

Gas Chromatography

Applications for Process and Laboratory

Determination of H₂S and COS in the low ppb Range

Sulfur constituents are very often a prime source of catalyst poisoning in various processes. Consequently the monitoring at very low concentration levels are frequently desirable.

In this specific example, H₂S and COS are monitored at the low ppb level in a coal liquifaction plant that uses catalytic conversion to manufacture gasoline. The conversion efficiency is greatly reduced when Sulfur constituents are present.

In order to be able to measure down to about 2 ppb for each of the two constituents, an on line enrichment system is used. The sample flows continuously through a cold trap that specifically absorbs the

measuring components. After a period of time, the cold trap is heated up, the trapped constituents are purged into the separation system and separated from the residue hydrocarbons for selective detection. Concurrently to the separation, new sample is absorbed for the next analysis

The capillary columns together with the valveless column switching provide an inert separation system even for sulfur constituents at that low level.

The system is fully automatic including a permeation calibration system.

Analytical System:

GC: PGC x02, MAXUM

Injection: Vapor

Columns:

Capillary Columns

Column Switching:

Valveless "LIVE"
Column Switching

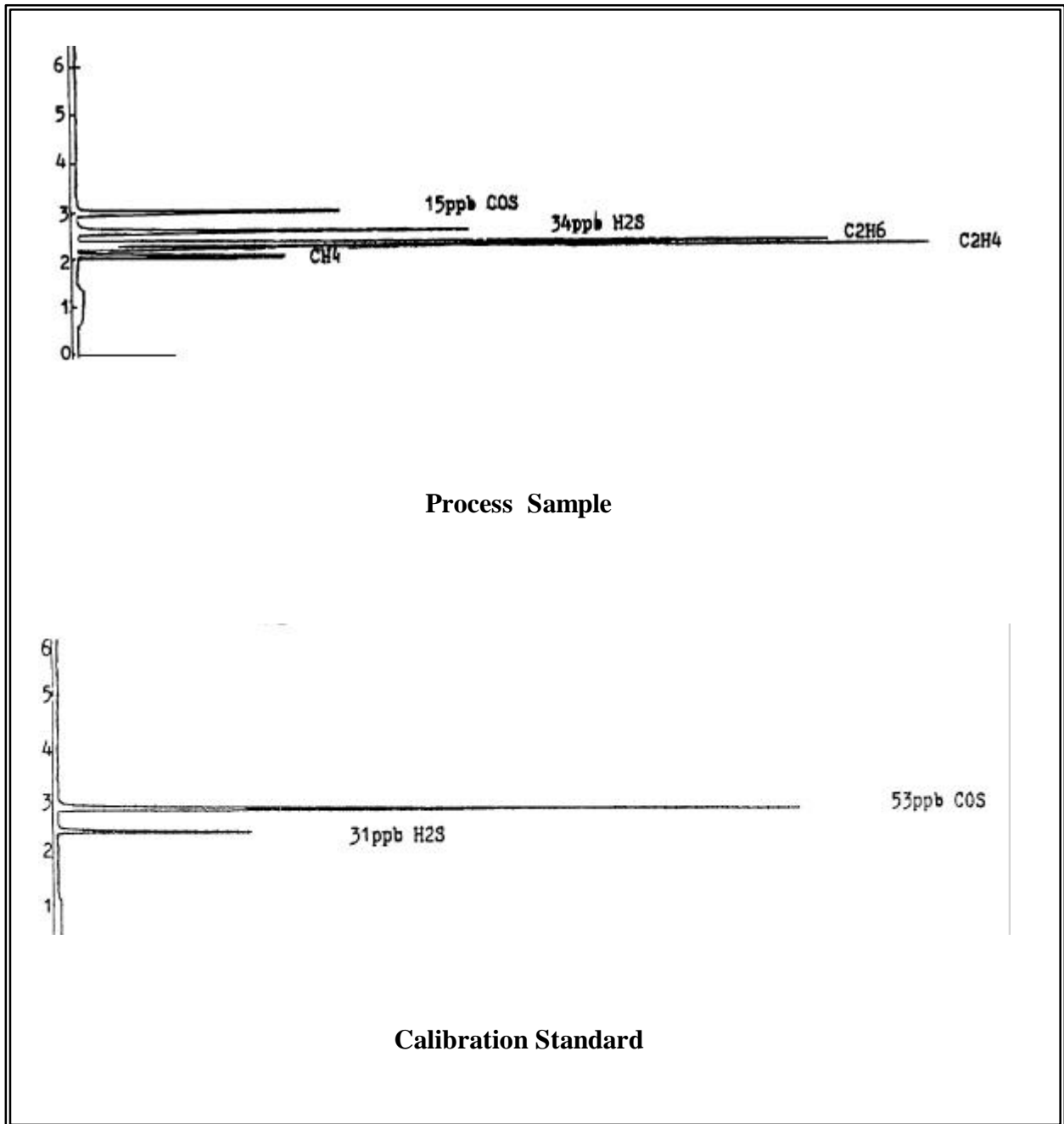
Detector:

Flame Photometric
Detector

Specialty:

On Line Enrichment,
AutoCal with
Permeation Calibration

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