Unit Conversions Using OpenOffice.org Calc

Calc performs conversions between systems of units using the **convert_add** function. It accepts three values, in order

- A numeric quantity to be converted
- A string that represents the units to be converted *from*
- A string that represents the units to be converted *to*

The number can be a constant or a formula, including references to cells containing numbers. Strings are enclosed in double quotation marks, and are limited to codes listed in the documentation. They are mostly case-sensitive.

Example 1: the Type 997 Porsche 911 GT2 sports car develops 523 brake horse power. What's that in kilowatts?

`=convert_add(523;"HP";"kW")`	Ans: 390

Conversions are typically of three kinds

- Convert a value from one predefined unit to another (such as the above example);
- Determine the conversion factor from one predefined unit to another (use 1 as the number); or
- Convert from one system to another where multiple units are used.

Predefined units include some powers for area and volume such as **m2** (square metres) and **in3** (cubic inches).

The last type can include division (speed in km/hr or flow in litres per minute) powers (typically area or volume) and a combination of these (acceleration in ms^{-2}). The general principles to apply here are:

- the conversion is broken up into components, which are combined in the same way as the original composite units; and
- if you need to raise a conversion to a power, you must use 1 as the number and multiply the original number separately.

Example 2: convert a flow of petroleum of 34.2 barrels per minute into litres per second.

Analysis: this is a division without powers, convert the volume units and divide by the factor that converts the time units.

`=convert_add(34.2;"barrel";"L")/convert_add(1;"mn";"s")`	90.62

Note that the minutes code is **mn**, and 1 is used as the denominator conversion factor.

Example 3: what is the acceleration due to gravity at the Earth's surface ($9.81 m/s^2$) in the odd but legal units of nautical miles per minute per minute.

`=convert_add(9.81;"m";"Nmi")/convert_add(1;"s";"mn")^2`	19.07

Example 4: using only fundamental units, convert 88 square feet to square metres.

`=88*convert_add(1;"ft";"m")^2`	8.175

This is *not* equivalent to `=convert_add(88;"ft";"m")^2` , which is the area in square metres of a square that is 88 feet *on one side*, or $719 m^2$.