دانشکده فنی و مهندسی
دانشگاه شهید باهنر کرمان

NICICO
مجتمع مس سرچشمه

مرکز تحقیقات فرآوری مواد کاشی گر
Kashigar Mineral Processing Research Center

در دنیا چه خبر؟

نیتروژن در کارخانه مولیبدن
– یک کار درسطح بین المللی

مرکز تحقیقات فرآوری مواد کاشی گر

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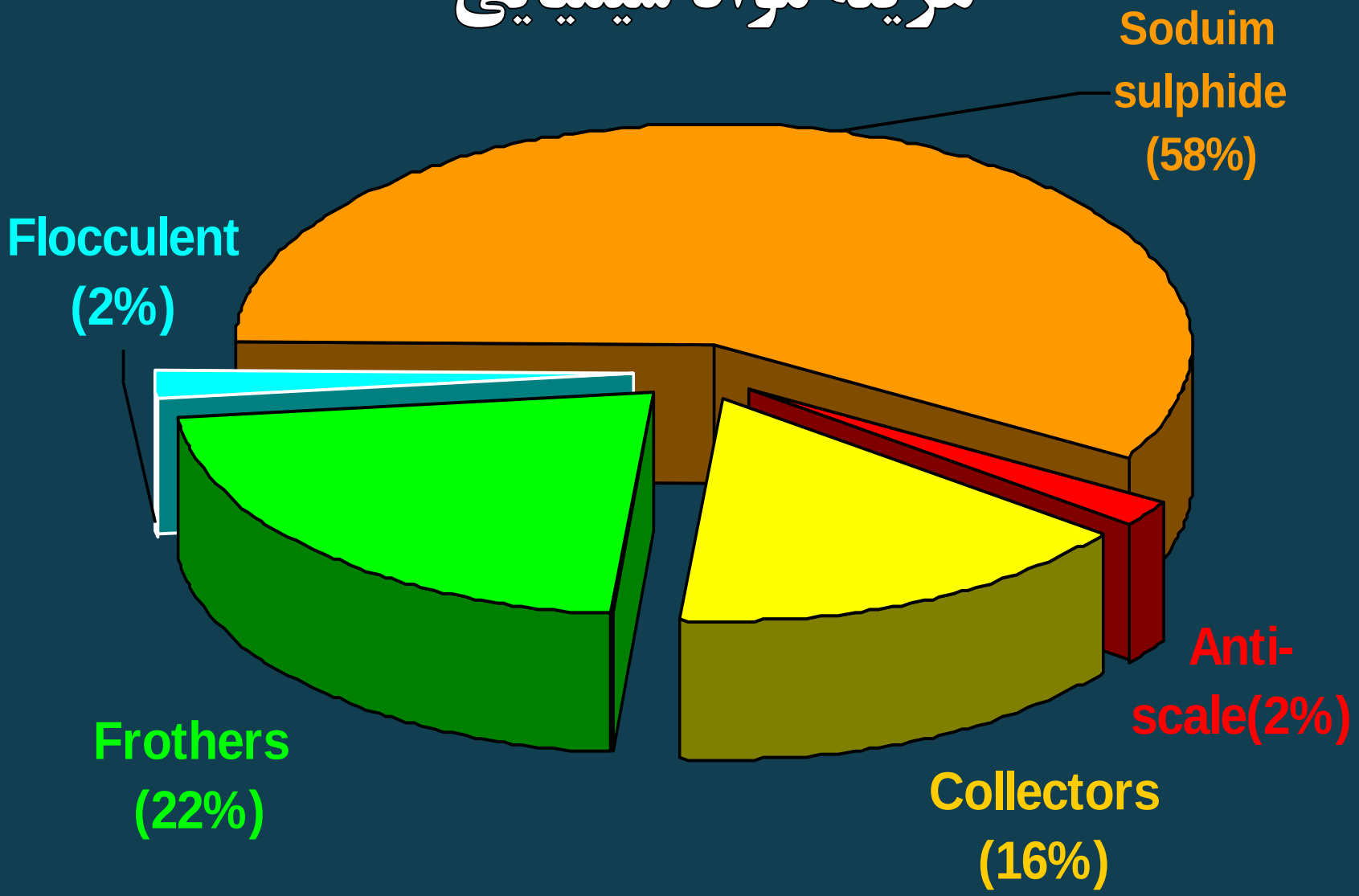


فلوتاسیون کانی های مس و مولیبدنیت

فلوتاسیون کانیهای مس: تسکیل CuX (آبران)

X: گزنتات

$$NaX + Cu^{++} \rightarrow CuX + Na^{+}$$

فلوتاسیون مولیبدنیت

با اضافه کردن سولفید سدیم و برداشتن لایه آبران: بازداشت فلوتاسیون کانیهای مس

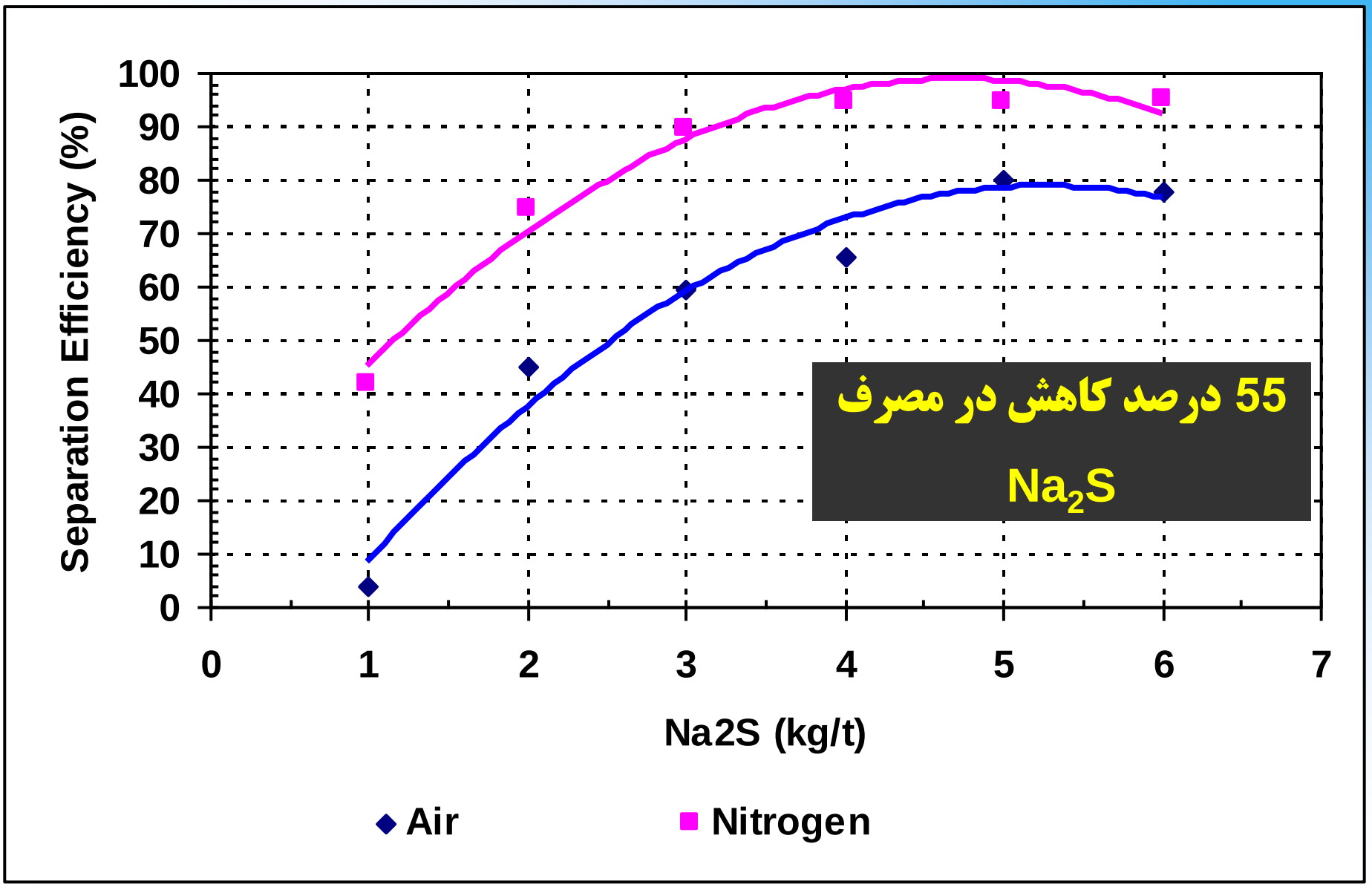
$$2CuX + HS^{-} + OH^{-} \rightarrow Cu_2S\downarrow + H_2O + 2X^{-}$$

تاثیر نیتروژن به عنوان گاز فلوتاسیون

- کاهش فعالیت اکسیژن در پالپ ← پایین آوردن پتانسیل پالپ

- کاهش اکسیداسیون سولفید سدیم ← کاهش مصرف سولفید سدیم

کارایی جدایش مولیبدنیت با هوا و نیتروژن (آزمایشگاه)

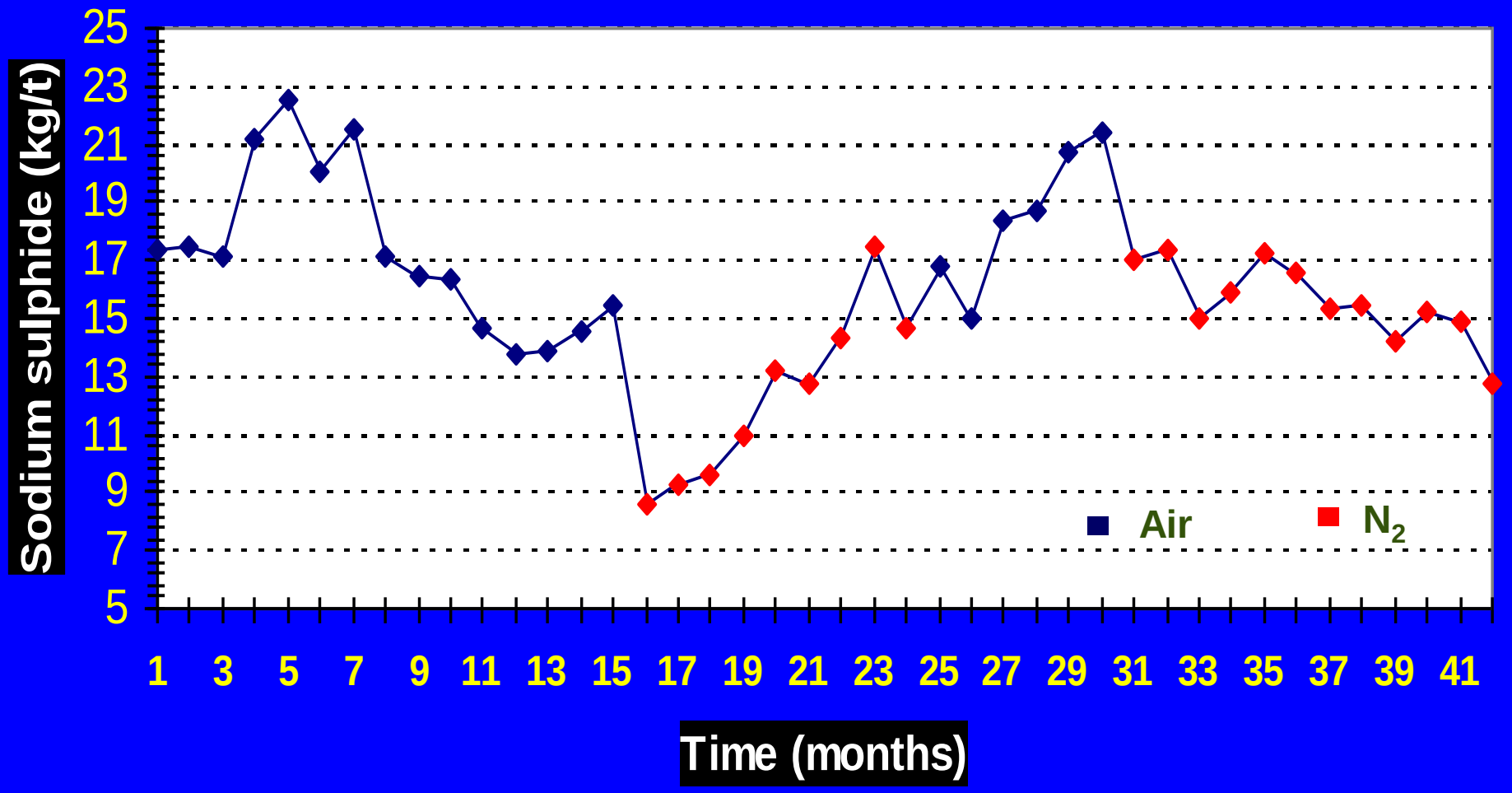



کارخانه اکسیژن

خطوط انتقال اکسیژن و نیتروژن


خط انتقال نیتروژن

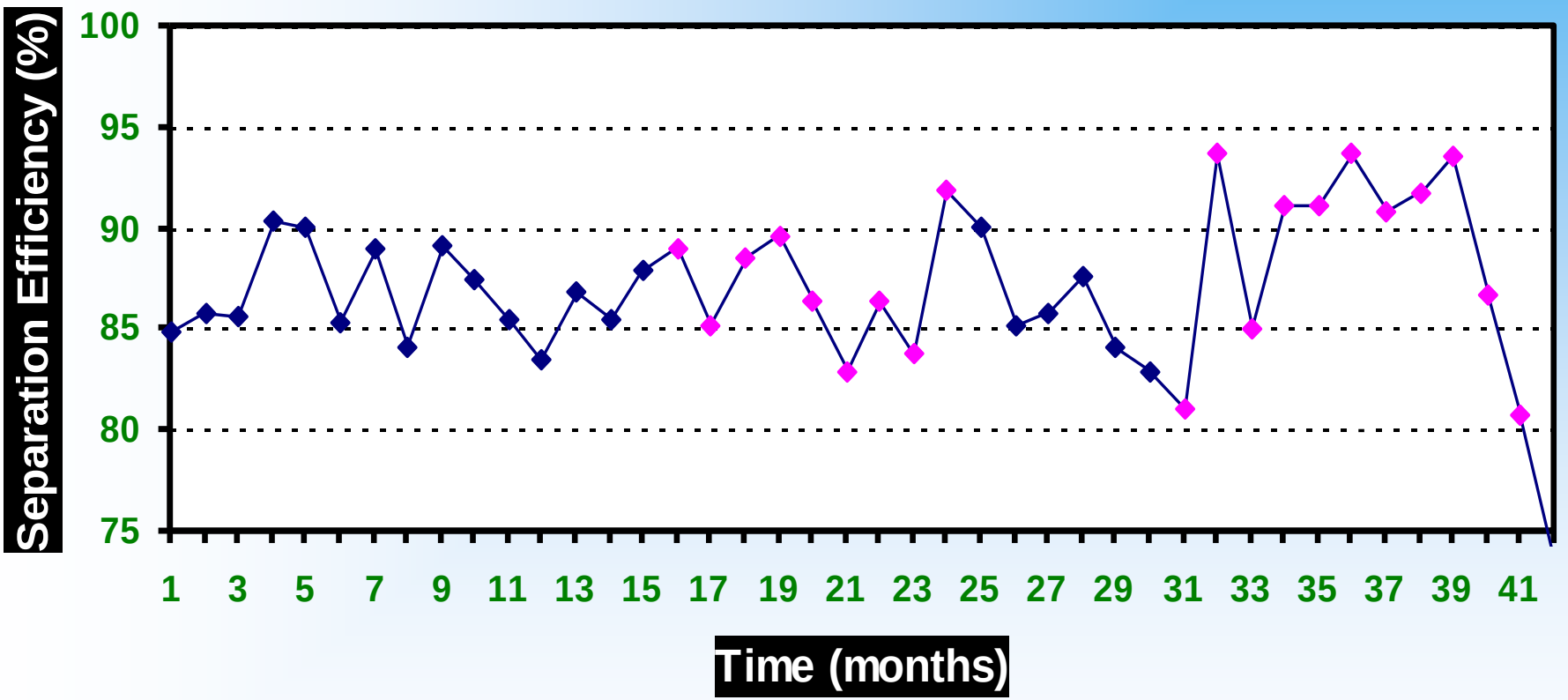
مقایسه مصرف سولفید سدیم با و بدون نیتروژن



مقایسه مصرف سولفید سدیم با هوا و نیتروژن (۲۱ ماه در کارخانه)

	هوا	نیتروژن
مصرف سولفید سدیم (kg/t)	۱۷/۷±۲/۷	۱۴/۱±۲/۷

کارایی جدایش مولیبدنیت



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Minerals Engineering 18 (2005) 735–738
MINERALS ENGINEERING
This article is also available online at:
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Technical note

Industrial use of nitrogen in flotation of molybdenite at the Sarcheshmeh copper complex

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Received 27 August 2004; accepted 29 October 2004

37TH ANNUAL MEETING
OF THE
CANADIAN MINERAL PROCESSORS

HELD AT THE
WESTIN HOTEL, OTTAWA
18TH, 19TH, AND 20TH, JANUARY 2005

A Strategy to Reduce the Consumption of Sodium Sulfide in Flotation of Molybdenite at the Sarcheshmeh Copper Complex

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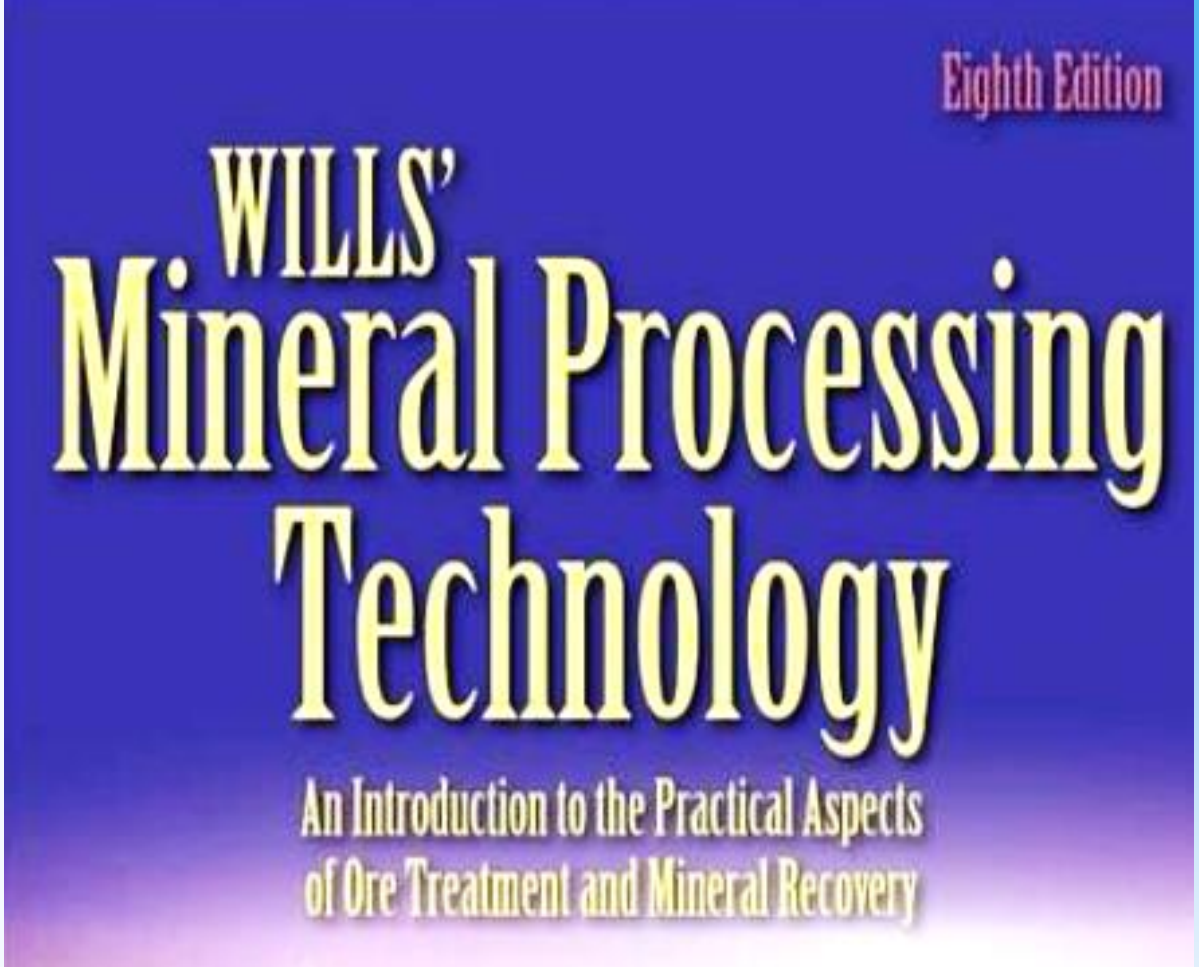

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The Boulevard, Langford Lane, Kidlington, Oxford OX5 1GB, UK
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12.8 THE IMPORTANCE OF PULP POTENTIAL

In sulfide mineral systems the oxidation/reduction conditions play a strong role in selectivity through control of electrochemical reactions. Many of these electrochemical processes are reviewed by Bruckard et al. (2011). The pulp potential of a system is the result of all the anodic (oxidation) and cathodic (reduction) reactions taking place and is difficult to predict. That pulp potential has an impact is understood, however, and can be interpreted from the representation in Figure 12.14. In that example if the potential is too low, below that for xanthate-mineral reaction, then the collector is not adsorbed and the mineral is not floatable. Of course, this may be the desired effect, as in the addition of Na_2S to depress chalcopyrite in selective flotation of molybdenite (Poorkani and Banisi, 2005). Represented on the current–potential diagram we would see that the S^{2-} oxidation/O_2 reduction potential of the Na_2S is lower than that for the adsorption

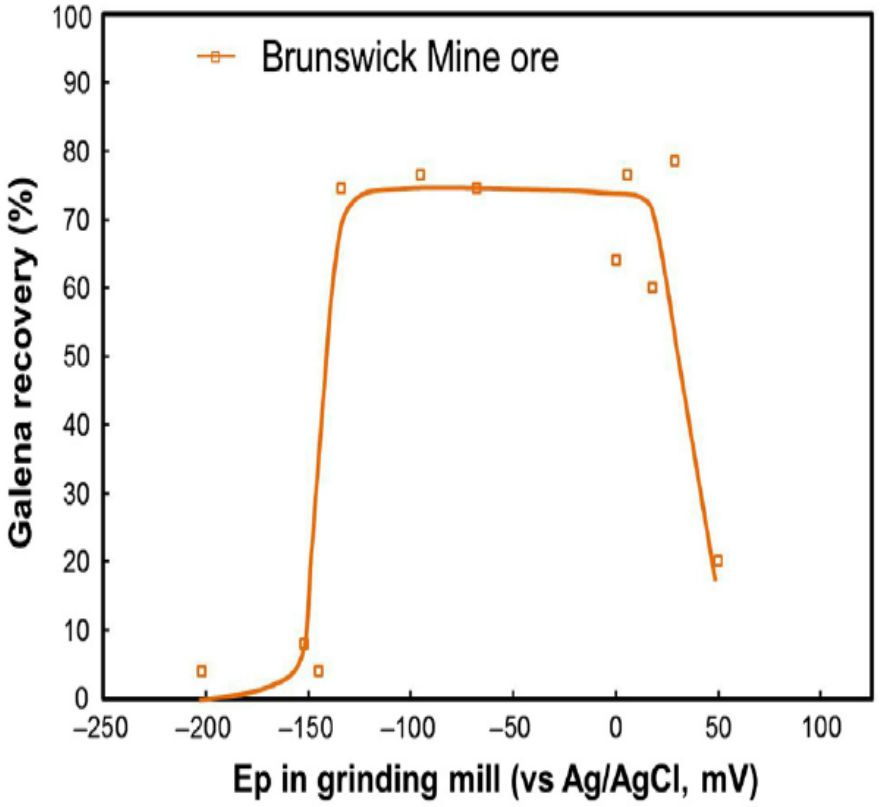

FIGURE 12.29 Flotation of galena (Pb) from a sample of Cu–Pb–Zn Brunswick Mine ore illustrating effect of pulp potential.

gives examples for other sulfide minerals, which show the

Tree mine used such an off-gas source of nitrogen and reported improved selective recovery of Au-bearing pyrite (Simmons, 1997). Where nitrogen is commonly used is in chalcopyrite–molybdenite separation, where it both reduces side oxidation reactions that consume the chalcopyrite depressants, NaHS/Na_2S, and helps maintain a low pulp potential, which depresses chalcopyrite (Aravena, 1987; Poorkani and Banisi 2005).

To solve Eq. (12.22) requires the nature of the particle transport through the cell to be known. The simplest case is batch flotation, where all particles are treated as having the same residence time.

12.9.1 Batch Flotation

The solution is given by integrating from time 0 to t when