

A Review on Natural Gas Origin and Composition

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Abstract:- Natural gas is obtained naturally. It is a hydrocarbon mixture. Natural gas is clean fossil fuel. It is safe when transported. Methane is main constituent of natural gas. It may also contain higher order hydrocarbons, carbon dioxide, helium, hydrogen sulphide and noble gases. World is facing problem of environmental pollution. To combat menace of pollution alternative sources of energy should be used. Natural gas is the cleanest fuel. Demand of natural gas all over the world is increasing.

Keywords:- Hydrocarbon Mixture, Clean Fossil Fuel, Pollution, Environment.

I. INTRODUCTION

Natural gas well was drilled by William Hartthe first time. William Hartthe is considered America's "father of Natural Gas". Natural gas was being consumed locally as a source of light during 19th century. because at that long distance transportation was difficult.

Natural gas combustion gives less harmful emissions of Sulphur dioxide (SO₂), nitrous oxide (N₂O) and carbon dioxide (CO₂) compared to other fossil fuels. It is safe fossil fuel for environment. Natural gas is colorless and odorless. significant amount of energy is obtained when it is burnt.

Natural gas transportation and storage is safe. It is being used for heating in residence. It is also used for commercial heating. In the manufacturing of ethylene natural gas is used as raw material or feedstock. Natural gas is also used for ammonia production.

II. NATURAL GAS ORIGIN

Natural gas is obtained from three major processes: thermogenic, biogenic or abiogenic processes. Natural gas is a non-renewable resource. Natural gas is obtained when organic matter layers decompose in the absence of air and are subjected to heat and pressure underground over millions of years. in a few countries, natural gas is formed from shale and other sedimentary rock formations.

A. Natural Gas Reservoirs

A folded rock formation traps and hold natural gas. Natural gas is obtained underneath the surface. Migration of natural gas takes place through the underground faults and fissures until it reaches the reservoir. Anticline traps and holds natural gas. Various types of gas reservoirs are retrograde condensate gas reservoirs, dry gas reservoirs. Retrograde condensation takes place in petroleum gases.

III. NATURAL GAS COMPOSITION

Methane(CH₄) is main constituent of natural gas. Percentage of methane in natural gas is 70-90%. Natural gas is a greenhouse gas. It is a hydrocarbon mixture. Methane and ethane are in gaseous form under atmospheric conditions. The mixture also may have other hydrocarbons, such as propane(C₃H₈) butane (C₄ H₁₀) pentane(C₅H₁₂) and hexane (C₆ H₁₄) Natural gas composition is based upon the different hydrocarbon and non-hydrocarbon constituents. Composition of natural gas varies. An alkane is a hydrocarbon. In alkane single bonds link together each atom. Hydrocarbons are made up of carbon and hydrogen atoms.

A. Natural Gas Processing

Processing of natural gas is required before using it commercially and for residential use. To meet specification of pipeline processing is required. Natural gas should be environment friendly and clean so processing is done. Natural-gas processing has many industrial processes. These are designed to purify raw natural gas. Processing removes contaminants. Contaminants such as solids, water (H₂O), carbon dioxide (CO₂), hydrogen sulfide (H₂S), mercury and condensate to form pipeline quality dry natural gas for pipeline distribution.

B. Carbon Dioxide

Combustion of fossil fuels produces carbon Dioxide. Animals and plants also reduce carbon dioxide but main source is emissions formed by combustion of fossil fuels. Naturally recycling is done by Carbon cycle approximately 203 gig tons (Gt) of CO₂ each year.

IV. CONCLUSION

Whole world is facing the problem of pollution. Scientist are working meticulously to find new ways to combat pollution. It is need of hour to find alternative sources of energy. Major constituent of natural gas is methane. Natural gas is clean source of fuel as compared to other sources of energy. Transportation and storage of natural gas is easy.

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