

measure bulletin

Newsletter for the customers of Labkotec Oy

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supports St1's logistics

St1 and Labkotec have been engaged in close collaboration for well over ten years. Operating currently more than 600 filling stations, St1 uses the LabkoNet® service that helps to optimise fuel supply and immediately respond to any unforeseen events occurring in the logistic chain.

St1 has risen remarkably fast to become one of the few leading fuel suppliers in Finland. The courage of the company has shown in its operations that make it stand out from the mainstream in a positive way. Starting from zero, the company has grown by means of acquisitions and has long since sought to further fuel production and supply that is based on renewable energy.

At the very beginning, the company's products were solely based on fossil fuels. Since 2007, St1 has manufactured vehicle fuel from waste ethanol. In 2007, St1 acquired Esso's entire filling station operation in Finland, followed by the acquisition of Shell in 2010. Following the growth in net sales, the company started to also invest in the production of renewable energy, particularly in wind power plant projects.

"Our collaboration with Labkotec dates back long before these extensions of our operations broadly covered in the media. At that time, we sought a partner who, like us, was prepared to do things differently if need be. Labkotec was chosen as a

partner because of its expertise and customer orientation," recalls **Mikko Reinekari**, Sales Director at St1. Reinekari emphasises that expertise with sensors alone is not sufficient.

"It is necessary, of course, but we also needed a further processing of the technology concept for our own needs."

This further processing meant – and still means – that the level measurement carried out with sensors ultimately serves the optimisation of the client's logistics. The realisation of this concept has constantly evolved so that the supply now operates in an optimal manner and yields cost savings.

Browser-based solution

The mastery of sensor technology and level measurements is one of Labkotec's core competencies on top of which the company was well-equipped to build services that benefit the client as much as possible, of which the collaboration with St1 serves as a good example.



St1's Sales Director Mikko Reinekari emphasises the importance of an open browser system and real-time reporting. "When the measuring data from the fuel tank is immediately available to all those concerned, logistics and overall customer service will run smoothly."

The level measurement sensors most commonly used for measuring service station fuel tanks are either magnetostrictive or capacitive.

Both technologies enable sufficient stock-taking accuracy. Labkotec is able to provide its clients with both of these options.

"The basic technology we currently use in service stations has been in use for some ten years. In addition to the level, the sensor also measures the temperature of the fuel and ensures that no water has ingressed the fuel," says **Markku Mikkola**, Technical Application Manager at Labkotec.

There is usually a small amount of condensation water at the bottom of the tanks. This does not usually cause any problems, because in normal circumstances the water will not end up in the fuel distribution system and to the customer. However, if the amount of condensation water rises too high or the amount of water in excess of the alarm limit ingresses the tank in some other way, the system reacts immediately. A substantial benefit in Labkotec's system is that, thanks to the LabkoNet® service, this and other alarm data is transmitted in real time to all those concerned who are connected to the LabkoNet system.

"The openness of the system is a crucial benefit. A major communication effort is saved when everyone receives the same information simultaneously and automatically. This provides special added value to those who plan and implement supply logistics – i.e. transport companies," says Reinekari.

The concept of the entire system is simple. The measuring data from the sensors placed in the fuel tank is transmitted to the intelligent Labcom 800 unit installed in the distribution point, which in turn is linked to the LabkoNet® server and, through the server, to a client-specific server with a specified address. Data transfer may take place over a GSM, GPRS or Ethernet network, depending on the client's preferences.

Good starting point to address future challenges

Proven sensor technology serves as a good starting point for the future development of services customised to the client's specific needs. Among other things, to address the changes in fuel technology certain changes need to be made in the calibration of measurements, in particular the measurement of fuel temperature.

This is because the density and, consequently, thermal expansion properties of biofuels differ from those of fossil fuels.

St1 has prepared its business outlook based on the assumption that the proportion of biofuels will significantly increase by 2020.

"The increase in proportion is an EU-level obligation that will dramatically change both the supply of fuel and the vehicle fleet. This will naturally also be reflected in the services we need from our partners," says Reinekari.

Reinekari emphasises the crucial role of active product development when new fuel alternatives are sought for. Currently, St1 manufactures a total of 17 million litres of fuel from waste ethanol annually. The company's ambition is to increase the annual production to 300 million litres by 2020.

"In addition to ethanol, we are also constantly seeking other fuel solutions that are based on renewable energy and recycling of materials," he says.

Attention to environmental protection is not only in line with St1's values, but it is also necessary in view of the increasingly stringent environmental regulations. Over the past few years, the regulations have had a strong impact on the building of new service stations. One example of this is that the intermediate space below the tanks must now be monitored for potential leaks – regardless of whether or not the service station is located in a ground-water area.

"This, too, poses an important challenge to the partners who provide technical systems. It is important that different systems serving different purposes are compatible with one another. It is increasingly important that in manned and, in particular, unmanned stations the systems can be integrated into the same whole as far as possible, Reinekari concludes.