

MUI Tongue 1.0



Desktop Electronic Tongue

Intelligent electronic tongue for identification of taste substances

MUI-Tongue is a cutting-edge tool for monitoring and analysis of taste profiles. Its working principle precisely mimics the human gustation system. E-Tongue MUI is based on a multi-sensor array with various taste-sensitive electrodes. It offers rapid detection and identification of taste substances. Due to its unique combination of various sensors, this portable e-tongue simulates human taste perception and the entire mental process of taste identification, recognition, and gustatory imprint of taste emission.



Our Solution

- Sensory control of **raw materials, final products, or packaging**
- **Taste conformity** tests during production
- Organoleptic control of packaging interactions
- **New product** development
- **Benchmarking of competitive products**
- Investigation of **consumer claims**
- **Shelf-life** taste stability studies
- Determination of **best storage** conditions & shelf life



Cost Saving

Advantages

- Intelligent sensors
- Online analysis
- Detects in seconds all taste attributes
- Fast, flexible, and robust
- Unique combination of a wide range of taste sensors
- Objective, repeatable results beyond human



Quality Improvement



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The Electronic Tongue is an advanced device engineered to **mimic human taste perception**. It features a multi-sensor array, highly sensitive to various ions and compounds responsible for tastes like saltiness, sourness, bitterness, and umami.

When a sample touches the sensors, it generates electrical signals (mV) that vary with the concentration of detected compounds. These signals are then processed and statistically analyzed using methods like **Principal Component Analysis (PCA)**. The system presents clear 2D or 3D plots, allowing you to quickly visualize whether taste samples are similar or different from a reference.

While it doesn't directly detect non-ionic compounds or volatile aromas, the Electronic Tongue rapidly provides a **comprehensive and accurate overview of a product's overall taste profile**. This makes it an invaluable tool for **quality control, product formulation comparisons, and research & development** across the food, beverage, and health product industries.

Specification

Sensor technology Ion-Selective Electrodes (ISEs)

Sensor array Supports up to 9 channels (for ion and pH sensors)

Measurement range ± 2500 mV

Response time Typical: 1–3 seconds

Target Ions Na^+ , K^+ , Ca^{2+} , Cl^- , NO_3^- , NH_4^+ , Mg^{2+} , pH etc.

Detection limit Approx. 0.01–1 ppm (depending on ion and calibration method)

Measurement mode Batch mode / Real-time monitoring

Units displayed mV, mg/L, mmol/L, pH

Calibration method Multi-point linear calibration (2–5 points)

Environment Requirements

Temperature $10^\circ\text{C} - 40^\circ\text{C}$

Humidity 20% – 80% RH (non-condensing)

Power Requirements

Main power: Power supply: max. 100 watt



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Communications

Computer interface: USB port (Type C)

System Requirements

Operating system Windows 11

Analysis tools Real-time graph, log table, Excel export, basic PCA (optional add-on)



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