Application Note: Continuous Fuel Identification for Pipelines with a ClearView® db Photometer

Purpose:

Reliable, affordable, realtime identification of petroleum products flowing in pipelines to minimize waste and assist in transitions.

Experimental Setup:

ClearView db fiber optic filter photometer. Fiber optic flow probe with 1 cm optical path. Pair of 2 meter low-0H fiber optic cables.

Near-infrared (NIR) spectra are rich in chemical information relating to the properties of fuels. Aromatic hydrocarbons produce the peak shown in the spectra in Figure 1. Other hydrocarbon compounds produce features between 1190 and 1230 nm. These features are used to make fuel identification with greater confidence than single parameter methods.

Outputs:

4-20 mA analog output with defined ranges for each fuel type and for mixing regions between fuels (4-bit digital output optional). Optoswitch circuits for lamp replacement and probe fouling alarms.
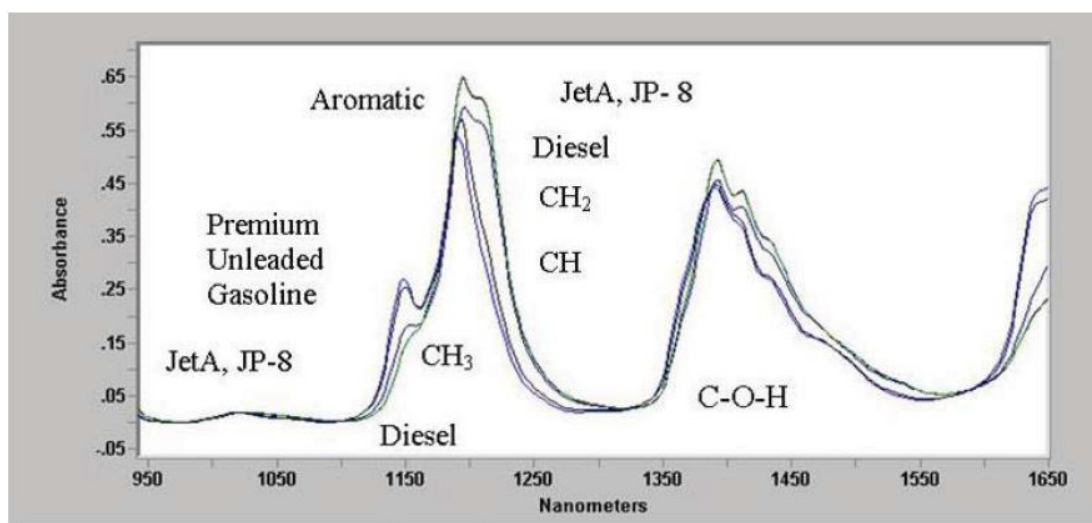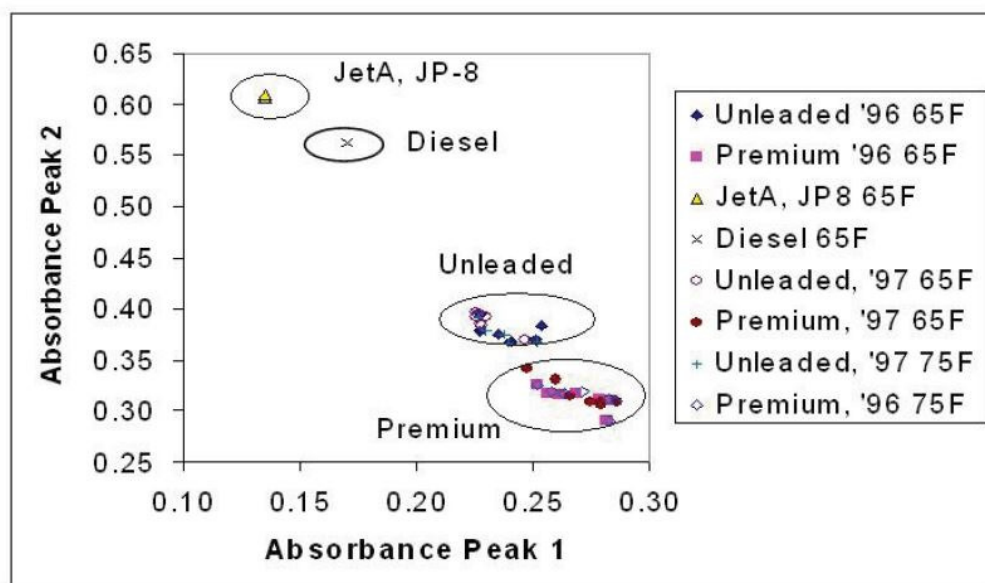

Figure 1. NIR Spectra of Fuel

Figure 2. Fuel Classification

Conclusion:

The ClearView db photometer provides accurate real time fuel identification in remote and hazardous environments.