

Tecflote™

New Sulfide Collectors

Novel Chemistry

AkzoNobel
SPECIALTY CHEMICALS

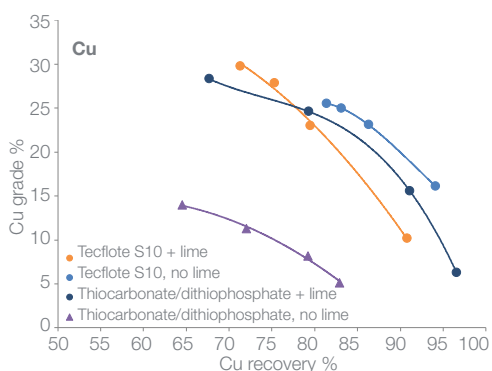
AkzoNobel's global Specialty Chemicals business unit revenue for 2017 was 5 Billion Euros. We have more than 50 years of experience in the field of flotation collectors for phosphate, potash, calcite and iron ores. Tecflote™ is a novel, proprietary family of collectors developed for sulfide flotation and associated gold, silver and platinum group metals.

Tecflote™ - based on nitrile chemistry

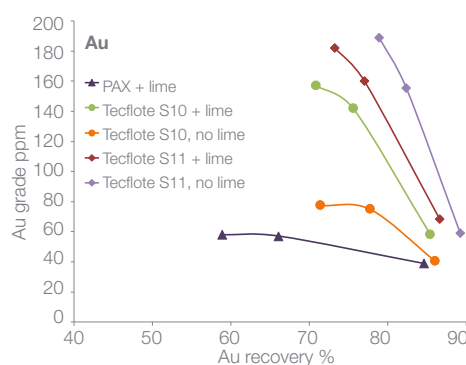
Tecflote is designed for flotation of sulfide ore and has a number of unique features vs. traditional collectors:

- A completely different particle/bubble attachment mechanism compared to conventional thiol collectors
- Significantly better performance (selectivity and recovery) for Au and Ag compared to current thiol collectors as nitriles have an affinity to Au and PGM elements
- Excellent discrimination against pyrite (i.e. pyrite is suppressed to tails) at natural pH without lime for many ore types
- Cu flotation: a distinguishing feature is the steep grade recovery curve
- Excellent performance in particular for hypogene ore type

In addition Tecflote is suitable for all sulfides: Cu, CuZn, CuPbZn, PbZn, CuMo and Ni. The stable chemistry allows mixing with other collectors. For some ores the best recovery is obtained with the addition of a conventional scavenger collector. The excellent performance shown in lab test has been confirmed in multiple plant trials.



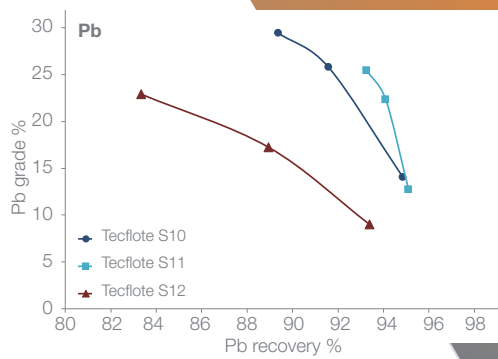
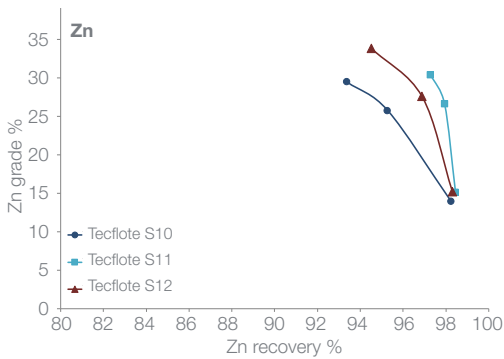
Feed: Cu as chalcopyrite 1.3%, Fe as pyrite 8.5%.
Collector 20g/t, frother: MIBC, lime = pH 10,3



Feed: Cu 0.35%, Au 2.6ppm, Fe as pyrite 7%.
Collector 15g/t, frother: MIBC, lime = pH 10,3

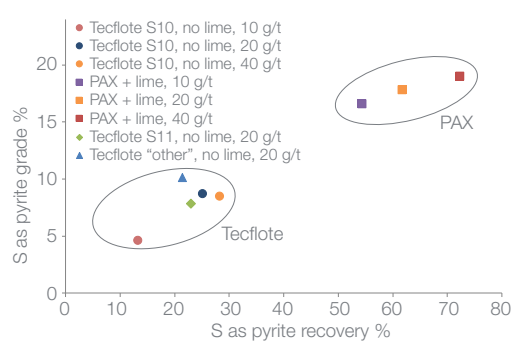
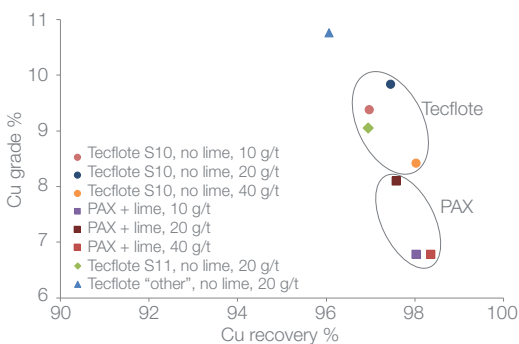
Tecflote has proven to achieve >10% improved recovery after 2 cleaning steps and 4% improved recovery in the rougher in gold flotation lab tests

Tecflote shows outstanding performance for all sulfide ores



Feed Zn as sphalerite 0.3%,
Pb as galena 1.6%, Fe as pyrite 2.2%

Tecflote is suitable for fines



Feed: single Cu mineral + pyrite + silicate gangue, Cu as chalcopyrite 0.75%, Fe as pyrite 4.3%
All samples have same silicate gangue. $P_{80} = 31\mu\text{m}$

Both Tecflote S10 and Tecflote S11 can be used with Cu, Zn, Pb, Mo, Ni, Au, Ag

Winning together -
delivering optimized performance for your mineral processing needs

www.akzonobel.com/mining

About AkzoNobel Specialty Chemicals

AkzoNobel creates everyday essentials to make people's lives more liveable and inspiring. As a leading global paints and coatings company and a major producer of specialty chemicals, we supply essential ingredients, essential protection and essential color to industries and consumers worldwide.

