

ONLINE MONITORING OF TOTAL AROMATICS IN HYDROCARBON SOLVENTS

Aliphatic hydrocarbon solvents such as isoparaffins, mineral spirits and kerosene require low aromatic content formulations in order to meet their product quality specifications.

MEASUREMENT REQUIREMENT

The continuous measurement of low parts-per-million (ppm) benzene, toluene and xylene (BTX) is needed to ensure the low aromatic content required by the solvent formulations.

EQUIPMENT

The online IPS-4 diode array spectrophotometer provides reliable, continuous monitoring of BTX and total aromatics. Full spectrum analysis with the IPS-4 provides the capability for multiple-component analysis in the low aromatics solvent processes.

PROCESS OVERVIEW

An important quality control parameter in chemical processes is the measurement of aromatic compounds in the UV spectral region. A typical specification for the low aromatics solvent formulation is that the solvent product should contain less than 100 ppm of total aromatics. The aromatic hydrocarbons measured are benzene, toluene



IPS-4 DIODE ARRAY ANALYZER

and xylene. UV spectra of benzene, toluene and xylene overlap. The overlap results in interference between the three measurements. In the IPS-4, this spectral overlap is handled by the use of a mathematical algorithm developed from calibration samples to report out the 'BTX plus total aromatics' content of the aliphatic hydrocarbon solvents.

The IPS-4 provides online quality assurance verification for the aliphatic hydrocarbon solvent process. The fast response time of the IPS-4 enables quick remedial action when off-specification product is detected.

IPS-4 DIODE ARRAY SPECTROPHOTOMETER

The IPS-4 diode array analyzer can be used in a wide variety of gas phase and liquid phase applications. The analyzer provides the following features:

- No moving parts in the optical bench provide excellent wavelength stability
- Fast optical response of diode array
- Modular integrated photometer system for UV, VIS and NIR applications
- Full spectrum analysis allows use of mathematical algorithms for difficult applications
- Xenon flash lamp source provides long service life – five years is typical
- Easy-to-use, multi-language display and web-browser based interface for remote access
- Optional heated sample cell compartment available for operation up to 150°C (302°F)
- Modbus RTU communications protocol
- Auto zero and auto calibration capability
- Type 4X indoor/outdoor housing

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