

Oxygenates in Motor Fuels

The determination of oxygenates in motor fuels is an important mandate of the reformulated fuels program. To meet this goal, the United States Environmental Protection Agency approved the use of Oxygenate Flame Ionization Detector (O-FID) analysis in preference to other analyses currently used by the fuels industry.

Single Instrument Configurations

ASTM D5599 or EN 1601

Oxygenates in gasoline and other motor fuels by O-FID.

O-FID with D3606

Oxygenates by O-FID per ASTM D5599 and benzene and toluene in motor fuels by FID per ASTM D3606

O-FID with D4815

Oxygenates by O-FID per ASTM D5599 and oxygenates by FID per ASTM D4815

O-FID with D4815 and D3606

Oxygenates by O-FID per ASTM D5599, oxygenates by FID per D4815, and benzene and toluene by FID per ASTM D3606

Oxygen Selectivity

Using an Agilent Technologies 7890A, determines oxygenate components in motor fuels. A single injection is introduced onto a capillary column which separates oxygenate components in boiling point order. A cracking reactor converts hydrocarbons into elemental carbon, and oxygenated compounds into carbon monoxide. A methanizer then further converts the carbon monoxide into methane before eluting to the FID detector.

Repeatability tests yield relative standard deviations (RSD) of approximately 1% by weight over a series of 10 runs for all major oxygenated components. The O-FID response is linear over four orders of magnitude. An automated injection device is recommended to provide the most reliable means of repeatable injection.