



Chemical, Oil and Gas

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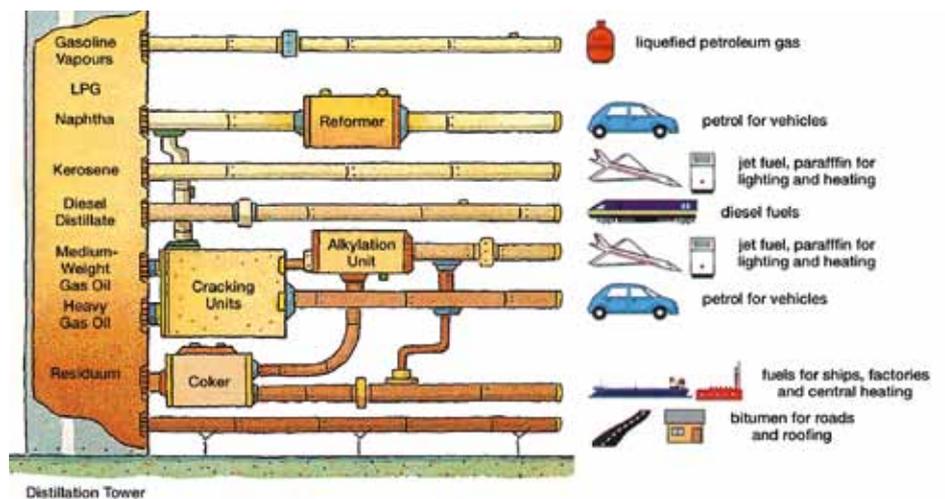


Most of the world 's energy comes from coal, oil or natural gas, i.e. fossil fuels. All fossil fuels can be burned to provide heat energy and then, if necessary, converted to electricity. Oil and gas is often refined to produce further chemicals which are then ultimately used to produce a diversity of pharmaceuticals, polymers, fibres, pigments, fuels and lubricants used throughout our daily lives.

Oil contains hundreds of different types of hydrocarbons all mixed together. To make use of these they must be separated in to saleable products and this is what oil refining is all about. There are two basic steps in

refining: separation, where the various chemical components of the oil are separated, and conversion, where the chemicals are converted into useful products.

This diagram shows many of the refinery's most important processes



Potential Applications



Market Drivers:

Refiners are implementing strategies to ensure their future profitability amid uncertainties about the extent their operations will be affected by global energy, political, environmental and economic changes.

Major factors include...

- crude oil and product prices and quality, free trade agreements
- volatile refining margins
- privatisation of some national oil companies
- high energy demand growth rates in Asia-Pacific
- rebuilding programs in Eastern Europe and the Former Soviet Union (FSU)
- energy futures market and derivative trading
- development and production of alternative fuels
- de-regulation in some countries
- environmental and loss prevention laws and regulations

All are affecting how petroleum products are refined, distributed and consumed.

For refiners in the industrial nations and a few other countries, the biggest impact is from environmental and loss prevention laws and regulations.

Some require refiners to alter the composition of transportation fuels to reduce vehicle exhaust pollutants. Others mandate refiners to curtail plant emissions, wastes and conditions that pose risks to the environment, property and personal health and safety. As a result, refiners have spent billions of dollars in this decade to modify, upgrade, install and reconfigure process units. More will be required. Refiners continue to restructure and implement strategies to enhance profitability.

Many refineries have been shut down. More closings are possible. Others have been sold or are for sale. Many companies are merging, partnering, and/or joint venturing with competitors, integrating with foreign crude oil producers and developing international refining alliances.

Individually, or through joint ventures with non-oil- related companies, some are leveraging their refining investments into more value-added retail store/gasoline outlets. More refiners are using improved management methods and information technology systems to integrate their plant and enterprise operations for better competitive performance and profitability.

Potential Applications:

A typical petrochemical plant will contain many areas which are designated as hazardous, either because of the nature of the process itself or because it is an area where hazardous chemicals are stored, transferred or transported. Consequently, under current legislation, these areas have to be either continuously monitored with fixed gas detection equipment (point or open path, depending on the economics, layout of buildings and machinery etc.) or checked regularly when personnel are working there. Some examples of where gas detection is used in a petrochemical plant or refinery would be:

Ethylene Plant: Detection of Ethylene (the basic raw material of many petrochemical plants), as well as many other flammable hydrocarbon substances. Gas detection will be required at flanges, compressor pump seals and along transfer pipelines.

Olefins Plant: Where heavy hydrocarbons are broken down into Ethylene and other compounds using catalytic cracking. The plant gases are at high temperature and pressure and pose a potential danger at all joints, seals etc.

Bulk Storage: Areas containing tanks of flammable substances are generally protected by a 'bund' wall with gas detectors located around the outside. The system's second alarm level is often connected to an automatic sprinkler system.

Water Supply: To prevent dangerous chemicals getting into the plant's water supply, gas sensors need to be installed in drains, runoff gullies and trenches - particularly where heavier-than-air hazardous gases are involved and where the drain is being used in conjunction with a heat exchange system.

Confined Space Entry: Portable detectors must be used to check for possible residual gases before personnel can be allowed to work in confined spaces such as tanks, pipelines, drains, culverts etc.

New Build or Plant Shutdown: During the installation of new plant (or maintenance of existing plant) portable and transportable gas detectors must be located around the area where the work (welding or soldering for instance) is being carried out.

Loading Areas: The area should always be protected with transportable or portable gas detectors when hazardous liquids, fuels or solvents are being transferred.

Ventilation Systems: Gas detectors should be fitted at the inlets for ventilation and air conditioning plant if there is any danger that hazardous gases from the process plant, storage or loading areas could be drawn into the system. They may also be located in the control room and accommodation areas.

Perimeter or Fence-line Monitoring: If either the plant or storage areas are close to a public highway or access point, fixed gas detectors (possibly of the open-path variety if there are no obstructions) should be installed to detect possible clouds of gas passing into public areas.

Our Product Range



Fixed Gas Monitoring

Honeywell Analytics offers a wide range of fixed gas detection solutions for a diverse array of industries and applications including: Commercial properties, industrial applications, semiconductor manufacturers, energy plants and petrochemical sites.

- » Detection of flammable, oxygen and toxic gases (including exotics)
- » Innovative use of 4 core sensing technologies – paper tape, electrochemical cell, catalytic bead and infrared
- » Capability to detect down to Parts Per Billion (ppb) or Percent by Volume (%v/v)
- » Cost effective regulatory compliance solutions

Portable Gas Monitoring

When it comes to personal protection from gas hazards, Honeywell Analytics has a wide range of reliable solutions ideally suited for use in confined or enclosed spaces.

These include:

- » Detection of flammable, oxygen and toxic gases
- » Single gas personal monitors – worn by the individual
- » Multi-gas portable gas monitors – used for confined space entry and regulatory compliance
- » Multi-gas transportable monitors – used for temporary protection of area during site construction and maintenance activities

Technical Services

At Honeywell Analytics, we believe in the value of great service and customer care. Our key commitment is providing complete and total customer satisfaction. Here are just a few of the services we can offer:

- » Full technical support
- » Expert team on hand to answer questions and queries
- » Fully equipped workshops to ensure quick turnaround on repairs
- » Comprehensive service engineer network
- » Training on product use and maintenance
- » Mobile calibration service
- » Customised programmes of preventative/corrective maintenance
- » Extended warranties on products

Find out more

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