**What % of Air is really Oxygen?**

**Air** is a mixture of gases - ***78%* nitrogen** and ***21%* oxygen** - with traces of water vapor, carbon dioxide, argon, and various other components.



Air is usually modeled as a uniform (no variation or fluctuation) gas with properties averaged from the individual components.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Gas | Ratio compared to Dry Air *(%)* |  | Molecular Mass - *M -**(kg/kmol)* | Chemical Symbol | Boiling Point |  |
|  | By volume | By weight |  |  | *(K)* | *(oC)* |
| Oxygen | 20.95 | 23.20 | 32.00 | O2 | 90.2 | -182.95 |
| Nitrogen | 78.09 | 75.47 | 28.02 | N2 | 77.4 | -195.79 |
| Carbon Dioxide | 0.03 | 0.046 | 44.01 | CO2 | 194.7 | -78.5 |
| Hydrogen | 0.00005 | ~ 0 | 2.02 | H2 | 20.3 | -252.87 |
| Argon | 0.933 | 1.28 | 39.94 | Ar | 84.2 | -186 |
| Neon | 0.0018 | 0.0012 | 20.18 | Ne | 27.2 | -246 |
| Helium | 0.0005 | 0.00007 | 4.00 | He | 4.2 | -269 |
| Krypton | 0.0001 | 0.0003 | 83.8 | Kr | 119.8 | -153.4 |
| Xenon | 9 10-6 | 0.00004 | 131.29 | Xe | 165.1 | -108.1 |

Other components in air

* Sulfur dioxide - *SO2 - 1.0 parts/million (ppm)*
* Methane *- CH4 - 2.0 parts/million (ppm)*
* Nitrous oxide - *N2O - 0.5 parts/million (ppm)*
* Ozone - *O3 - 0 to 0.07 parts/million (ppm)*
* Nitrogen dioxide - *NO2 - 0.02 parts/million (ppm)*
* Iodine - *I2 - 0.01 parts/million (ppm)*
* Carbon monoxide - *CO - 0 to trace (ppm)*
* Ammonia - *NH3 - 0 to trace (ppm)*