

## Macawber Installation Case Study: Sodium Bicarbonate Conveying System, Northwich, UK

### IN BRIEF

The dense phase pneumatic conveying system was supplied to convey 14t/h of sodium bicarbonate over a distance of 26 ft horizontal and 98 ft vertical. The system is an 8 cubic feet Denseveyor® with a 5" pipe line and is located under a feed hopper with start and stop controlled in automatic by the feed hopper and silo reception level probes. The system was first installed in November 1996. In July 2014 after 17 years of continuous daily operation it was upgraded with a touch screen operator interface, new filling Dome® Valve and air manifold. The vessel and pipe line remain originals and are in very good condition expected to offer many more years of service. The pipe line, bends and vessel are made from stainless steel 304 with all external surfaces coated in a corrosive resistant clear lacquer.

### MATERIAL CHARACTERISTICS

Sodium Bicarbonate	0.004" Mean
Bulk Density	66 lbs/cu ft
Temperature	104°F
Moisture Content	0.1%
Condition	Free flowing

### SYSTEM OBJECTIVES

1. Dense phase low velocity conveying
2. Low material degradation
3. Reliable operation

### SYSTEM PERFORMANCE

Transfer Capacity	14t/h
Conveying Distance	26ft Horizontal and 98ft vertical
Reception Points	1 feed and 1 reception point.

### IMPROVEMENTS ACHIEVED

1. Cost savings in terms of energy savings and reduced maintenance
2. Increased transfer rate
3. Reduced compressed air requirements
3. Lower than specified material degradation
4. High reliability
5. Low maintenance
6. Fully integrated into control room DCS



Denseveyor® installed below a feed hopper

