



**SOLVAY**

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**AERO<sup>®</sup> 7260 HFP**

Mining  
Chemicals

# AERO<sup>®</sup> 7260 HFP

## Product Description

AERO<sup>®</sup> 7260 HFP is a novel and highly effective sulfide mineral depressant with broad applicability and versatility in many separations. AERO<sup>®</sup> 7260 HFP is particularly effective in Cu-Mo separation at relatively low dosage. It has the potential to replace up to 80% of the dosage of hazardous reagents such as NaSH, Nokes, and Na<sub>2</sub>S.

## CU-MO SEPARATION

### Advantages

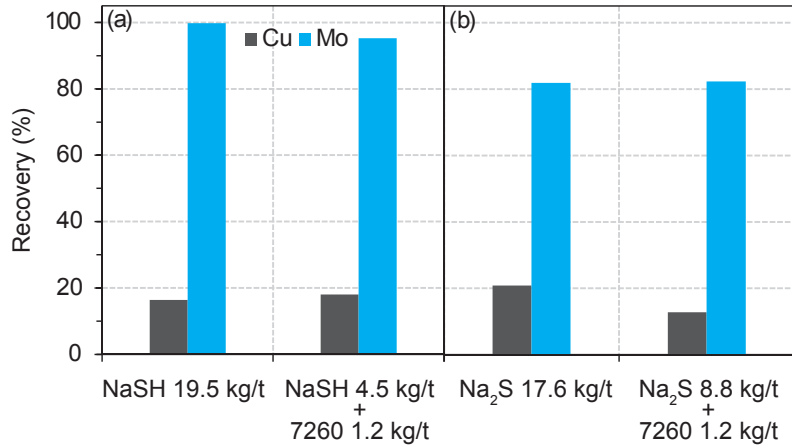
- **Depression Efficiency and Dosage**
  - Highly efficient depressant for Cu sulfides and pyrite
  - Designed to replace up to 80% of NaSH depending upon process conditions, with similar or improved metallurgical performance
  - Robust to mineralogical changes; effective on Cp, Cv, Bo, Pyrite
  - Low dosages — typically 1/10 to 1/30th of the NaSH dosage
- **Stability and Ease of Handling**
  - Chemically and physically stable and less hazardous reagent than traditional depressants in storage, transportation, and under process conditions
  - Does not generate H<sub>2</sub>S or other toxic gases during storage and use
  - Mild to no odor
  - No deleterious downstream or upstream effects in plants
  - Easy-to-handle aqueous solution with a low viscosity
  - Completely miscible with water
- **pH**
  - Highly effective in a wide pH range (6 to 12.5)
- **Staged Addition**
  - Longer lasting reagent which could eliminate the necessity of staged addition down the bank in scavengers and cleaners
- **Bulk Concentrate Pretreatment**
  - Could potentially eliminate pretreatment of bulk Cu-Mo concentrate with steam, acid or CO<sub>2</sub> conditioning, attrition conditioning
- **Applicability and other advantages**
  - Eliminates the need for N<sub>2</sub> or covered cells
  - Does not require extended conditioning time
  - Does not contain hazardous elements such as phosphorous or arsenic, so is suitable in many MoS<sub>2</sub> operations
  - Is effective for all types of collectors

## General Guidelines For Application

- The typical dosage range for AERO<sup>®</sup> 7260 HFP is 250-1000 g/t, and needs to be adjusted depending on the ore mineralogy and other process conditions. Higher dosages may be evaluated as needed. Optimization should be based upon Cu and pyrite depression, Mo selectivity, % NaSH reduction, and overall economics.
- AERO<sup>®</sup> 7260 HFP can be used in both air and N<sub>2</sub> systems.
- AERO<sup>®</sup> 7260 HFP should be added along with small amounts of NaSH (or Nokes/Na<sub>2</sub>S) in order to enhance sharpness of separation performance.
- Recommended conditioning times are 2 to 15 minutes. Longer conditioning times, e.g. 30 min or more, are not required.
- AERO<sup>®</sup> 7260 HFP can be added in the roughers, scavenger or cleaner stage, as needed. Usually, if the dosages are optimized, stage addition is not required.
- AERO<sup>®</sup> 7260 HFP can be added as-is, or may be diluted as needed.

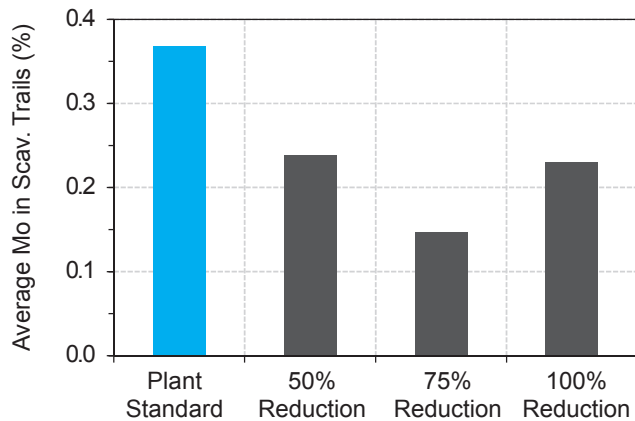
## Proven Performance of AERO® 7260 HFP in Cu-Mo Separation - Lab and Plant Data

In Figure 1, the cumulative Cu and Mo recoveries for Cu-Mo concentrates from a North American mine (a) and an Asian mine (b) are shown. For the North American concentrate sample, 19.5 kg/t of NaSH was required to provide efficient Cu depression (Cu recovery < 20%) and Mo recovery (> 90%). AERO® 7260 HFP at 1.2 kg/t replaced approximately 80% of the NaSH dosage and provided comparable Cu depression. For the concentrate sample from the Asian mine, efficient Cu depression was achieved only when 17.6 kg/t of Na<sub>2</sub>S was used. Under these conditions, Cu recovery was about 20% and Mo recovery was about 80%. The effect of 1.2 kg/t AERO® 7260 HFP helped achieve even better Cu depression and Mo selectivity with only half the dosage of Na<sub>2</sub>S.



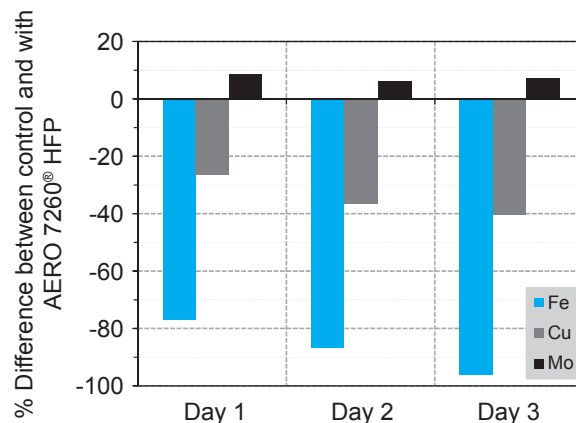
**Figure 1:** Cumulative Cu and Mo Recovery from North American (a) and Asian (b) Cu-Mo Concentrates.

Figure 2 provides the average Mo assay in the scavenger tails from a Cu-Mo plant. The overall objective in this plant was to significantly reduce or eliminate Nokes usage in its Mo circuit, while maintaining Mo grade in the final concentrate (target > 48% Mo) and reducing Mo loss into scavenger tails (Mo assay preferably < 0.2% Mo). With only about 100 to 200 g/t of AERO® 7260 HFP, a significant volume of Nokes was replaced, while the key specifications for final Mo concentrate were maintained.



**Figure 2:** Plant Data for Mo in Scavenger Trails at Various Levels of Nokes Dosages Reduction.

Figure 3 shows plant data when using AERO® 7260 HFP in an on/off cycle on 3 consecutive days. The plot shows the percentage difference in Cu, Mo and Fe grades in the cleaner circuit with and without AERO® 7260 HFP on any given day. Large negative % difference values for Cu and Fe indicate better Cu and Fe depression (better Mo grades) with AERO® 7260 HFP.



**Figure 3:** Three Consecutive Days of Plant Data Using AERO® 7260 HFP in an On/Off Cycle in the Cleaner Circuit. The % difference in Fe, Cu, and Mo grades between control (off cycle) and with AERO® 7260 HFP (on cycle) is shown.

## Other Applications for AERO® 7260 HFP

AERO® 7260 HFP is an excellent depressant for a variety of sulfide minerals, selectivity being dictated by dosage and process conditions. Products based on AERO® 7260 HFP have a wide range of applications including:

- a) Rejection of gangue from sulfide concentrates: Depression of all sulfide minerals while floating non-sulfide gangue; e.g. Ni-talc separation
- b) Depression of penalty/toxic elements in Cu and complex sulfide ores
- c) Enhancement of selectivity in Cu-Pb, Pb-Zn, Cu-Zn separations
- d) Depression of iron sulfides in Cu-pyrite and Zn-pyrite separations
- e) Depression of Cu sulfides and pyrite in Cu-graphite, Cu-F, Cu-Talc separations



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