

Boost your liquid process development

Measure Analyze Predict

Analyses possible with Asuryan:

- Liquids of various natures and in various states
- Chemical composition of products
- Downstream process monitoring
- Analysis of vaccines
- Vitamins for chemical industry products
- Nanoparticles in suspension (e.g. ZnO_2 , CuO , TiO_2 , etc.)
- Intralipid globule size and form of crystals





UV-visible spectroscopy is an analytical method focusing on the electronic transitions of the products of interest. This type of spectroscopy offers very high sensitivity (up to 10 to 100 times that of NIR or Raman spectroscopy). This is why the pharmacopeia recommends it for quantitative and qualitative studies in the laboratory.

A versatile tool which can adapt to your needs

Asuryan lets you measure your product in less than 50ms. It offers excellent stability thanks to simultaneous measurement of the source's spectrum. Several spectrometers can be integrated into Asuryan to perform measurements on several key phases of the process (dilution, filling, etc.), thus giving an immediate snapshot of your whole process. This flexibility proves essential in processes manufacturing or consuming high added-value or very varied products...

Constantly optimized measurement

Asuryan can adapt to a large number of sensors (immersion with different optical trajectories, flow cell, SFX multi-angle sensors, ATR signal attenuation sensor) to allow flexibility when measuring diverse products of interest in diverse media. Modulation of the integration time facilitates its integration in multiple media. To guarantee that the measurements are perfectly reproducible, Asuryan can check the stability of the light source by using an additional internal spectrometer.

Unique compatibility with the patented SAM-Spec® and SAM-Flex technology

Asuryan is the only system capable of using SAM-Flex multi-angle measuring sensors or SAM-Spec multipoint sensors. These technologies extract more information in complex media (emulsions, suspensions, powders, etc.) by measuring the average globule size and globule density. The different spectra help to improve separation of the information on the milieu from the data on the products in suspension.

Various possible configurations

Three configurations are possible, depending on your requirements:

- **Simple high-stability configuration:** one channel devoted to measurement (SMA) associated with an internal channel for measurement of the light source (2 integrated spectrometers).
- **Standard three-channel configuration:** three measurement channels in parallel (3 integrated spectrometers).
- **High-stability three-channel configuration:** three measurement channels in parallel with internal measurement of the light source (4 integrated spectrometers).

Technology incorporating measurement and analysis software

The integrated Asuryan Ready software lets you modulate measurement acquisition, particularly in terms of the integration time, number of scans, etc. It is controlled via the OPC-UA communication protocol, or directly in stand-alone mode. This software also enables you to integrate several chemometric models obtained using toolboxes such as PLS_Toolbox (ACP and PLS models). Once these models have been integrated, they let you monitor the process's critical parameters on your display.

Example of an industrial application: Evaluation of the protein concentration of a liquid

Thanks to the characteristic UV wavelengths of interest and its flexible measuring configurations, Asuryan is the ideal tool for analyzing protein blends, among other advantages enabling you to:

- Assess the protein content on large series
- Detect protein adsorption on an adjuvant
- Check protein purity in a milieu
- Check the concentration of the products of interest in a reactor at the same time as filling the vials



Advantages

- Adaptable to different sensors for use on a wide range of products or concentrations of the product of interest
- Measurement on several phases of the process
- Quick measurement, thus reducing analysis time and allowing continuous monitoring
- System with an internal reference for optimum repeatability
- Integrated software facilitating analysis and data processing by means of models focusing on the variable of interest

Asuryan's qualities

- Continuous very fast non-destructive inspection
- Assessment of the purity and the quantity of proteins
- Analysis and monitoring of powder dissolution processes



2 examples of applications

- Quantitative and qualitative analysis of a protein blend (proteins, vitamins)
- Analysis and monitoring of powder dissolution to optimize process control

4 markets affected

Agri-food



Pharma



Chemicals



Biotech





Technical specifications

Technology	Continuous, non-destructive Visible-UV analysis of agrochemical, pharmaceutical and biotechnological media. With use of an external PC.
Source	Deuterium UV lamp with optical shutter. An option is available to split the luminous flux towards three channels.
Spectrometers	1 to 3 measuring spectrometers with the option of an additional internal light-source measurement spectrometer to correct for fluctuations.
Spectral range (bands)	200-800 nm
Spectral resolution (FWHM)	< 6.5 nm
Samples	Samples of diverse natures and in diverse states, with a wide range of densities and viscosities thanks to Asuryan's compatibility with multiple sensors (sensor in immersion with varied optical trajectories, flow cell, transmission sensor with tank, SFX multi-angle sensor).
Measurement time	Very fast measurement (usually <50 ms).
Analyses	Real-time display of the spectra of the sample measured, by means of the Indatech Asuryan Ready software. Possibility of importing models from the PLSToolbox® software (Eigenvector) and SIMCA Q® software (Sartorius).
Temperature	5 – 40 °C
Relative humidity	5 – 90 %
LAB bench system, dimensions	Stainless-steel unit, H215 mm x W400 mm x D350 mm (excluding the dimensions of the external PC).

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