

## Mining – Phelps Dodge

**Customer:** Phelps Dodge

**Operations:** Phelps Dodge Mining Company (PDMC) is the mining and metals division of Phelps Dodge, with copper and molybdenum mining operations in the US and South America. PDMC also produces gold, silver, and other metals as a by-product of its copper mining. The company also owns three copper smelters in the US.



**Problem:** The slurry material contained within a flotation cell is very abrasive, making corrosion a real problem. Chemical wear is also a problem for flotation cells as harsh chemicals are often used in slurry to help separate fine solids. A thick liner is a necessity for these cells as they are incredibly expensive to replace.

Phelps Dodge, as do many other companies, originally lined their cells with urethane-lined steel plates. The company would purchase these plates and then weld them to the bottom of their flotation cells. The problem caused by these urethane-lined steel plates is that the abrasive material being stirred around would gradually corrode the steel welds holding down the plates. Slurry would then make its way under the steel plates and begin corroding the cell itself, rendering the urethane liner useless. An abrasion resistant thick liner was needed to guard against abrasion and chemical wear.

