

Methane is a chemical compound with the chemical formula CH<sub>4</sub> (one carbon atom bonded to four hydrogen atoms). It is a group-14 hydride, the simplest alkane, and the main constituent of natural gas. The relative abundance of methane on Earth makes it an economically attractive fuel, although capturing and storing it poses technical challenges due to its gaseous state under normal conditions for temperature and pressure.

Naturally occurring methane is found both below ground and under the seafloor and is formed by both geological and biological processes. The largest reservoir of methane is under the seafloor in the form of methane clathrates. When methane reaches the surface and the atmosphere, it is known as atmospheric methane.

The Earth's atmospheric methane concentration has increased by about 160% since 1750—with the overwhelming percentage caused by human activity and accounted for 20% of the total radiative forcing from all of the long-lived and globally mixed greenhouse gases, according to the 2021 Intergovernmental Panel on Climate Change report.

Methane has also been detected on other planets, including Mars, which has implications for astrobiology research.

In the present book, fifteen typical literatures about Methane Gas published on international authoritative journals were selected to introduce the worldwide newest progress, which contains reviews or original researches on Methane Gas. We hope this book can demonstrate advances in Methane Gas as well as give references to the researchers, students and other related people.<sup>1</sup>

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<sup>1</sup> <https://en.wikipedia.org/wiki/Methane>