

# Micro Motion® Flowmeters Improve Soft Drink Blending with Accurate Mass Flow, Concentration and On-Line Sugar Content Measurement

## RESULTS

- Excellent product consistency
- Faster blending
- Variable raw material management
- All standard communications interfaces



## APPLICATION

Soft drink blending, while a simple process, requires accurate measurement of ingredients; accurate measurement particularly for the smaller quantities of the more expensive ingredients. Micro Motion® multi-variable flowmeters provide this accurate measurement, over a wide range, because they measure actual mass delivered, and are unaffected by conductivity, pressure and temperature changes, or viscosity variations in the material feed.

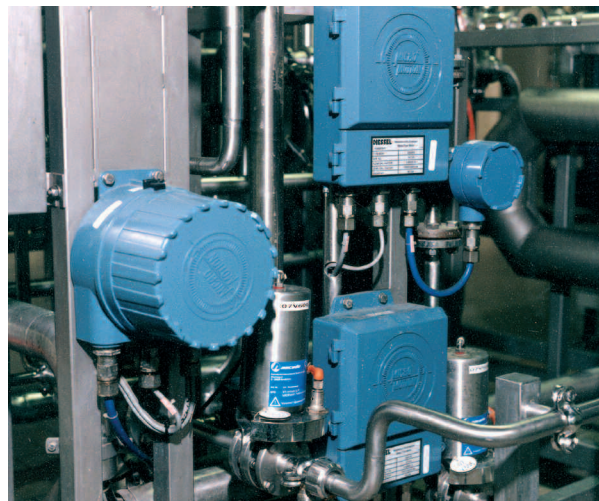
At the same time as measuring the delivered mass, the Micro Motion units monitor the density of the liquid delivered. This is used in a series of standard tabulations that relate to normal ingredients, to provide a concentration measurement – whether in terms of percent concentration, or °Brix for sugar content, or any other ingredient.

## CHALLENGE

Liquid sugar is highly viscous, and represents a major cost element in most soft drinks. Accurate flow measurement is important therefore, but difficult for conventional flowmeters, that are sensitive to viscosity changes, and have moving parts requiring regular maintenance.

Density measurement is needed to monitor the sugar concentration, and the plants can often need this data expressed as a percentage, or °Brix, or °Baume, or °Plato, depending on their traditional practice.

[www.micromotion.com](http://www.micromotion.com)



*Micro Motion mass flow and density measurement units in use at Irn-Bru.*



For more information:  
[www.EmersonProcess.com/solutions/food\\_bev](http://www.EmersonProcess.com/solutions/food_bev)  
[www.micromotion.com/food](http://www.micromotion.com/food)



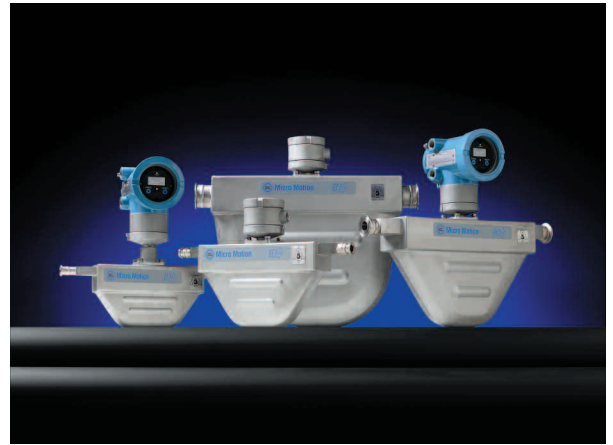
### SOLUTION

1. Micro Motion multi-variable flow measurement systems are available in sizes from 1/10" to 4"; each with a wide rangeability. The measurement is independent of liquid viscosity, conductivity, pressure and temperature, and is a mass flow measurement so that the quantity delivered is independent of liquid density.
2. Micro Motion multi-variable flowmeters are available with all standard hygienic connections, are EHEDG and 3A certified and are suitable for most cleaning systems used.
3. The on-line density measurement provided by the Micro Motion multi-variable flowmeter provides an output that gives direct mass concentration of most solutions and ingredients, from standard built-in tables. This output can also be related to measurement scales like °Brix or °Baume or °Plato etc for standard sugar solutions. One well known baby food manufacturer uses a dextrin-maltose sugar solution – despite this not being in the standard look-up tables, after some measurements to establish the density to concentration relationship with temperature, this was configured within the memory of the Micro Motion unit, enabling accurate sugar monitoring.

Micro Motion multi-variable flowmeters have been supplied to all the major cola processing plants throughout the world. Orange juice concentrate is supplied at 65 Brix normally, and Micro Motion units are widely used to monitor deliveries and control dilution in packaging plants.

A famous Scottish soft drink, Irn-Bru, is manufactured in Cumbernauld and other factories throughout the UK. Micro Motion units are part of their fully automated computer controlled system. Factory manager John McBurnie stated: "We saw the benefits right away – after three months, there was complete product consistency. The best thing about them is their accuracy, and we have not had any problems with them." Micro Motion Brix measurement accuracy is an order of magnitude better than that achieved by process refractometers.

As well as monitoring the liquids in the blending areas, which can mean up to 40 different ingredients per batch in some soft drinks, Micro Motion meters are also used for monitoring the carbon dioxide used to provide the sparkle for the drinks.



*Hygienic Micro Motion mass flowmeters in various sizes.*