

## Case Study: Copper Concentrate – Liaocheng, Shangdong, China

### IN BRIEF

The customer approached Macawber for developing a solid solution for the unique challenge of both an abrasive and corrosive environmental conditions in their copper ore processing plant outside the large copper mine located near Liaocheng in Shangdong Province, China. Due to other systems in the processing plant including chemical processing systems and open mechanical conveying systems of questionable quality, the customer decided to take the first step in developing a cleaner plant and selected several Macawber systems for processing the various materials used in copper processing. Copper concentrate is a minimally processed ore product and one of the materials the customer chose to handle using Macawber systems.

### MATERIAL CHARACTERISTICS

Material	Copper Concentrate
Bulk Density	Aerated 1.6-1.8 t/m <sup>3</sup> (100-112 lb/ft <sup>3</sup> )
Size	80% < 200 mesh
Temperature	Up to 100°C (212°F)
Moisture	Max 0.3%
Condition	Highly corrosive and abrasive.



**Abrasive Environment**

### SYSTEM OBJECTIVES

1. Air consumption efficiency
2. Reliable operation in poor conditions.
3. Maintain operational reliability.
4. Withstand punishing environmental conditions without performance drop.

### SYSTEM PERFORMANCE

Transfer Capacity	160 Mt/h total
Conveying Distance	Up to 110m (360 ft.)
Reception Points	Single silo
Air Consumption	Total 24.0 Nm <sup>3</sup> /min (848scfm)



**Corrosive Environment**



1. Macawber solution selected for superior performance in very poor environments.
2. Resistance to abrasion is superior to competitive offerings.
3. Selection of wear and corrosion resistant ancillary equipment for use directly with the pneumatic conveying system was provided by Macawber. Macawber worked with the customer throughout the design process to ensure the delivery of a well engineered solution that fit the customer's needs specifically.