



- CUSTOMER SUCCESS STORY -

GfL, in Berlin, Germany

Certifying the authenticity of fruit juices and related products

Whenever fruit juice is traded, both the buyer and seller require documentation on the authenticity of the juice. One company specializing in the analysis of fruit juice and other beverage raw materials is GfL in Berlin, Germany.

Relevant for: fruit juices, non-alcoholic beverages, alcoholic beverages

Proof of authenticity

GfL is a privately run testing laboratory that offers its analytical services to companies throughout the value chain. Its main field of business is the analysis of fruit juices; its customers as diverse as pineapple plantation owners, juice wholesalers and retailers, beverage producers and bottlers. CEO Mikko Hofsommer summarizes the customer base as “located anywhere from Brazil to South Africa, Russia to the Middle East, and not forgetting Thailand, Vietnam, and China.”

After 30 years in the business of testing fruit juices and other beverages, GfL is an established force in a market ruled by consumer demands and strict regulations. The 27-strong team of food chemists and technicians work on around 50 to 70 samples per day, some 130,000 analyses every year. ‘Authenticity checked and approved by GfL’ is a certificate which fruit processors, traders, and bottlers use to prove that the juice in question is exactly as it is supposed to be. This means no addition of cheaper fruits, sugar, or water, no low-quality fruits used, and no pesticides or contaminants above the permitted levels.

This certificate provides the proof of authenticity and food safety and confirms that the raw materials for juice production comply with industry- and country-specific standards. Consumers are protected and traders and producers can avoid buying and processing fraudulent produce.



Ms. Sommer (lab technician) at work in the laboratory

100 % organic – or not?

As the organic produce sector becomes increasingly complex and international, so it becomes increasingly difficult to reliably verify the ‘organic’ status of products. Organic products must be grown and stored under strictly defined conditions regarding pesticides and other synthetic chemicals. Effective methodology for determining whether organic produce lives up to its label is required to detect fraudulent practices.



GfL processes around 50 to 70 different samples per day

However, there is currently no universally accepted state of the art for categorically proving whether the fruits used for a juice were organically grown. To improve the control of organic products, GfL is conducting a research project co-financed by the European Regional Development Fund. The project “Bio-Fraud-Scan” aims to develop a new analytical approach for detecting pesticide residues in organic products, even when the plants have metabolized these pesticides before harvest. Mikko Hofsommer sees the research as a significant step towards the transparent labeling of organic products and more protection for the consumer in the organic produce sector.

The right level of dilution

Beverages on the market include “fruit juice”, “fruit nectar”, and “fruit juice drinks”. To protect consumers, the names, definitions, and characteristics of these beverages are governed by a number of area-specific regulations. One of these is the EU directive 2001/112/EC “relating to fruit juices and certain similar products intended for human consumption”. This defines, for example, that fruit juice produced from concentrate must have the same density as the original fruit juice before the water content was reduced. To check the density, and therefore the correct dilution of fruit juice made from concentrate, GfL uses a digital density meter from Anton Paar.

Density measurement with Anton Paar’s devices has a long history at GfL. The first DMA density meter was installed in 2000 and is still delivering reliable results twenty years later. However, in these two decades, the requirements of the testing laboratory have changed considerably. The busy laboratory team needs systems in place that save time and ensure error-free documentation. In the case of the measuring devices, this means a connection to GfL’s LIMS. As the existing density meter could not be connected to LIMS, the laboratory purchased a new DMA 4500 M device in 2019. As Mr. Hofsommer explains: “We wanted the results to be stored centrally and to avoid errors when transferring the values manually from the density meter to the report. Now we have the device connected to LIMS we’ve seen a tremendous increase in efficiency and the reports are all documented and traceable.”



Ms. Sommer operating the DMA 4500 M with integrated Xsample 520 sample changer

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Mr. Hofsommer, CEO of GfL

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'Exotic' samples included

Measurements of density are required every day and are usually carried out by lab technician Silke Sommer. As the density meter has a 24-position sample changer, Ms. Sommer can load up the magazine and leave the device to work through the list. She defines the method for each sample and she can also specify how quickly the sample should be filled, to avoid problems when measuring viscous samples, for example. As GfL works for many clients, it is not unusual for many different samples to be measured throughout the day. One of the more exotic samples occasionally measured is egg nog, which previously required manual filling into the old DMA density meter but can now be filled automatically by the sample changer.

Mikko Hofsommer

Support that goes beyond analysis

“Our analysis goes far beyond numbers on a page.”

GfL provides a wide spectrum of analyses and has a correspondingly wide range of analytical devices at its disposal: refractometers, photometers, dozens of GCs and HPLCs, devices for acidity tests and titration, and a recently purchased IC-HRMS. The reports sent to clients are frequently 3 to 4 pages long. Typically, the evaluation of the sample is only possible with consideration of all the analysis results together. An indispensable basis for GfL's work is its database containing twenty years of analysis results and corresponding sample details, some 2.5 million data sets. Consulting the database makes it possible to take into consideration regional influences, differences in plant varieties, natural fluctuations, and other influencing factors. As part of their analytical service, the experts at GfL interpret the results and make assessments and recommendations. The client is not left alone with hundreds of measurement values. As Mikko Hofsommer states: “Our analysis goes far beyond numbers on a page.”



Christian Hülshagen (Anton Paar, left) and Mikko Hofsommer (CEO of GfL, right)

GfL has a well-established place in the juice-producing world. Aside from being a competent partner to industry, the company has an active role in many associations, regulatory bodies, and working groups, including the AIJN European Fruit Juice Association and IFU International Fruit and Vegetable Juice Association. CEO Mikko Hofsommer regularly publishes articles on food technology and juice testing in specialist magazines. Mr. Hofsommer sees GfL's role as expanding the knowledge base, as he explains: “We pride ourselves on knowing about the subjects relevant to our customers. Know-how is our reason for being.”

Main points at a glance

SAMPLES Fruit juices, non-alcoholic beverages, alcoholic beverages

INSTRUMENT DMA 4500 M density meter, Xsample 520

ACCURACY 0.00001 g/cm³