

Thermosphere Composition

The thermosphere is primarily composed of **atomic oxygen (O)**, **atomic nitrogen (N)**, and **helium (He)**, with atomic oxygen becoming the dominant gas in the upper thermosphere due to the dissociation of molecular oxygen by solar radiation at high altitudes; essentially, the main gases in the thermosphere are the lighter elements like hydrogen, helium, and atomic oxygen, resulting from the breakdown of heavier molecules like nitrogen and oxygen. [1, 2, 3, 4]

Key points about the thermosphere composition: [1, 2, 3]

- **Dominant gas:** Atomic oxygen (O) [1, 2, 3]
- **Other significant gases:** Atomic nitrogen (N) and helium (He) [1, 2, 4]
- **Reason for composition:** High energy solar radiation breaks down heavier molecules like O₂ and N₂ into their atomic components [1, 2, 3]
- **Important factor:** The composition varies depending on altitude, with lighter gases becoming more prevalent at higher altitudes [1, 2, 5]

Generative AI is experimental.

[1] <https://scied.ucar.edu/learning-zone/atmosphere/thermosphere>

[2] <https://www.sciencedirect.com/topics/earth-and-planetary-sciences/thermosphere>

[3] <https://heliophysics.ucar.edu/sites/default/files/heliophysics/resources/presentations/2021-HelioSS-Zou-Ionosphere-Basics-Dynamics.pdf>

[4] <https://homework.study.com/explanation/what-gases-are-found-in-the-thermosphere.html>

[5] <https://en.wikipedia.org/wiki/Thermosphere>

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