**Technology Overview**

The present technology relies on an array of selective electrochemical sensors combined with neural network computing. Neural network computing: Data processing occurs by radial basis function neural networks (RBFNN) in 2 phases. Phase 1 correlates sensor signals with substance concentrations. Phase 2, relying on human knowledge base input (human sensory panel), correlates the substance concentrations with intensities and standard deviations of the 5 basic tastes. Radar plots show the response to real samples.

8 Selective electrochemical sensors (ion-selective electrodes, enzyme electrodes, electron-cyclotron-resonance-sputtered carbon electrode) quantify 8 taste causing substances in a range covering the food concentration levels. Further sensors are currently undergoing testing or are in development.

**Benefits**

The system simultaneously provides quantitative information on selected taste causing substances and quantitative taste levels directly correlating with human taste perception. The human knowledge based neural network computing allows to adapt the sensor response to a specific target group, by using databases relying on different potential consumer groups (e.g. age, gender, nationality). All these features are available on a single compact analytical instrument.

**Market Potential / Applications**

Because of the quantitative correlation with the human taste perception, the sensing system has a high potential as an instrument to support the design of new taste formulations, recipe optimization and market specialization. In quality control applications, it offers more chemically relevant information (substance concentrations) compared to present taste analyzers.

**Keywords**

Electronic tongue, artificial neural network, electrochemical sensor array, consumer targeting, taste design, quality control.

**International Patents & Patent Owner Contact**

European patent application (EP 2006 746686; publication number EP1901062)
US patent application (US 11/920,924; not published, yet)

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