



Alkanes Source

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Natural Sources of Alkanes

- **Alkanes are extracted from a lot of sources, the most important two are:**

Fossil Fuels and Crude Oil
Reserves

Biological Sources
(Animals, plants,
Microorganisms)

What are Fossil Fuels?

- Fossil fuels are energy-rich substances formed from decayed plants and animals over millions of years.
- The main types of fossil fuels are coal, crude oil, and natural gas.
- Crude Oil is refined to produce fuels like gasoline and diesel, as well as petrochemicals, including alkanes.
- Alkanes are also found in small quantities in coal. Which is used in countries with limited petroleum resources.





Petroleum Refining



Refining petroleum is the process of converting crude oil into useful products



It is done through a process known as fractional distillation.



Creating Alkanes through Petroleum Refining are done through 3 Chemical Processes:-

**Cracking
Hydrocracking
Reforming**

Common Petroleum extracted from the Refining Process

Boiling range (°C)	Type of Alkanes	Range of carbon atoms
<20	Gases	C ₁ to C ₄
20-200	Naphtha and Gasoline	C ₅ to C ₁₂
200-300	Kerosene	C ₁₂ to C ₁₅
300-400	Fuel Oil	C ₁₅ to C ₁₈
>400	Automotive Lubrication	Over C ₁₈

Natural Gas as a Source of Alkanes

- **Natural gas contains high levels of methane and other alkanes.**
- **It primarily consists of methane (CH₄), ethane, propane, and butane.**
- **Extracted from deep underground formations or shale.**
- **Processed to separate and purify alkanes.**





Biological Sources of Alkanes

- **Animals that are dead in forests are decomposed, which produces a lot of chemicals, including Alkanes.**
- **Certain microorganisms produce methane during decomposition.**
- **Plants and algae can produce long-chain alkanes as waxes.**
- **Alkanes can also be derived from animal fat processing.**
- **Alkanes from biomass are renewable but in limited supply.**

In Conclusion:-

Alkanes are versatile hydrocarbons with multiple sources and applications.

Petroleum and natural gas remain the primary sources, but renewables are growing.

Understanding and managing environmental impacts is crucial for sustainable alkane use.

Thank you for listening!!

- If you have any questions,
then please let us know.

