary quantity of a certain type of xanthates which most effectively - provides the floatation process on a concentrating factory at a period of time;
- to solve the problems of production safety and meet the sanitary standards for chemical productions.



