

# Standard temperature and pressure

**Standard temperature and pressure** (also used as **STP**), more specifically **standard conditions for gases**, are defined as

- temperature **273,15 K**, i.e. **0 °C**,
- pressure  $10^5$  Pa, i.e. **100 kPa**<sup>[1]</sup>.

The earlier definition worked with a pressure of 1 atm., i.e. 101,325 kPa.

The U.S. National Institute of Standards and Technology (NIST) is introducing a different standard, used in a number of countries, sometimes referred to as **normal conditions** or **normal temperature and pressure** - operating at **20 °C and 101,325 kPa**.

You need to distinguish the terms *standard state*, *standard reaction conditions* and *standard thermodynamic quantities* that are used in thermodynamics.

Some areas of chemistry also work with otherwise defined "reference" temperatures and pressures. The temperatures used are **0, 15, 16, 20**, 21, 22, 23 and **25 °C**, with pressures of 99.99; **100; 101.3; 101,325**; 101.33 and 101.6 **kPa**. For example, most analytical tables are designed for a temperature of 25 °C, the same temperature is most commonly used in pH calculations in aqueous solutions.

## Links

### External links

- Standard conditions for temperature and pressure

### References

1. IUPAC. . *Compendium of chemical terminology : Gold Book* [online] . 2. edition. Blackwell Scientific Publications, 1997. Available from <<http://goldbook.iupac.org/>>. doi:10.1351/goldbook. ISBN 0-9678550-9-8.