Continuous Liquid Formulation

We are nominated for this year's CPhI Award!

Microinnova is a pioneer in continuous processing, establishing innovative technology for chemical syntheses in pharmaceutical and chemical production. Additionally to that Microinnova has been well positioning its continuous approach in the field of continuous liquid formulation, which is recognised at this year's CPhI award!

We are proud to announce that **Microinnova Engineering GmbH**, supported by **GSK Consumer Healthcare**, has been nominated for the CPhI Pharma Award **"Excellence in Pharma: Formulation"** for the project **"Process Intensification for Continuous Toothpaste Manufacture"**.

A case study on continuous liquid formulation

The collaboration between GSK and Microinnova Engineering sought to produce a pilot scale demonstration rig for the manufacture of toothpaste via a continuous process intensification method with parallelised streams, where individual specialised units were combined together into a complete system, enhancing production capability. A small pilot scale manufacture (20 kg/h), of the combined streams was demonstrated to show the potential of Process Intensification, and in specification toothpaste was produced. Many hurdles were overcome especially de-aeration, high solids content work and micro-dosing of powders all of which have challenged current Process Intensification perceptions. Additionally, each technology would be suitable for scale-up/out to commercial production rates.

Why do Formulation in continuous?

Because you can:

- Choose the best technological option for each process step
- Develop on scalable equipment
- Obtain consistent product quality
- Reduce personnel costs
- Get compact production plant
- Have flexible design
- Have inline process control

Continuous Liquid Formulation Competences

The CPhI nomination emphasizes our competences within the area of continuous liquid formulation. In addition to tooth paste, Microinnova Engineering GmbH has during the last few years also developed pilot plants for continuous formulation of products like emulsions, suspensions and gels. We have handled mixing challenges like mixing very highly viscous substances with low viscous substances and we have achieved continuously produced liquid formulations with high solid content (>50% w/w). Objectives in addition to producing the formulation continuously have been energy saving and sterilisation. Typically pilot scale production plants have had capacities in the range 10 – 20 kg/h.

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“Due to our modular plant design, we deliver your turnkey manufacturing plant with all benefits of a continuous process without loss of flexibility”