TECHNICAL BULLETIN

KAYSER TECHNOLOGY

ACE-MODEL C
PERFORMANCE CAPABILITIES

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SUMMARY

ACE-Model C ("C" for "Cracking") is the most advanced laboratory cracking machine ever built. The current version has five modes of operation including full and partial burn, dual-feed system (naphtha capable), high temperature cracking capability, and dry or wet gas collection. These performance capabilities are described further below.

KTI has two Model C units and each unit is integrated to an on-line Agilent 990 RGA GC which measures permanent gases as well as C1-C7 hydrocarbons. Liquid products are analyzed by Simulated Distillation and by a Detailed HydroCarbon Analyzer (DHA).

CAPABILITIES

MULTI-MODE OPERATION:

Mode 1: Full Catalyst Regeneration
Mode 2: Full and partial catalyst regeneration to control and evaluate CRC effects
Mode 3: No regeneration (off-line carbon analysis)
Mode 4: No regeneration followed by system burnout
Mode 5: Carbon-analyzer function

DUAL-FEED SYSTEM:

A Dual-Feed system allows independent injection of Feed 1 or Feed 2. It also allows dual or co-feed of Feed 1 and Feed 2 which is useful for feeds with widely differing boiling ranges and for feeds that are immiscible. Volatile and/or pungent materials are handled by feed system hardware closed to the ambient lab environment.

HIGH TEMPERATURE CRACKING:

KTI's Model C units incorporate an improved reactor and furnace which performs high temperature cracking in a precise way. High temperature commercial processes including HS-FCC, PetroFCC, DCC, ACO, and others can be emulated by Model C.

DRY OR WET-GAS COLLECTION:

Dry-Gas collection is preferred over Wet-Gas collection when gaseous product species that react with or absorb into water are important to the measurement. These include acid gases and oxygenates. The Model C units at KTI can be setup as "dry" or "wet" – while "dry" is the default.

END DOCUMENT (February 1, 2021)