Density of air at 20 degrees

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Online calculator, figures and tables showing density, specific weight and ...

, r,,?,,,?1013.25 hPa15°C, 1.225 kg/m³ ? =1.293xx,=+273.15,20?,1.205kg/m3?

For dry air, its density at sea level at 59 ?F (15 ?C) and 14.7 psi (1013.25 hPa) (mean sea-level pressure) is approximately 0.0765 lb/(cu ft) (1.225 kg/(m^3)). If you change the air temperature, humidity, or altitude (and hence the pressure), the air density will change, too.

Dew point is the temperature at which the water vapor contained in the air reaches its saturation state. It is a physical quantity strictly related to the humidity of the air. When the air is further cooled past the dew point, the water vapor will condense to form water -- dew.

About 1.204 kg/m?. Since the dry air density can be calculated as r = P/(RxT) with R = 287.058 J/(kg?K), at 101325 Pa and 20 ?C = 293.15 K, we get: r = 101325 / (287.058 x 293.15) = 1.204 kg/m?.

Use this air density calculator to instantly find how tightly packed an object"s molecules are, allowing you to estimate rrhor based on the local temperature and pressure conditions. This value is vital for many further calculations, such as determining the aerodynamic drag forces or the performance of wind turbines. Continue reading to get a better understanding of the relationship between the local weather and r, and learn what air density levels you can expect in various regions.

The density of air depends on many factors and can vary in different places. It mainly changes with temperature, relative humidity, pressure and hence with altitude (take a look on the air density table below). The air pressure can be related to the weight of the air over a given location. It is easy to imagine that the higher you stand, the less air is above you and the pressure is lower. Therefore, air pressure decreases with increasing altitude. In the following text, you will find out what is the air density at sea level and the standard air density.

The density of air is usually denoted by the Greek letter rho, or r, and it measures the mass of air per unit volume (e.g. g/m3). Dry air mostly consists of nitrogen (~78%sim 78 %~78%) and oxygen (~21%sim 21 %~21%). The remaining1%1%1% contains many different gases, among others, argon, carbon dioxide, neon or helium. However, the air will cease to be dry air when water vapor appears.

As a mixture of gases, air doesn"t have a constant density; this value depends largely on air composition. Most components have similar densities and don"t influence the overall density in a substantial way. One exception is water vapor; the more water vapor in the air, the lower its density.

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To find the air density at any given location, you will need some basic weather parameters. You can usually find them on your local weather stations website.

The method of finding the air density is quite simple. You have to divide the pressure exerted by the air into two partial pressures: of the dry air and of the water vapor. Combining these two values gives you the desired parameter.

Subtract the vapor pressure from the total air pressure to find the pressure of dry air:pd=p-pvp_d = p - p_vpd=p-pv.

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