

# WE VISUALIZE QUALITY!

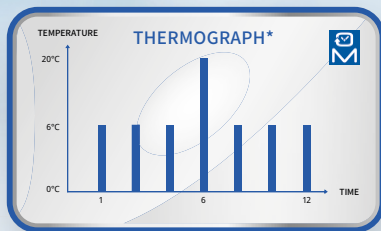


## PATENTED TECHNOLOGY

### OPENING TIME MONITORING & DYNAMIC BBD



### COLD CHAIN MONITORING



## SMART LABEL WITH SENSORIC MEASUREMENT FUNCTIONS

For use in cases where time,  
temperature & humidity are  
important.



**FOODSAFE  
TECHNOLOGY**



**PRINTED ELECTRONICS  
WITHOUT EXTERNAL  
BATTERY**



**OPTICALLY & DIGITALLY  
READABLE**

**FOOD** PHARMA  
**PROMOTION** BEVERAGES  
**LOGISTICS** **SAFETY**

# OPEN MONITOR TECHNOLOGY

## OVERVIEW

Monitoring of product quality in terms of time, temperature and humidity across the entire value chain.

We develop intelligent labels, so-called smart labels with sensory features. These labels can be dispensed or, in future, printed directly in the packaging production process.

- ✓ Thin like paper comparable to a sticker
- ✓ Release of information influenced by sensory features
- ✓ Control variables are time, temperature & humidity
- ✓ Functional base: saline solution (no external batterie)
- ✓ Manual or automatic activation
- ✓ Dispensed or integrated application

- ✓ Visualizations in a dynamic visual field
- ✓ Link to NFC/RFID chips possible
- ✓ QR-Code use in concealed or semi-concealed way
- ✓ Production output ca. 5 mio. pieces / day / machine
- ✓ Prices are in range of industrial demand
- ✓ Proof of Concept for promotional use

## APPLICATION OF THE SMART LABEL

- Monitoring of the complete product life cycle
- Product packaging
- Transport packaging
- Cold storage
- Identification of potential originators
- Print media
- Product safety & tamper-proof



# FOODSAVING & REDUCTION OF PACKAGING WASTE

## GUARANTEE OF QUALITY & FRESHNESS

Especially for the food sector we have developed the brand and the concept U4FOOD to convince consumers to actively participate in the topic of Food Loss & Waste.

### OPENING TIME MONITORING

Visualization of the manufacturer's recommendation on the consumption period:  
Eg. Demand to consum  
➤ Test markets possible from now on.



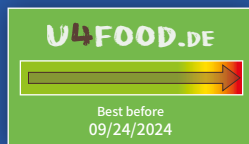
### DYNAMIC DISCOUNTING

Refrigerated products with short BBD periods are automatically reduced after day X without staff assignment.



### DYNAMIC BEST BEFORE DATE

- Self-sufficient and automated cold chain monitoring
- Activation during the filling- / packaging process
- Dynamic adjustment of the BBD expiration depending on storage temperature
- More efficient use of the industrial time safety buffer



## DIN - GERMAN INSTITUTE FOR STANDARDIZATION

- Cooperation to develop smart label market standards.
- Food experts and government representatives advocate a BBD in a DIN workshop.
- DIN SPEC project for opening time monitoring already approved.
- Standard for dynamic best before date envisaged.

# SMART LABEL

## FURTHER APPLICATIONS



### PHARMA

- Time and cold chain monitoring with the identification of originators
- Clear indication for use for products or samples



### SECURITY

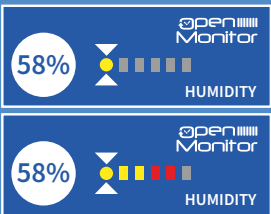
- Counterfeit protection through opening of a hologram or similar
- Tamper-proof technology

## INDICATORS: TIME-TEMPERATURE, TIME-HUMIDITY & COMBINATIONS THEREOF



### LOGISTICS

- Sensory protection of the entire value chain
- Monitoring of : product shelf life, shipping times, thresholds & dose indication



### PROMOTION

- Time delayed release over a defined number of days
- Suitable for product development, QR codes, sweepstakes etc.
- Focus : customer guidance function at POS & POI



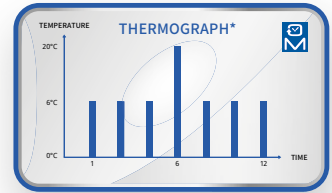
PROOF  
OF  
CONCEPT

# TECHNOLOGY ENHANCEMENT

## BRIDGES TO DIGITAL FUNCTIONS

### IDENTIFICATION OF ORIGINATORS

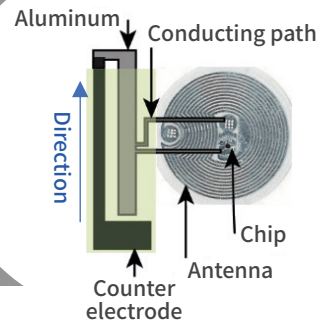
- Multifunctional label for continuous temperature or humidity measurement over long periods
- Indication of temperature or humidity limits and documentation according to costs-by-cause principle



\*Developing Project

### COUPLING WITH RFID CHIPS

- Switching of RFID chips (Modes: on, off or switch-over) in correlation to time, temperature and humidity
- Optically & digitally readable



### COOPERATION WITH THIRD PARTY TECHNOLOGY

- Measurement of exact temperature values (0 °C, 50 °C, ...)
- Exceeding leads to optical visualization and start of operation
- Switching of RFID chips at predefined time
- Identification of originators by time measurement starting with temperature overshooting



# OPEN MONITOR

## WE STAND FOR

### DEVELOPMENT & PRODUCTION

- Our own R&D department for fundamental research
- Adaptation to your individual needs possible
- Transfer to reel-to-reel process

### WE USE

Our technology „the nanofilm processor“:

- Sensory opening of an aluminum visual field
- Smart label
- Dynamic function
- Self-writing status indication
- Self-ustaining processor
- Patented technology & application

### WE DO

We visualize product and quality safety.

Our technology monitors environmental impacts on products and displays product-specific effects of these influences.

### APPLICATIONS

Cross-industry use:

Food, Pharma, Beverages, Logistics, Security, Promotion

### VISUALISATIONS

Graphics, texts, color scales, QR codes, continuous digital prints, photos etc..

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- Launch exclusivities in industries and countries
- Test markets possible
- Cooperation with complementary technologies