

NGLs vs. Condensate

NGLs

Hydrocarbons derived from natural gas processing and refining. They are important by-products that consist of various components extracted and used in different applications across multiple industries, including heating fuels and manufacturing plastics, showcasing their versatility in energy solutions.

Definition

Also referred to as “wet gas” is a low-density mixture of hydrocarbon liquids derived from natural gas during gas production, mostly composed of pentane and heavier hydrocarbons. It’s a liquid that forms when natural gas is cooled to below its dew point temperature.

A mixture of liquid hydrocarbons, mainly ethane, propane, butane, and pentane, which includes heavier hydrocarbons (C6+).

Composition

Condensate is a specific part of the NGL makeup, often characterized by a higher proportion of heavier hydrocarbons like pentane and heavier isomers, making it a richer stream of liquids.

They are extracted from the production streams during processing, where pressure and temperature are lowered to cause the hydrocarbons to condense and separate from the crude oil production.

Origin

Condensate will form in wells when the pressure decreases, causing the heavier hydrocarbons to condense out of the gas phase. It is produced as a byproduct of natural gas processing.

NGLs are mostly liquids under pressure until exposed to ambient temperatures and atmospheric pressures, where they begin to vaporize, making them more volatile.

Physical Properties

Stable as a liquid at standard conditions, and becomes more volatile when exposed to higher temperatures, where more entrained gas is released from the liquid solution.

NGLs are often fractionated (separated) into their individual components (ethane, propane, butane, and condensate) at gas processing plants (fractionation facilities).

Processing

Recovered first during NGL processing, where the heavier hydrocarbons drop out when exposed to lower pressures and temperatures. It is then stored in a thin-walled tank. Very little vapor is generated from the condensate once moved to storage, unless exposed to higher temperatures.

Can be stored in standard LPG pressurized storage tanks. Typically transported via pipelines, trucks, or specialized vessels designed for LPG, which require high pressure and low temperatures to maintain their liquid state. Typical storage transportation vessels are 11,000 gallons, whereas on-site storage can range from 18,000 - 100,000 gallons bullet tanks.

Storage & Transportation

Condensate gas can be stored in standard atmospheric storage tanks and is transported via pipelines, trucks, or fit for purpose vessels.

Valuable as raw materials for petrochemical production when broken down into purity products (*propane, n-butane, iso-butane*), and can also be used as fuels, diluents for crude oil, and in various other applications.

Uses

Commonly blended and used as a diluent for heavy crude oil, improving its flowability and making it easier to transport through pipelines. It can also be used as an additive for petrochemical feedstock.