

# ASTREE Electronic Tongue

## Technical Specifications



ASTREE is an electronic tongue based on potentiometric measurement principle using taste sensing electrodes and dedicated to taste analysis.

It can analyze liquid products or solids dissolved in a liquid.

The system is composed of:

- An autosampler for the automated analysis of a samples set in reproducible conditions (time, stirring)
- A detection system composed on an array of 7 liquid sensors
- A computer for system monitoring , data acquisition and processing with AlphaSoft software



## Autosampler

- Programmable sample sequence run
- Fully automated sensor analysis procedure
- Analysis run : 3 min / measurement
- 16 or 48 position carousel (min. 80mL & 20mL of liquid sample respectively)
- Reproducible stirring and measurement conditions
- Possible thermo-regulation of the sample tray
- Line voltage: 100-120 V; 220-240 V (Power consumption 40 VA)

## ASTREE electronic tongue

### Liquid sensors

- ChemFET sensor technology (Chemical modified Field Effect Transistor)
  - ✓ Organic membrane interacting with ionic, neutral & chemical compounds
  - ✓ Measurement of a potentiometric difference between the sensors and a reference electrode
- Array of 7 liquid sensors sensitive to dissolved taste compounds
  - ✓ Sensors set directly dipped into the liquid product for analysis
  - ✓ Sensitivity to a wide range of compounds

### Sample requirements

- Propanol and ethanol content: max 50%
- Range of solvent viscosity:
  - ✓ PEG 400 10% in water and PEG 400 65% in water can be analyzed without any specific precaution.
  - ✓ Analysis of PEG 400 more than 65% in water is not recommended
- Solvents prohibited to avoid damaging sensors: Ketones (acetone), chloro (chloroform, dichloromethane), nitriles (acetonitrile),  $H_2SO_4$ ,  $HNO_3$

### General features

- Sensor board : 0 to 28 channels available
- Acquisition board : acquisition frequency 10 Hz
- Main board for data processing : RS232 interface
- Power supply : 110-120 VAC (Power consumption 3.15A) / 220-240 VAC (Power consumption 1.6 A)
- Dimensions: 260 x 300 x 100mm (LxWxH)
- Mass : 25 kg
- Operating conditions: constant ambient temperature (15 to 25°C ±3°C)

## AlphaSoft Software



AlphaSoft

Compatible with Windows® 7. This software controls and monitors the instrument and includes a full chemometrics package for data processing.

### System monitoring and data acquisition

- Method / sequence including the autosampler monitoring
- Application wizard for automatic sequences and models

### Data processing by multivariate statistics

- Libraries loading
- Sensors selection
- Models building and identification of unknown samples
- Qualitative and quantitative tools
  - ✓ PCA (Principal Components Analysis): discrimination between samples
  - ✓ DFA (Discriminant Factorial Analysis): qualitative model and unknown sample identification
  - ✓ PLS (Partial Least Square): quantification and sensory panel score prediction samples
- Sensor drift compensation procedure
- Data traceability with logbook and operating condition history
- Data validation by electronic signature

### Maintenance tools

- System diagnostic: complete autotest of the autosampler and the unit, sensors diagnostic
- User preferences.