

Brooks Application Notes

CHEMICAL PROCESSING

REF. # CP007

Product Sparging

THE CHALLENGE

It is common to have to contact a product with a gas as part of processing. This procedure is commonly known as sparging. Some common sparging applications are:

- Sparging with N₂ to remove water
- Sparging with CO₂ to decrease Ph
- Sparging with NH₃ to increase Ph
- Sparging with H₂ to hydrogenate
- Sparging with Cl₂ to disinfect

- Sparging with O₂ to oxidize
- Sparging with CO₂ to carbonate
- Sparging with air to increase volume

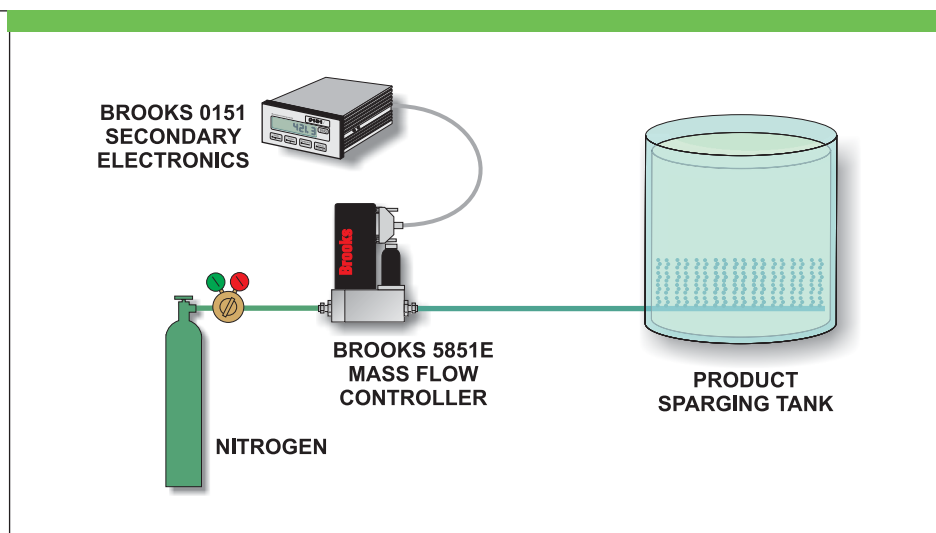
It is important to sparge at a constant flow rate to achieve the desired results. Sparging is usually accomplished by injecting the gas into a bar with many fine holes or one that is made from a sintered material. The holes can become partially clogged over time, which reduces the flow rate.

THE BROOKS SOLUTION

A mass flow controller can be used to control the sparging flow. The mass flow controller will keep the gas flow rate constant as the level of product changes in the tank, or the sparging bar becomes clogged. This will help maintain product quality. The all-stainless construction and the available seal materials make the Brooks mass flow controller suitable for many applications.

Product selection will depend on the desired flow rate and electronic interface. Brooks Models 5850E, 5851E and 5853E (E-Series) are recommended when the customer desires local control and read out, which can be provided with Brooks secondary electronics. Models 5850i, 5851i and 5853i (i-Series) are recommended when the customer wants to interface directly with his process recording and control hardware. This is common when the sparging is done as part of a feed-forward control loop.

The Model 5848 mass flow filter is recommended for all 5850 and 5851 applications. This filter is inexpensive insurance against accuracy-robbing contamination. The 5848 filter is highly recommended for all applications that use shop or plant air since this is often contaminated.



BROOKS PRODUCTS



5851E Mass Flow Controller



0151 Power Supply/Readout