

# The importance of real time flow monitoring in Analytical labs

**C**arlo Dessy is Managing Director of Testa Analytical Solutions eK, a respected international OEM developer and supplier of instruments, innovative detectors and software for liquid flow applications. Here I am sharing an interesting interaction with **Carlo Dessy**

**Can you tell our readers about TESTA Analytical and its expertise and experience in developing innovative analytical products?**

**Carlo Dessy:** Backed by over 30 years of experience in the field of instrument development and device engineering, TESTA Analytical is today a leading developer and supplier of optimised detectors and instruments for liquid chromatography and flow monitoring in particular. The extensive experience and applications expertise of our technical team has enabled us to develop a number of innovative technologies which are now commonly used in many applications. We are fully dedicated to questioning existing solutions and in developing new and advanced solutions. As a trusted development partner to a growing number of liquid chromatography and process fluidic companies, we are used to moving into new areas to develop the market leading detectors and instruments they seek. We find pride in being a small but extremely agile team of individuals with very different field of experience working together to offer better technologies to the scientific instrument industry and labs worldwide.

**Why is flow monitoring important to labs using analytical instrumentation?**



**Carlo Dessy:** Flow is one of the most fundamental parameters in any analytical instrument system that uses solvents or liquid reagents, independent of your application.



**Carlo Dessy**, Managing Director of Testa Analytical Solutions eK

Often lab scientists incorrectly assume the flow rate delivered by their liquid chromatograph or chemical synthesis system to be constant and stable. Unfortunately, this assumption commonly can lead to errors, misinterpretations, or simply to unexpected results. Continuous monitoring of liquid flow in HPLC, uHPLC, GPC/SEC, Ion Chromatography, LC/MS and Chemical synthesis systems helps avoid these problems and errors before they occur. It is an indispensable method of achieving total quality assurance of any system based upon flow of a liquid.

**Please tell me about the real-time flow monitoring technology developed by TESTA Analytical and what are its benefits versus traditional flow measurement techniques?**



**Carlo Dessy:** Our unique real-time flow monitoring technology is based on a high-performance thermal flow sensor capable of determining flow rate with extremely high resolution and accuracy. Our proven monitoring method offers great advantages compared to other commonly used flow metering techniques.

It is extremely versatile – in that we can offer optimised flow monitoring solutions from the microscale (for LC/MS) through analytical applications (HPLC, GPC/SEC, Flow Chemistry etc) right through to monitoring semi-prep and preparative chromatography and liquid process systems.

Beneficially, TESTA flowmeters are also able to measure almost any liquid commonly used in chromatography or general chemical synthesis systems. But what our customers and OEM partners really like is the fact that our flow measurement technology is truly non-invasive i.e. it does not interfere with the flow of the liquid in any form.

**Describe some analytical instrument technologies / applications where your flowmeter technology is solving problems and adding value?**



**Carlo Dessy:** As our flow sensor does not interfere with the measurement it can operate over a wide dynamic range. It has been demonstrated to be the perfect real-time flow monitoring tool for liquid chromatography applications including calibrating the flow rate of HPLC and GPC/SEC pumps, troubleshooting defective systems, and offering continuous validation of products operating in a regulated environment.

Accurately measuring the rate of addition of liquid reagents is a critical consideration for many labs undertaking batch or flow chemistry reactions.

When using peristaltic or piston pumps to add expensive chemicals or other fluids into a reaction, labs must ensure the rate of addition is both accurate and constant as part of quality control.

Without accurate flow measurement, too much or too little chemical can be injected into a reaction.

Also, if the rate of addition of reagents is not constant this can also result in adverse outcomes, expensive reagent overuse, lower final product yield and safety issues. In fact, inaccurate flow measurement can mean the difference between profits and lost revenue.

We have also an optimised flowmeter that provides continuous high precision measurement of low volume liquid flows. Optimised to operate over the flow range 0.001 to 80  $\mu\text{L}/\text{minute}$ , with an unmatched high resolution of 1nl/minute, our  $\mu\text{Flowmeter}$  is the perfect tool for precise measurement of low flow rates ensuring the reliability of quantitative HPLC/Mass Spectrometry (LC/MS) measurements.

**Can TESTA Analytical's flowmeter technology be adapted to optimally serve a new application or a particular analytical instrument?**

**Carlo Dessy:** Adaptation and optimization of our technology to new applications or particular instrument is our forte. As an agile, customer focused company, we pride ourselves on developing tailored solutions rather than trying to force an OEM partner into accepting a non-optimal flow monitoring solution. This is a strongly cooperative process involving our client, requiring us to understand not only their technical necessities but also the related economic and market aspects of the final goal.

**How does TESTA Analytical support its products post sale?**

**Carlo Dessy:** After sales support is taken very seriously at TESTA. We offer support to clients when introducing our products to their labs by helping them select the best possible operating parameters for their application. If questions arise relating to getting the best out of a TESTA product or solving an apparent problem we are happy to offer advice. To keep your instruments operating optimally - TESTA also offers validation and calibration service for all the flowmeters in our portfolio. Validation makes sure the device operates within the defined specifications while a re-calibration is performed with 10 calibration points stretching across the full range of the device, thus offering the best possible assurance of accuracy of the determined values.

**For more information:**

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