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 carrousel (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.