

GASPOROX

INTELLIGENT LASER SOLUTIONS

Measure the oxygen inside



Märta Lewander CTO
ml@gasporox.se

Content

Gasporox – About us

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Food package monitoring

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About us

Mission	→ Supply of cost efficient and clever measuring devices based on our patented laser technology
Founded	→ 2005
Originated out of...	→ Research team from Lund University, Sweden
Patent materials	→ Holder of a strong patent for laser-based measurements of free gases in light-scattering
Location	→ Lund, Sweden

Research team

Atomic Physics, LTH

Sune Svanberg, Professor
Stefan Andersson-Engels, Professor
Patrik Lundin, PhD Student

...

Norsk Elektro Optikk

Lund University Hospital

Katarina Svanberg, Professor of Oncology
Sven Lindberg, ENT specialist

...

Packaging Logistics, LTH

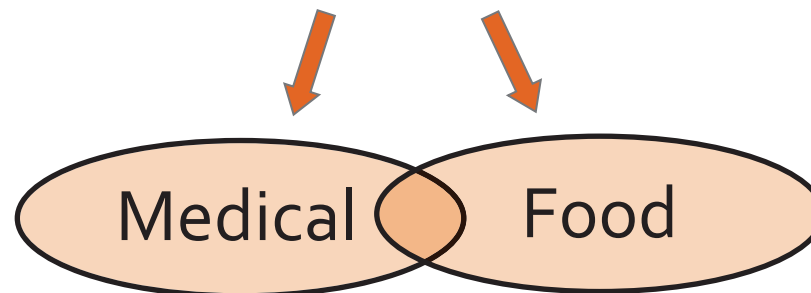
Annika Olsson, Professor

What do we do?

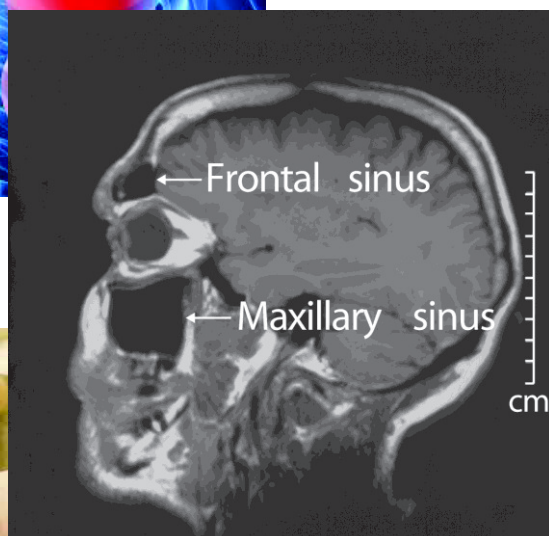
What Measures gas – typically oxygen
inside, exact

How Laser technology
non-invasive, unharmed

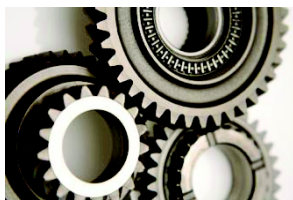
Where Odd samples
biological materials, plastics, paper, wood, ...
not through metal, black paper, ...



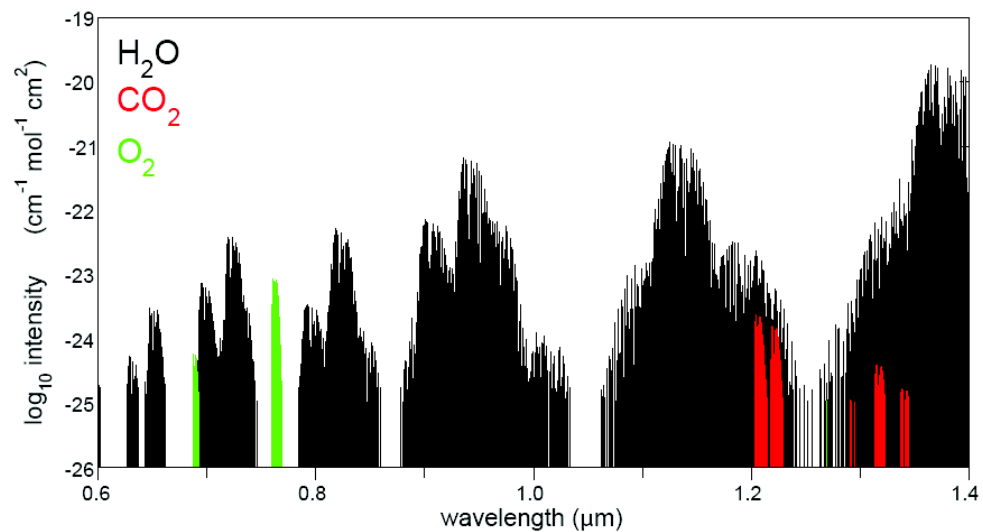
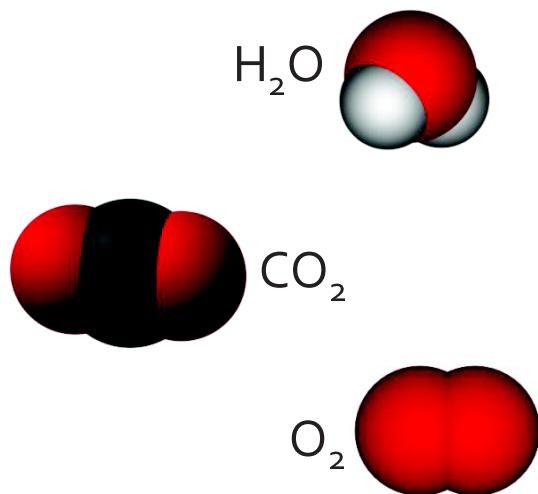
Examples of where we can measure gas



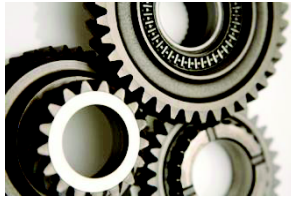
Technique - What is unique?



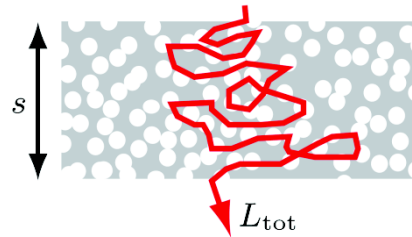
Laser light



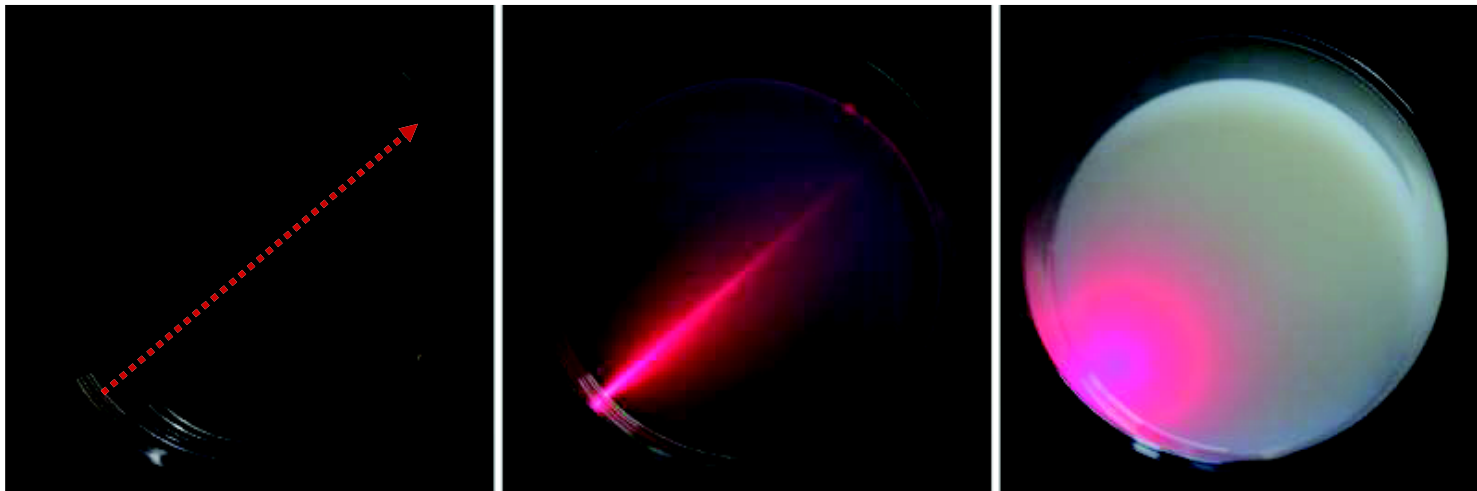
Technique - What is unique?



Laser light



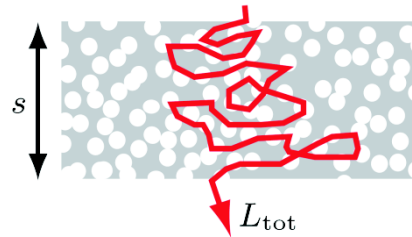
Light scattering



Technique - What is unique?

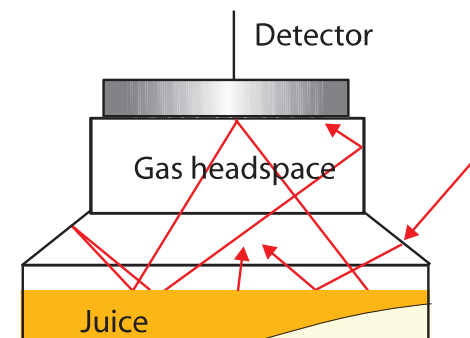
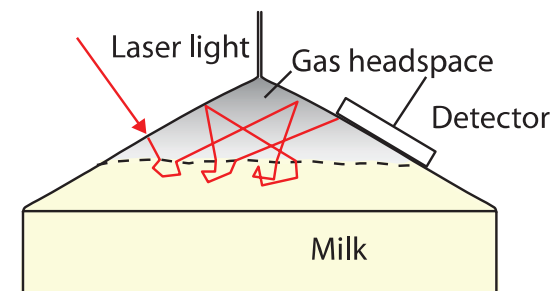


Laser light

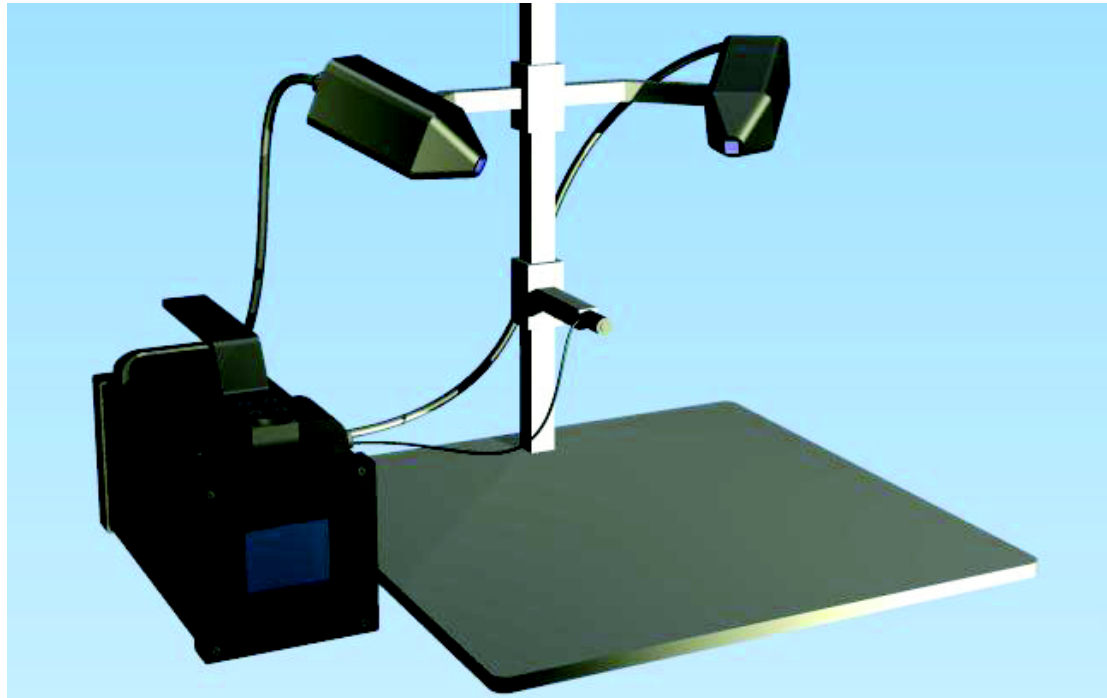


Light scattering

GASMAS



Product



Oxygen sensing

Quality control

Integrity/tightness control

Advantages:

- Non invasive
- Flexible
- Cost effective
- Many packaging materials
- Unharmful
- Measurement over time

Drawback:

- Laser light do not go through
 - metal
 - black paper
 - too thick materials

2001 Demonstrated gas sensing in food products

Fruits: apple, orange, ...

Vegetables: avocado, mushroom, aubergine

Dry products: flour, sugar, salt

2008 Demonstrated gas sensing in **packaged** food products

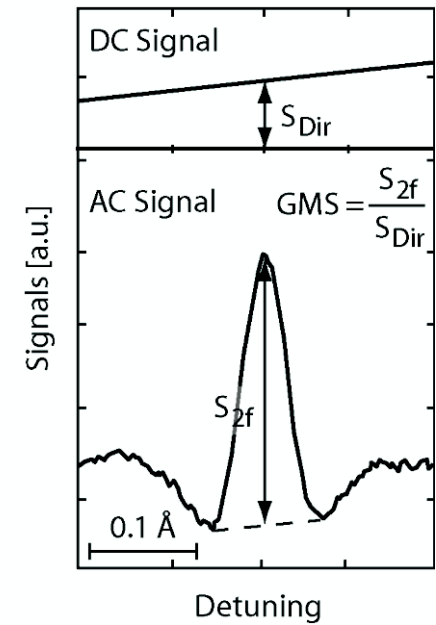
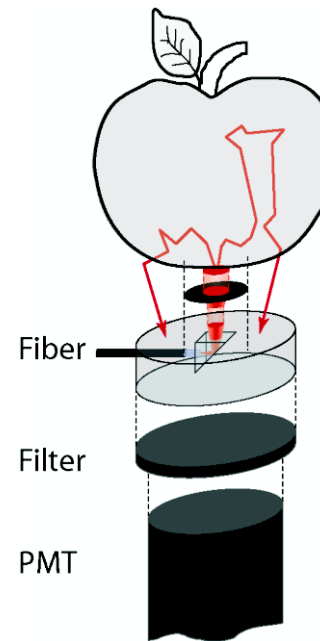
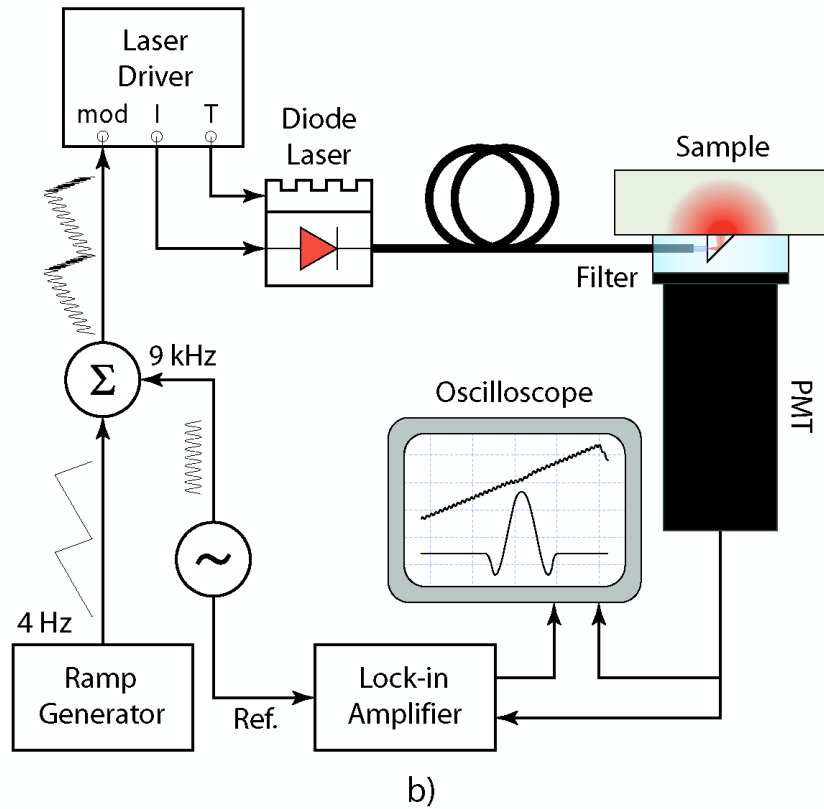
Minced meat

Bake off bread

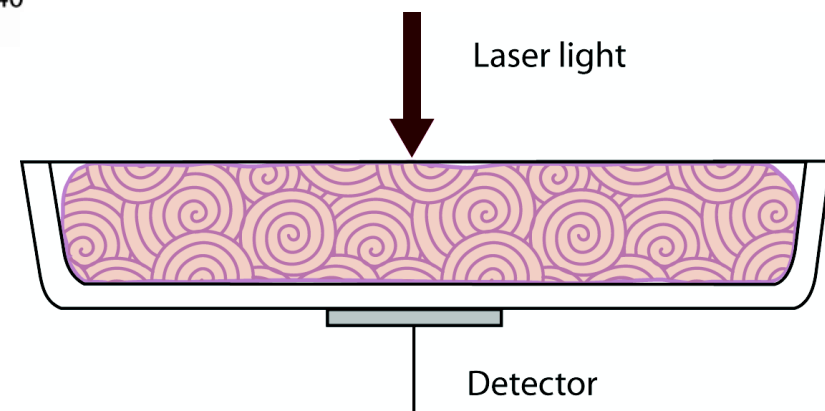
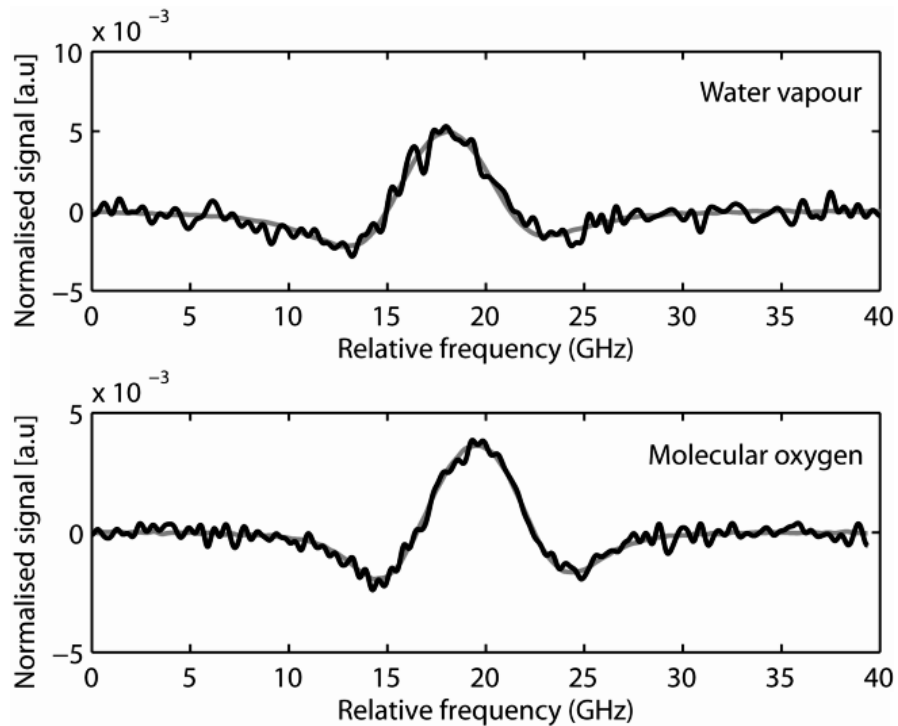
Liquid carton headspace: milk, juice

2011 Commercial product/services

Fruit monitoring

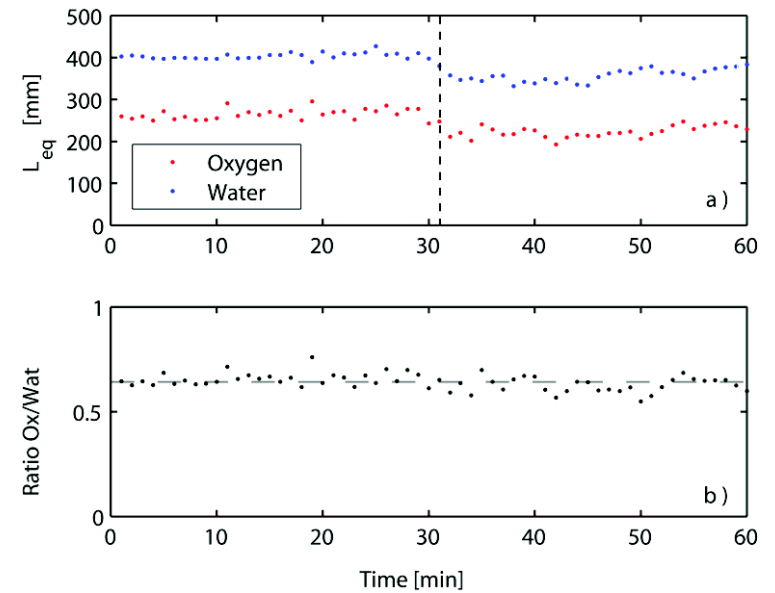
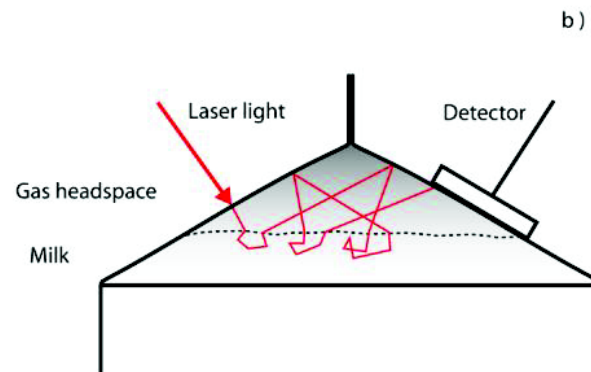


Packaged minced meat monitoring

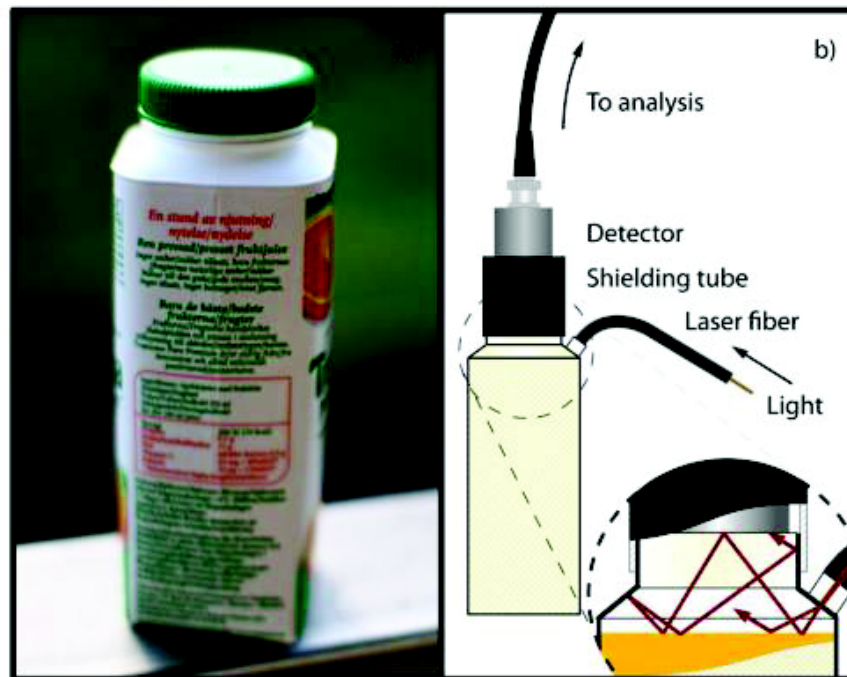
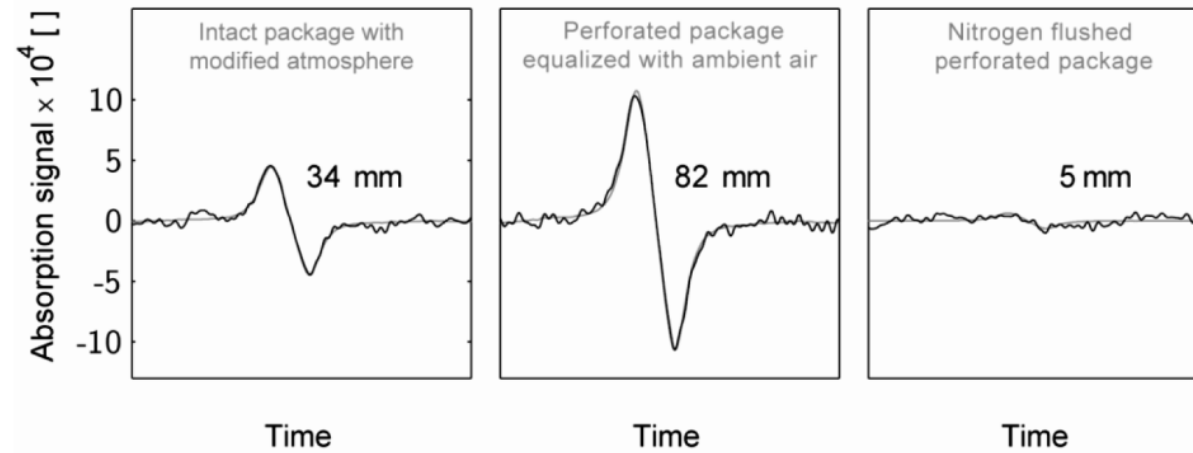


Lewander et al. Appl. Phys. B 93,619-625 (2008)

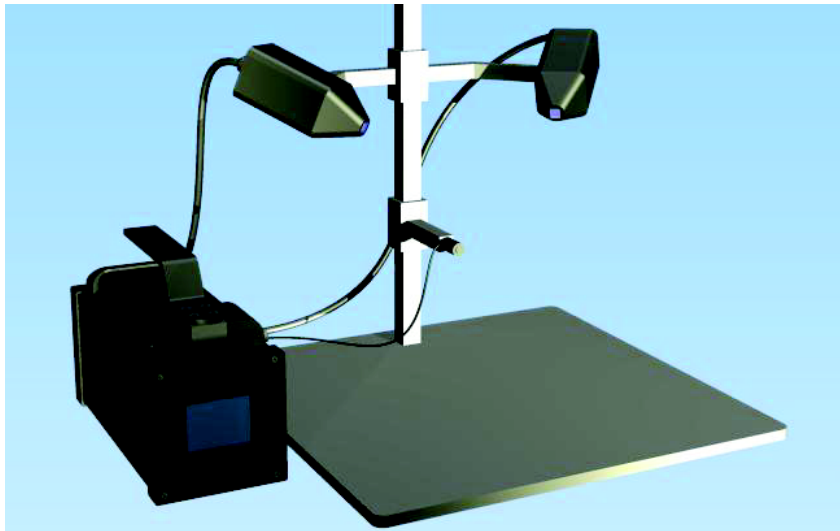
Head space analysis



Head space analysis - MAP



Future



Instrument for lab environment
on the market - Fall 2011

Measurement services



Production line
in progress

Quality control
in future



Future - Potential

Potential

Food

ripe process

transportation

Gas located in other places in the body

stomach, intestines,
disease symptoms

Pharmaceuticals



Packaged food products (2011)



Sinus (2012)



Thank you for your attention !