

AMETEK MOCON

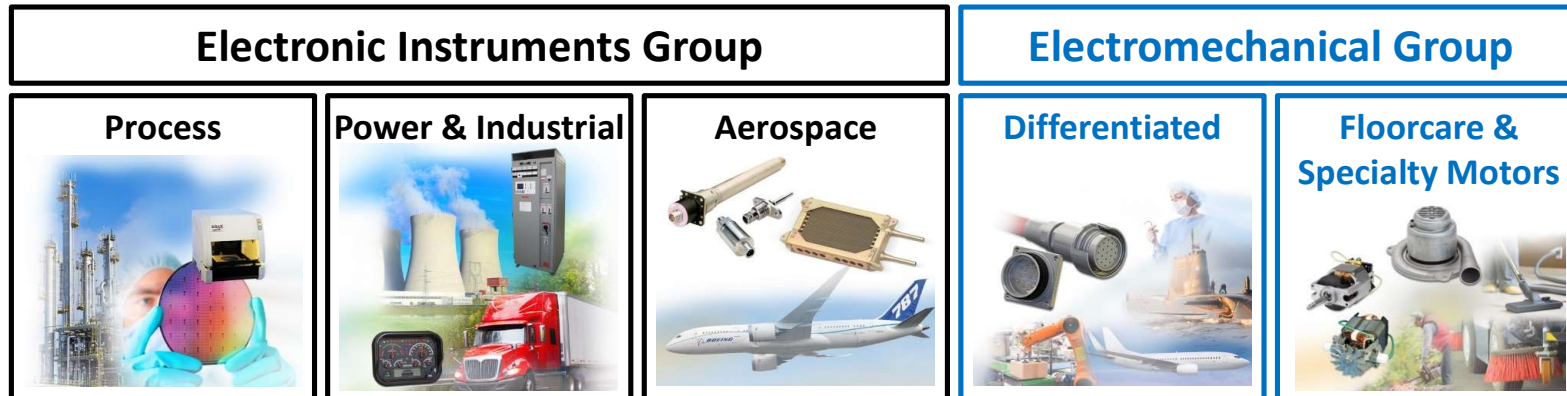
**Modified Atmosphere Packaging
Package Testing and Gas Mixing**

Christoph Zerwas / Ernst Lauper

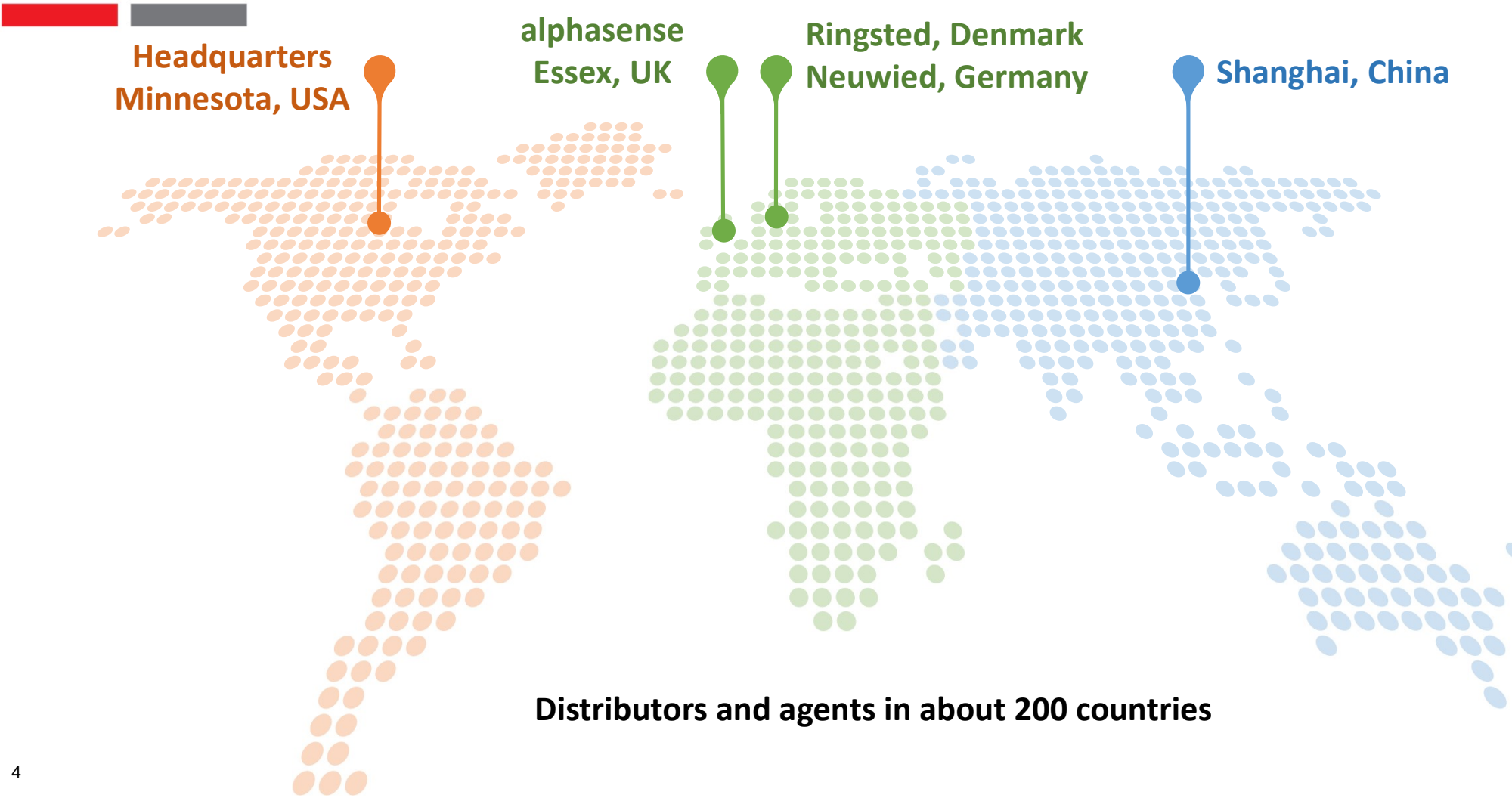


AMETEK MOCON – Introduction

- Global manufacturer of high-tech systems for demanding applications and niche markets
- Ca. 18.000 employees
- Yearly turnover ca. 5 Mrd. US\$ with more than 50 % outside USA



AMETEK MOCON Locations



AMETEK MOCON Brands



High-quality gas sensors for industrial safety and air quality. Wide product portfolio, multiple sensor technologies and reliable performance.



High-precision and reliable gas and vapour permeation analyzers, gas chromatographs and dairy analyzers



Headspace gas analyzers and gas mixers for Modified Atmosphere Packaging (MAP) as well as leak detectors for food, pharmaceutical and medical products packaging

Center of excellence MOCON Europe A/S



Ringsted, Denmark



120



Development



Manufacturing



Service



Ann. 20 M USD

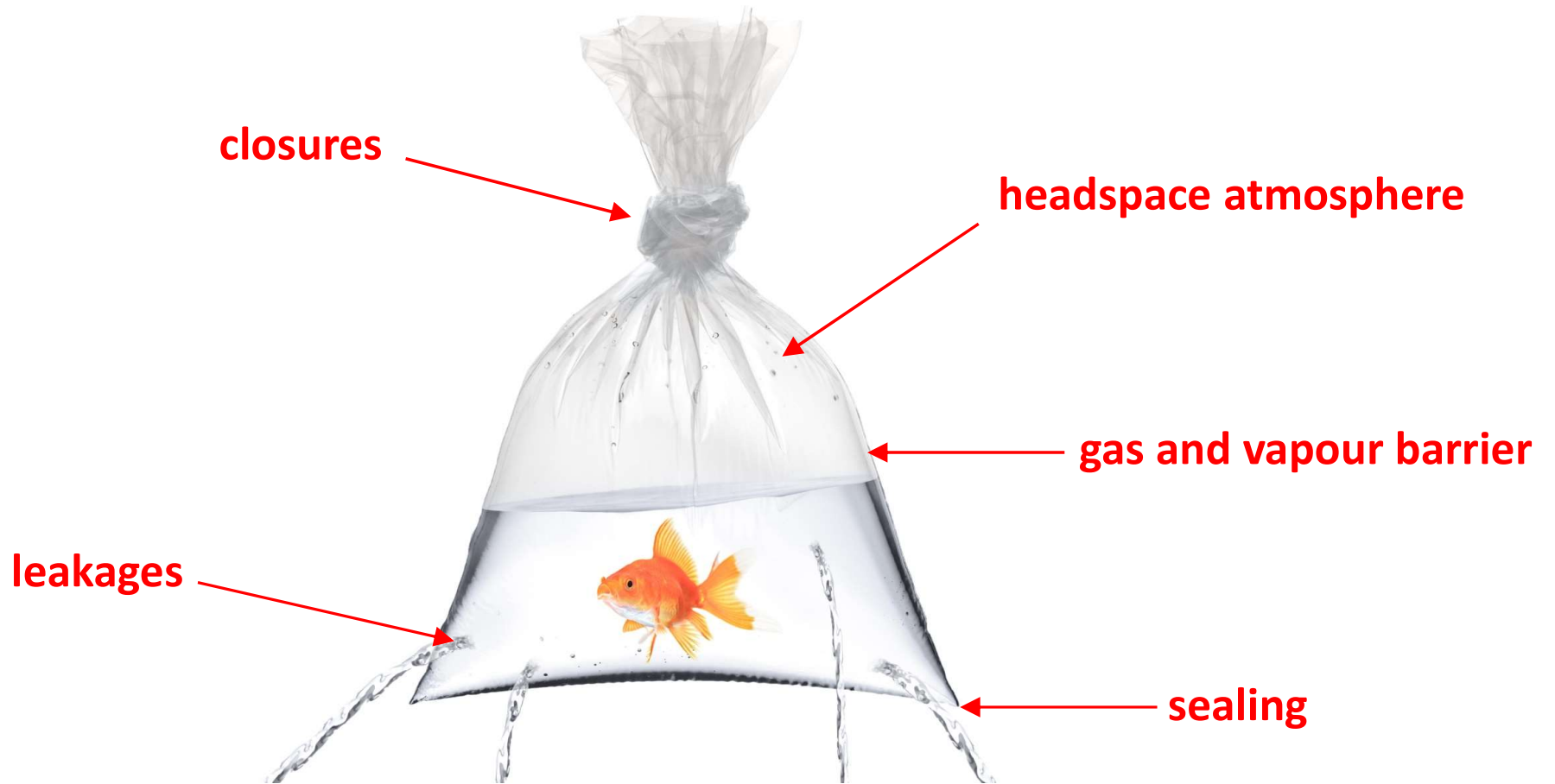


Dansensor product line

Modified Atmosphere



Weak spots of packaging

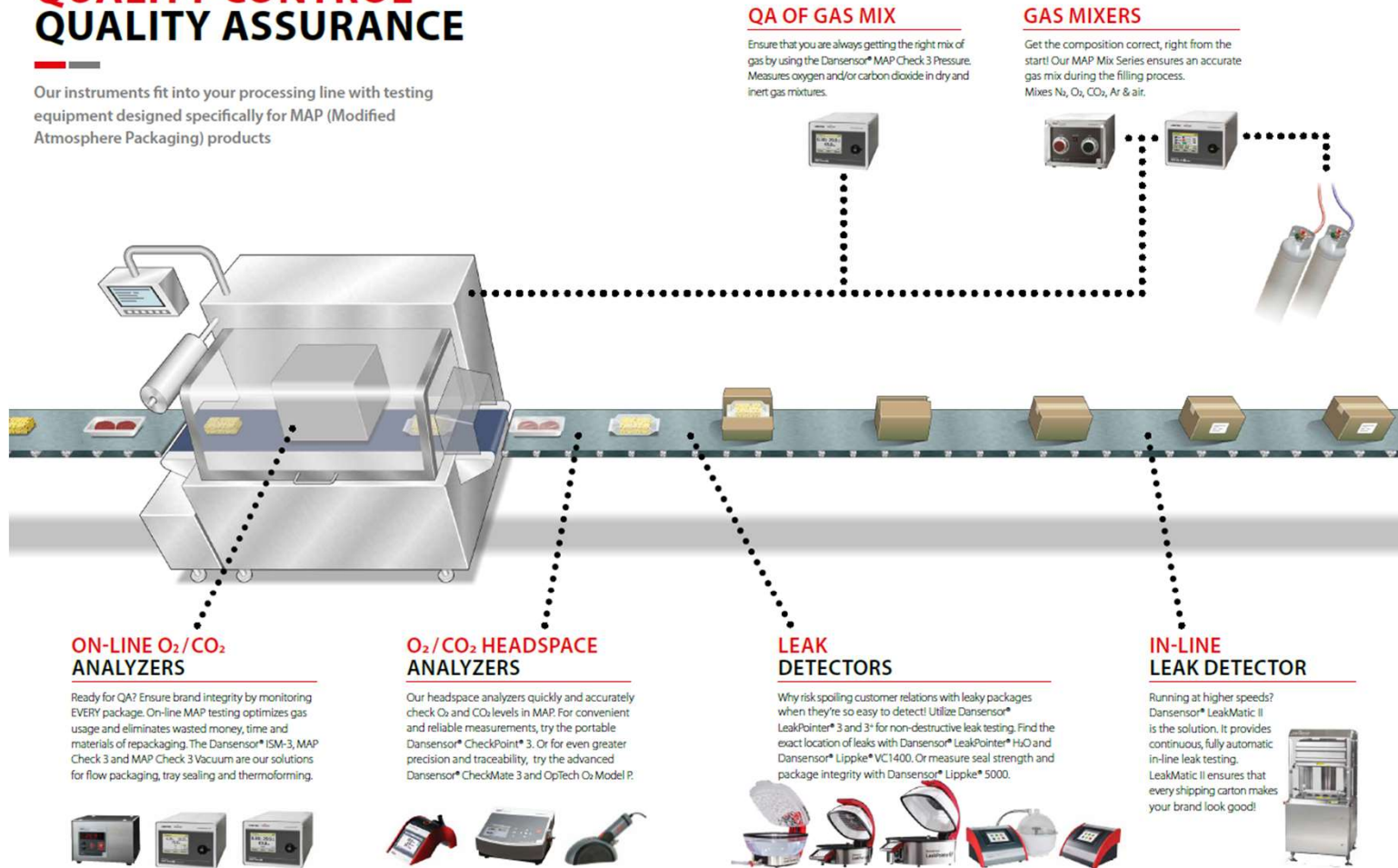


DANSENSOR PRODUCT RANGE



QUALITY CONTROL QUALITY ASSURANCE

Our instruments fit into your processing line with testing equipment designed specifically for MAP (Modified Atmosphere Packaging) products



QA OF GAS MIX

Ensure that you are always getting the right mix of gas by using the Dansensor® MAP Check 3 Pressure. Measures oxygen and/or carbon dioxide in dry and inert gas mixtures.

GAS MIXERS

Get the composition correct, right from the start! Our MAP Mix Series ensures an accurate gas mix during the filling process. Mixes N₂, O₂, CO₂, Ar & air.

ON-LINE O₂/CO₂ ANALYZERS

Ready for QA? Ensure brand integrity by monitoring EVERY package. On-line MAP testing optimizes gas usage and eliminates wasted money, time and materials of repackaging. The Dansensor® ISM-3, MAP Check 3 and MAP Check 3 Vacuum are our solutions for flow packaging, tray sealing and thermoforming.



O₂/CO₂ HEADSPACE ANALYZERS

Our headspace analyzers quickly and accurately check O₂ and CO₂ levels in MAP. For convenient and reliable measurements, try the portable Dansensor® CheckPoint® 3. Or for even greater precision and traceability, try the advanced Dansensor® CheckMate 3 and OpTech O₂ Model P.



LEAK DETECTORS

Why risk spoiling customer relations with leaky packages when they're so easy to detect! Utilize Dansensor® LeakPointer® 3 and 3+ for non-destructive leak testing. Find the exact location of leaks with Dansensor® LeakPointer® H₂O and Dansensor® Lippke® VC1400. Or measure seal strength and package integrity with Dansensor® Lippke® 5000.



IN-LINE LEAK DETECTOR

Running at higher speeds? Dansensor® LeakMatic II is the solution. It provides continuous, fully automatic in-line leak testing. LeakMatic II ensures that every shipping carton makes your brand look good!



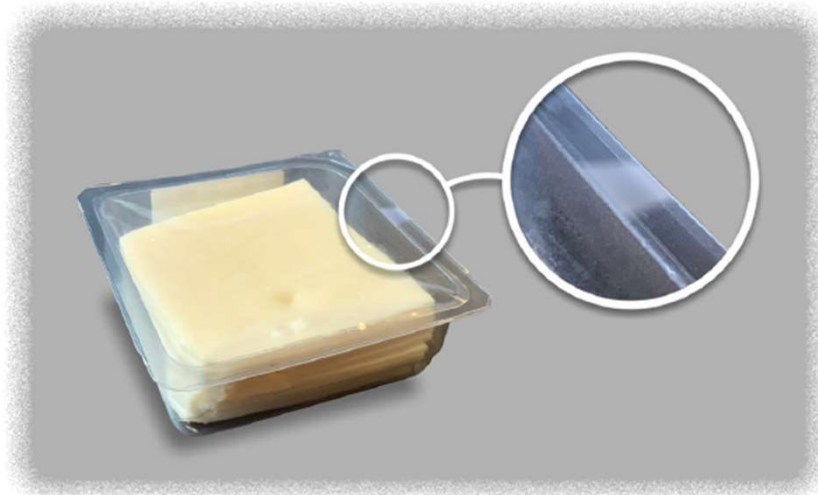
What's a LEAK?

It's a hole in a barrier –
a hole that shouldn't be there.

Yes, but when does it cause a problem
for the customer?

DANSENSOR LEAKDETECTOR

- Food ingredients contaminating the sealing →
- Poor sealing caused by incorrect adjustment of the heating station ↓



DANSENSOR LEAKDETECTOR

- Channel leak in sealing
Wrinkled foil →



- Channel leak in sealing
← Going from 4 layers to 2 layers

DANSENSOR LEAKDETECTOR

LeakPointer 3 / 3+:

- CO2 Leak Detector, based on an Infrared-Sensor. Detects leak down to 100 micro. Fast no destructive detection



LeakPointer H2O:

- Waterbath Leak Detection: Quick and effective visual leak detection with designed convenience



DANSENSOR LEAKDETECTOR

Lippke 5000:

- Burst and Leak-Detector for Packaging in the Food-, Health- and Medical industry



VC 1400:

- Vacuum Leak Detection System Test for leaks and package integrity with blue dye or bubble test



DANSENSOR LEAKDETECTOR



Leak Detector	Dansensor LeakPointer 3 and 3+	Dansensor LeakMatic II	Dansensor Lippke 5000	Dansensor Lippke VC1400
Detection method	Trace gas detection (CO2)	Trace gas detection (CO2)	Pressure decay	Vacuum pressure
Package types	Flexible and rigid packages	Flexible or non-flexible packages; single packages or complete shipping crates	Flexible, semi-rigid and rigid packages; porous and laminated foils	Flexible, semi-rigid and rigid packages; blister packages
Special features	Measure micro leaks as small as 50 microns; calculate leak size	Can be placed in-line on packaging line; test entire shipping crates at once	Many accessories and applications; ASTM, ISO, 21 CFR Part 11 compliance	Methylene blue dye test or ASTM D3078 vacuum bubble test
Test speed	Up to 6 test cycles/min	Up to 4 test cycles/min	1-5000 sec	
Test type	Non-destructive	Non-destructive	Destructive – burst, leak, creep, bubble	Destructive - blue dye or bubble

DANSENSOR LEAKDETECTOR



And in combination with our non-destructive
e.g., LeakPointer 3/3+ we have a complete solution

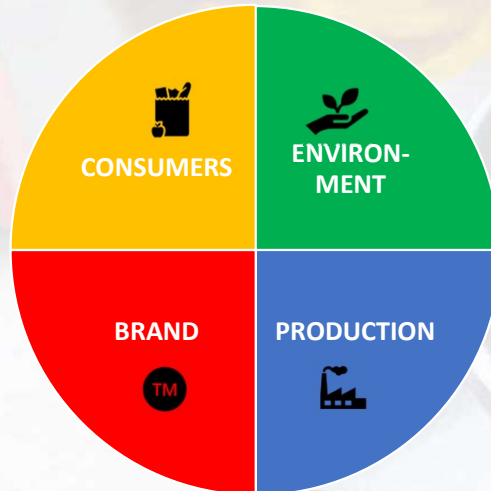


We support food, healthcare and other industries



Ensure shelf life and product safety

Reduce waste and develop sustainable solutions



Protect brand reputation

Reduce cost and optimize production

Solutions from development to finished package quality control



R&D LABS



**ON-LINE MAP
PACKAGING PROCESS**



OFF-LINE QUALITY CONTROL

Users trust our solutions



PACKAGING DEVELOPMENT

- Provide test data during development of new packages
- Provide extremely precise and repeatable test results
- Test different types of packaging materials, such as paper-based, renewable and biodegradable raw materials



ON-LINE PACKAGING PROCESS

- Decrease packaging and food product waste
- Online monitoring of gas content and mix
- Ensure high quality standards and protect consumer experience (nutritional, sensory and safety elements)



OFF-LINE QUALITY CONTROL

- Ensure whole package integrity
- Detect package leaks
- Ensure seal integrity

Dansensor instrument categories



PACKAGING DEVELOPMENT

CheckMate 3
LeakPointer 3
Leakpointer H20
Lippke 5000
Lippke VC1400



ON-LINE PACKAGING PROCESS

Optimization of MAP gas mixing, flow and packaging process

GAS MIXERS
MAP Mix Provectus
MAP Mix 9001 ME
Buffer Tank

ANALYZERS
MAP Check 3
LeakMatic II
ISM-3



OFF-LINE QUALITY CONTROL

MAP packaging product quality of the packaged product

LeakPointer 3
Leakpointer H20
Lippke 5000
Lippke VC1400
CheckMate 3
CheckPoint 3

