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SF_6 and its applications

37th Meeting of the Parties to the Montreal Protocol

03/11/2025

MOP37
Nairobi, Kenya
3-7 November 2025

What is SF_6?

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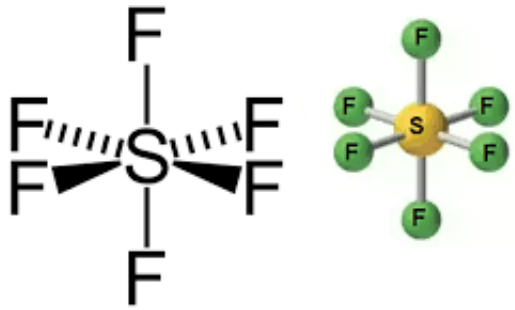
- Sulfur hexafluoride (**SF_6**; CAS number 2551-62-4) is a **colorless, odorless gas** that is **liquefied under pressure**. It is **non-flammable**, **chemically very stable**, and **heavier than air**.
- SF_6 is a fluorinated greenhouse gas (**F-gases**) and contributes to climate change with high global warming potential (**GWP**) of **24,300 (AR6)**
- Subject to UNFCCC emission reporting since 1995 but data are considered incomplete
- Atmospheric measurements show much higher emissions



Main applications of SF_6

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- Electrical equipment for power transmission and distribution
- Semiconductor industry, together with nitrogen trifluoride (NF_3)
- Display production (Thin Film Transistor (TFT); LCD)
- Photovoltaics (only specific type of solar cells: heterojunction)
- Particle accelerators for industry, medical and research needs
- Aluminum and magnesium production
- Research
- Military

Where do emissions come from?

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- Estimate: About 80% of SF_6 annual production is used for manufacture of electrical equipment

  SF_6 banks: Emissions during installation, operation and end-of life disposal throughout the lifetime of 40+ years

  Electrical equipment use is increasing worldwide: Renewable energy use, electrification, digitalisation

- Other applications are also growing as a consequence of sustainability, decarbonisation and digitalisation efforts

  - Semiconductor industry (digitalisation, e-mobility, renewable energy)
  - Photovoltaics
  - Display production
  - Particle accelerators