Thermodynamic Multi-Gas Odor Analyzer

Innovative Solution for Grain Storage Monitoring

Our project focuses on advanced gas detection to ensure grain storage quality and safety.

OdorSense

odorsensor.site

The Problem:
Why Early Detection Matters

- Grain losses are a major economic issue

- Early detection of spoilage is critical

- Traditional methods are insufficient

Grain storage losses result in significant economic impact. Early identification of spoilage, bioactivity, and pests is crucial, yet conventional monitoring methods often lack sensitivity, detecting issues only when damage is already substantial and harder to reverse.

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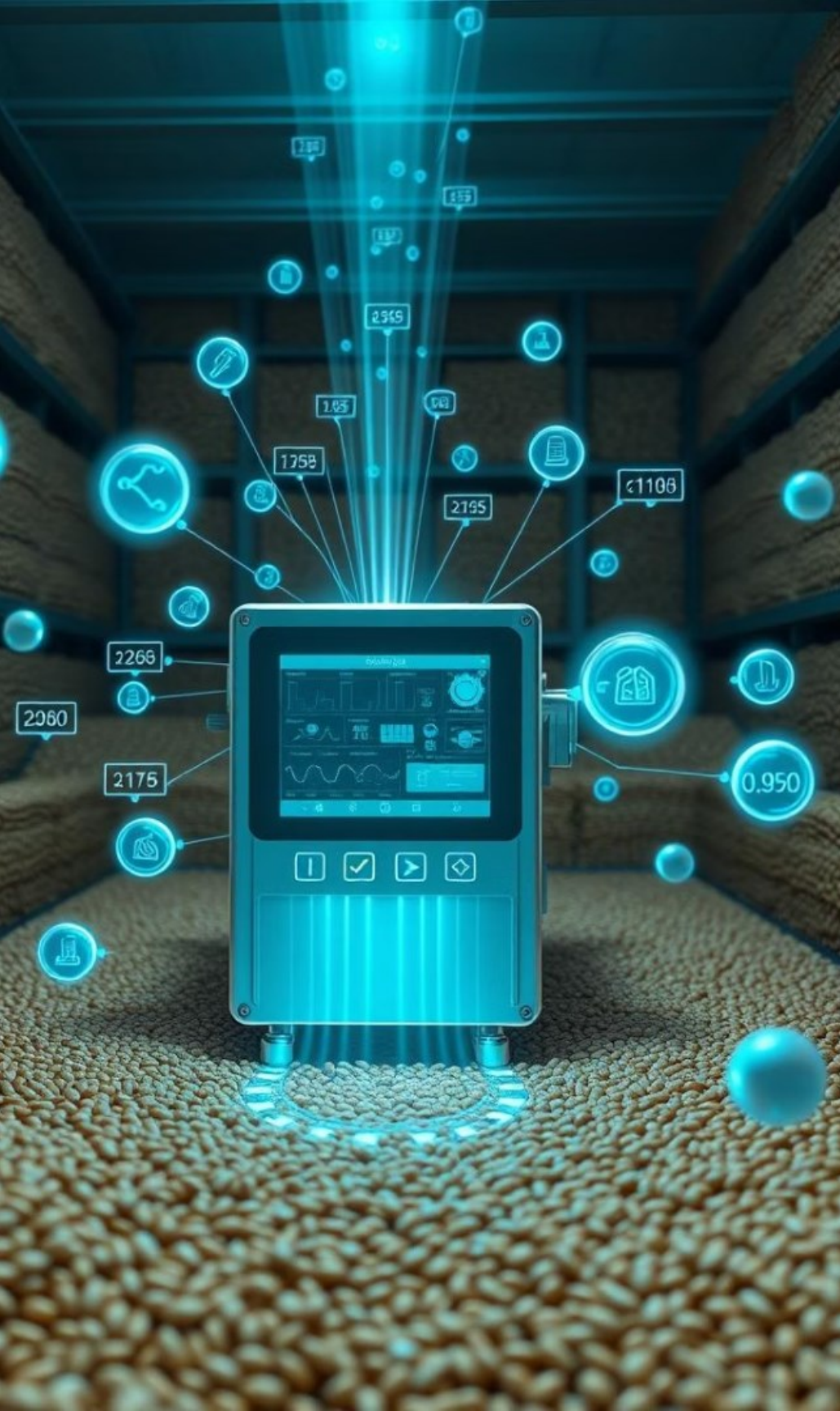# What is a Multi-Gas Odor Analyzer?

Simultaneous Measurement

Measures multiple gas concentrations at once.

Comprehensive Odor Profile

Creates a detailed snapshot of the storage environment.

Proactive Detection

Identifies issues before visible spoilage appears.

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Key Gas Indicators

Specific gases signal different types of issues.

Methane (CH_4)

Anaerobic fermentation, poor ventilation.

Hydrogen Sulfide (H_2S)

Organic decay, anaerobic bacteria.

Ammonia (NH_3)

Protein breakdown, urea decomposition.

Hydrogen (H_2)

Fermentation, bioactivity.

Carbon Dioxide (CO_2)

Microbial and insect respiration.

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Spoilage, Mold, and Anaerobic Processes

Detecting specific gases allows for early intervention, preventing widespread spoilage.
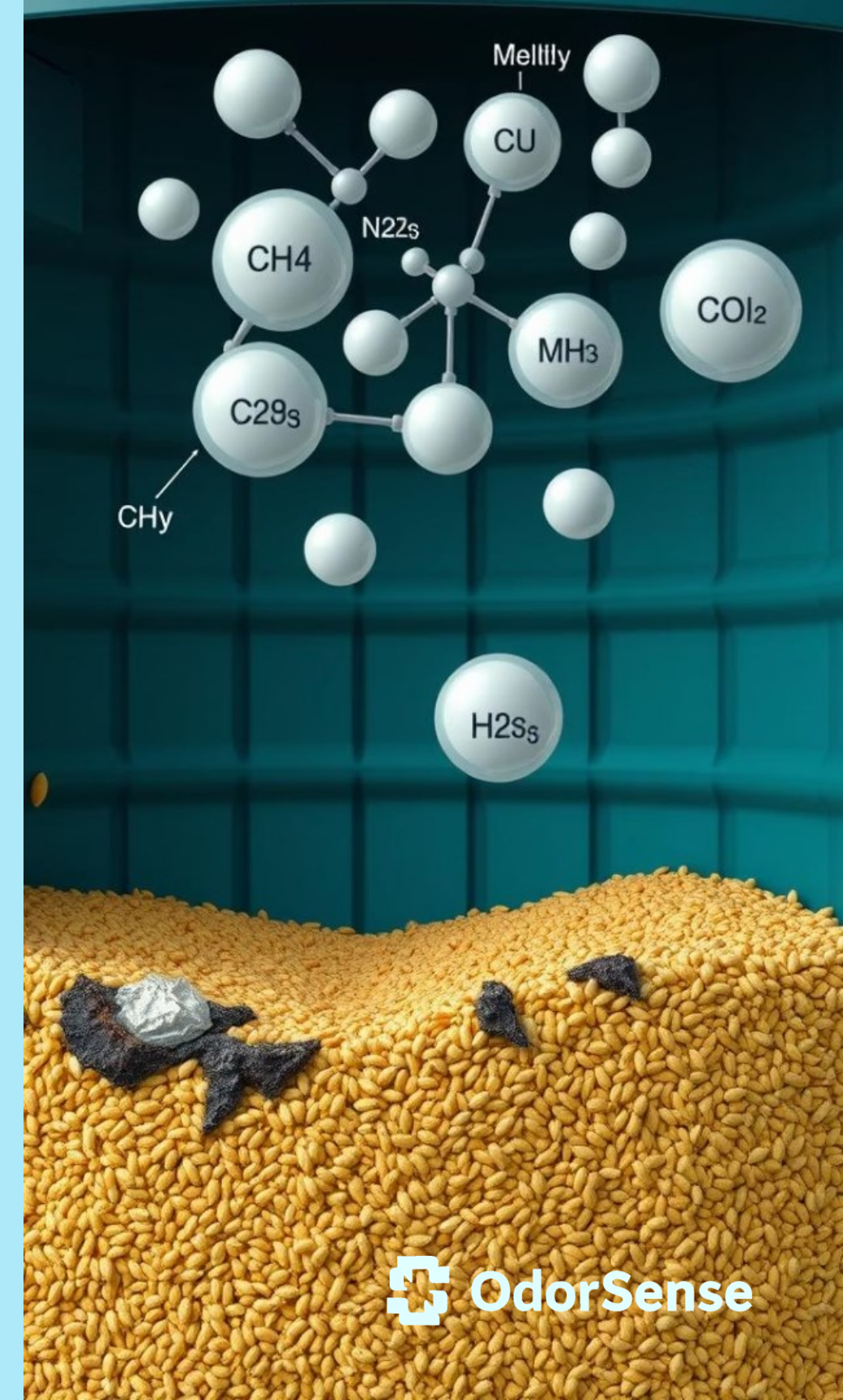
1 **Methane & H_2S**

Signal poor ventilation, decaying processes.

2 **Ammonia & CO_2**

Indicate protein breakdown, mold growth.

3 **Prevent Spoilage**

Early detection prevents large-scale losses.

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Bioactivity and Dry Matter Loss

1   **CO_2 as Main Indicator**

Signifies metabolic activity in grain, microbes, insects.

2   **Hydrogen Signals Fermentation**

Indicates active biochemical processes.

3   **Ammonia for Protein Breakdown**

Additional marker for decay.

4   **Preventing Quality Loss**

Monitoring prevents quality and mass reduction.

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Rodent Presence (Rats, Mice)

Metabolite Challenge

Direct rodent gas metabolites are difficult to isolate.

Odor Profile

Ammonia and specific VOCs (urine, feces, pheromones) form unique patterns.

AI Detection

AI models analyze VOC patterns for early rodent detection.

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Why Choose the Thermodynamic Multi-Gas Odor Analyzer?

Protect Your Profits and Reputation!

Minimize grain losses: Detect spoilage, bioactivity, and pests at the earliest stage — before they cause serious damage.

Stay ahead of problems: Continuous, real-time monitoring provides instant alerts, enabling fast and effective intervention.

Ensure quality and safety: Maintain optimal storage conditions, preserve grain quality, and meet strict food safety standards.

Save time and resources: Automated analysis reduces manual inspections and human error.

Future-proof your business: Adopt cutting-edge technology trusted by industry leaders and backed by scientific research.

Invest in confidence, efficiency, and peace of mind — choose the Multi-Gas Odor Analyzer today!

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Founder

1. Vladyslav Vlastopulo
Director of Harvard Marine, professor-consultant. Doctor of technical sciences, author of a number of well-known works, currently specializing in tribological, ecological and biomedical engineering. Scientific director of the project.

2. Igor Chaadaev
Research engineer, experiment director, artificial intelligence programmer, electronics engineer, microcontroller programmer, gas analyzer equipment developer.

3. Oleksandr Yerokhin
Marketing Director. Market research and product promotion.

4. Andrey Lukashenko
Mathematician, biophysics air engineer.

5. Vitaly Sviryda
SAAS programmer, IT specialist.

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List of participants

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