

# RFID – Solutions for Audit Trail

## Streamline processes - remove the human error

### *Identifying samples in analytical laboratories*

Sample processing plays an important role in the work flow management of analytical samples. Every day a large number of samples are examined in laboratories all over the world. The efficient marking and allocation of such samples is one of the biggest challenges in analytical labs today, because the exchange of probes can have dramatic impacts. Therefore, a lot of time and effort is spent improving quality management.

The actual approach tries to use bar-coding extensively throughout the lab. Of course barcode technology is mature and reliable. Moreover the label itself has relative negligible cost. Relative in such a way, that SOP's (Sample Operating Procedures) often require labelling sample containers multiple times for different analysis steps. Furthermore the main drawback is the need for human intervention in reading the tag, the tag needs to be located on the package and the laser reader pointed on it. Counting all these together the real cost are often not negligible, by the way. Last but not least the barcode only identifies a unique number and has not the capability to store more important sample data on it. Today laboratory managers are still relying heavily on barcode technology but the demand to move forward to a new and reliable technology increase every day.



Nowadays RFID (Radio-frequency Identification) technology offers an opportunity sample processing improvement throughout the lab. The integration of small RFID tags (such as our 8.7mm diameter 13.57 MHz inlays) onto sample vials and laboratory bottles together with the use of our special bulk-tag RFID terminals allow operators to detect and locate multiple samples at a time. During operations, all sample processing steps, results and data are stored and monitored on the RFID tag which is directly located at the sample. This guarantees that even under an exchange of samples the data stays always valid. Furthermore, this technology can be used to produce continuous documentation and ensure traceability according the rules of FDA CFR Part11.



### *Blood alcohol tests - a real life example*

Police officers and other authorized personal world wide come more and more under pressure to ensure the chain of custody for suspect samples especially in judgement cases. For blood alcohol test from drunken drivers a proofed solution was now established by Intelli Labs. The complete workflow was set up as a closed process, where every sample handling step is equipped with RFID terminals. At the end of a sample preparation cycle the real analysis is done fully automatically on a dedicated GC/MS instrument, which is also supplied with an RFID-enabled autosampler. Because the "intelligent" sample itself contains all method information and related data to control the instrument, the analysis could be done now without any user interaction. Furthermore even the calibration and check-out vials have RFID tags embedded and provide the control software with the possibility to validate its instrument status automatically. Mixed up or tampered samples are fortunately a thing of the past.

# The Intelli Factor

Implementing the right solution for your lab

## Blood alcohol workflow

### Police station / Hospital

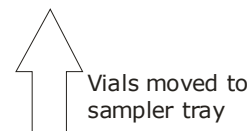
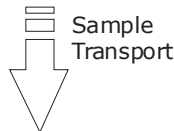


Blood sample is taken from driver and sealed in a RFID ready tube. Personal data, timestamp and other important info are written to the TAG.

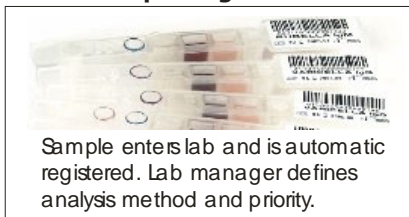
### Data Analysis / Report



Sample is automatically analysed with the method info from the TAG. No user interaction or sequence setup required. Report and results stored in LIMS system.

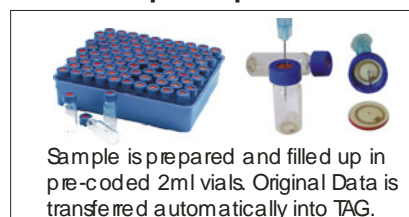


### Sample Registration



Sample enters lab and is automatic registered. Lab manager defines analysis method and priority.

### Sample Preparation



Sample is prepared and filled up in pre-coded 2ml vials. Original Data is transferred automatically into TAG.

## Customizing the solution

Everyone's RFID requirements are specific to their needs and are generally unique in some way. Intelli Labs specializes in adapting the RFID technologies available and customizing the solution to you. We offer a complete set of solutions, from hardware to software, of course including our consultancy, analysis and implementation support to make sure the integration of automatic identification and data collection within your processes is done smoothly. Our



product lines also support the users need to have a certain mobility to do their job, by utilizing the latest and always up to date mobile technologies like WiFi, mobile computers and Smartphones. These help our clients to increase their productivity and efficiency by enabling both wireless and mobile computing. The device shown on the left is a smart PDA with RFID enabled technology. Nowadays NFC enabled Android™ Smartphones are also used to store information such as date, sample type, specific treatments, methodology and even GPS coordinates on the TAG for future reading at the laboratory. This

digital information can be transmitted to the receiving laboratory or stored in a cloud, which gives operators an advanced status of what samples to expect and when.