

Carbon Conversion Calculator Methods Report

for <http://www.carboncapture.us/?page=converter&sub=1>

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Introduction

Three types of calculation can be found in the website of www.carboncapture.us. These include calculation of:

1. carbon tax
2. fuel unit conversion
3. comparison of C tax and CO2 tax

The purpose of this report is to show the user the conversion process from one unit to another. The methods show conversion factor. A conversion factor is a multiplication factor, which must be multiply with the input value and its unit in order to produce an output value with its output unit.

Web Page 1: Carbon Tax Calculator

This web page provides the carbon tax calculation given in USD and EUR per ton and tonne masse, and calculates the carbon tax for 1 gallon and liter gasoline and diesel.

The conversion factor is calculated by comparing the CO2 weight in lbs.

The examples below do the conversion from the same currency; the conversion factor has to be multiply once again with the currency rate if the currencies from both sides are different. The first conversion shows a conversion factor between USD to EUR and EUR to USD.

Calculation of Gasoline Fuel

Conversion USD / ton CO2 to USD / gallon of gasoline

1 gallon gasoline has 19.564 lbs CO2

1 ton is equal to 2000 lbs

1 gallon gasoline is equal to $19.564 / 2000 = 0.009782$ ton gasoline.

Conversion factor:

$$\frac{1 \text{ ton CO}_2}{2000 \text{ lbs CO}_2} \times \frac{19.564 \text{ lbs CO}_2}{1 \text{ gallon gasoline}} = \frac{0.00978 \text{ ton CO}_2}{\text{gallon gasoline}}$$

Conversion factor for USD / ton CO2 to EUR / gallon of gasoline:

$$\frac{1 \text{ ton } CO_2}{2000 \text{ lbs } CO_2} \times \frac{19.564 \text{ lbs } CO_2}{1 \text{ gallon gasoline}} \times \frac{a \times EUR}{1 \times USD} = \frac{a \times 0.00978 \text{ ton } CO_2 \text{ EUR}}{\text{gallon gasoline USD}}$$

Conversion factor for **EUR / ton CO2** to **USD / gallon** of gasoline:

$$\frac{1 \text{ ton } CO_2}{2000 \text{ lbs } CO_2} \times \frac{19.564 \text{ lbs } CO_2}{1 \text{ gallon gasoline}} \times \frac{b \times USD}{1 \times EUR} = \frac{b \times 0.00978 \text{ ton } CO_2 \text{ USD}}{\text{gallon gasoline EUR}}$$

Note: “a” is the Euro currency exchange rate for 1 U.S. Dollar and “b” is the U.S. Dollar currency exchange rate for 1 Euro.

Conversion **USD / tonne CO2** to **USD / gallon** of gasoline

1 gallon gasoline has 19.564 lbs CO2

1 ton is equal to 2000 lbs or 907.1847 kg and 1 tonne is equal to 1000 kg

This means 1 tonne is equal to 2000 * (1000 / 907.1847) = 2204.622719 lbs

1 gallon gasoline is equal to 19.564 / 2204.622719 = 0.008874 tonne gasoline

Conversion factor:

$$\frac{1 \text{ tonne } CO_2}{2204.62 \text{ lbs } CO_2} \times \frac{19.564 \text{ lbs } CO_2}{1 \text{ gallon gasoline}} = \frac{0.00887 \text{ tonne } CO_2}{\text{gallon gasoline}}$$

Conversion factor for **USD / tonne CO2** to **EUR / gallon** of gasoline:

$$\frac{1 \text{ tonne } CO_2}{2204.62 \text{ lbs } CO_2} \times \frac{19.564 \text{ lbs } CO_2}{1 \text{ gallon gasoline}} \times \frac{a \times EUR}{1 \times USD} = \frac{a \times 0.00887 \text{ tonne } CO_2 \text{ EUR}}{\text{gallon gasoline USD}}$$

Conversion factor for **EUR / tonne CO2** to **USD / gallon** of gasoline:

$$\frac{1 \text{ tonne } CO_2}{2204.62 \text{ lbs } CO_2} \times \frac{19.564 \text{ lbs } CO_2}{1 \text{ gallon gasoline}} \times \frac{b \times USD}{1 \times EUR} = \frac{b \times 0.00887 \text{ tonne } CO_2 \text{ USD}}{\text{gallon gasoline EUR}}$$

Conversion **USD / ton CO2** to **USD / liter** of gasoline

1 gallon is equal to 3.785412 liter

This means 1 liter gasoline has 19.564 / 3.785412 = 5.168262 lbs CO2 and

1 liter gasoline is equal to 5.168262 / 2000 = 0.002584 ton gasoline

Conversion factor:

$$\frac{1 \text{ ton } CO_2}{2000 \text{ lbs } CO_2} \times \frac{19.564 \text{ lbs } CO_2}{1 \text{ gallon gasoline}} \times \frac{1 \text{ gallon}}{3.785 \text{ liter}} = \frac{0.00258 \text{ ton } CO_2}{\text{liter gasoline}}$$

Conversion factor for USD / ton CO2 to EUR / liter of gasoline:

$$\frac{1 \text{ ton } CO_2}{2000 \text{ lbs } CO_2} \times \frac{19.564 \text{ lbs } CO_2}{1 \text{ gallon gasoline}} \times \frac{1 \text{ gallon}}{3.785 \text{ liter}} \times \frac{a \times EUR}{1 \times USD} = \frac{a \times 0.00258 \text{ ton } CO_2 \text{ EUR}}{\text{liter gasoline USD}}$$

Conversion factor for EUR / ton CO2 to USD / liter of gasoline:

$$\frac{1 \text{ ton } CO_2}{2000 \text{ lbs } CO_2} \times \frac{19.564 \text{ lbs } CO_2}{1 \text{ gallon gasoline}} \times \frac{1 \text{ gallon}}{3.785 \text{ liter}} \times \frac{b \times USD}{1 \times EUR} = \frac{b \times 0.00258 \text{ ton } CO_2 \text{ USD}}{\text{liter gasoline EUR}}$$

Conversion USD / tonne CO2 to USD / liter of gasoline

1 gallon is equal to 3.785412 liter

This means 1 liter gasoline has $19.564 / 3.785412 = 5.168262$ lbs CO2 and

1 ton is equal to 2000 lbs or 907.1847 kg and 1 tonne is equal to 1000 kg

This means 1 tonne is equal to $2000 * (1000 / 907.1847) = 2204.622719$ lbs

1 liter gasoline is equal to $5.168262 / 2204.622719 = 0.002344$ tonne gasoline

Conversion factor:

$$\frac{1 \text{ tonne } CO_2}{2204.62 \text{ lbs } CO_2} \times \frac{19.564 \text{ lbs } CO_2}{1 \text{ gallon gasoline}} \times \frac{1 \text{ gallon}}{3.785 \text{ liter}} = \frac{0.00234 \text{ tonne } CO_2}{\text{liter gasoline}}$$

Conversion factor for USD / tonne CO2 to EUR / liter of gasoline:

$$\frac{1 \text{ tonne } CO_2}{2204.62 \text{ lbs } CO_2} \times \frac{19.564 \text{ lbs } CO_2}{1 \text{ gallon gasoline}} \times \frac{1 \text{ gallon}}{3.785 \text{ liter}} \times \frac{a \times EUR}{1 \times USD} = \frac{a \times 0.00234 \text{ tonne } CO_2 \text{ EUR}}{\text{liter gasoline USD}}$$

Conversion factor for EUR / tonne CO2 to USD / liter of gasoline:

$$\frac{1 \text{ tonne } CO_2}{2204.62 \text{ lbs } CO_2} \times \frac{19.564 \text{ lbs } CO_2}{1 \text{ gallon gasoline}} \times \frac{1 \text{ gallon}}{3.785 \text{ liter}} \times \frac{b \times USD}{1 \times EUR} = \frac{b \times 0.00234 \text{ tonne } CO_2 \text{ USD}}{\text{liter gasoline EUR}}$$

Calculation of Diesel Fuel

Basically the same with gasoline, only that 1 gallon diesel has 22.384 lbs CO2

Conversion USD / ton CO2 to USD / gallon of diesel

1 gallon diesel has 22.384 lbs CO2

1 ton is equal to 2000 lbs

1 gallon diesel is equal to $22.384 / 2000 = 0.011192$ ton diesel.

Conversion factor:

$$\frac{1 \text{ ton CO2}}{2000 \text{ lbs CO2}} \times \frac{22.384 \text{ lbs CO2}}{1 \text{ gallon diesel}} = \frac{0.01119 \text{ ton CO2}}{\text{gallon diesel}}$$

Conversion factor for USD / ton CO2 to EUR / gallon of diesel:

$$\frac{1 \text{ ton CO2}}{2000 \text{ lbs CO2}} \times \frac{22.384 \text{ lbs CO2}}{1 \text{ gallon diesel}} \times \frac{a \times \text{EUR}}{1 \times \text{USD}} = \frac{a \times 0.01119 \text{ ton CO2 EUR}}{\text{gallon diesel USD}}$$

Conversion factor for EUR / ton CO2 to USD / gallon of diesel:

$$\frac{1 \text{ ton CO2}}{2000 \text{ lbs CO2}} \times \frac{22.384 \text{ lbs CO2}}{1 \text{ gallon diesel}} \times \frac{b \times \text{USD}}{1 \times \text{EUR}} = \frac{b \times 0.01119 \text{ ton CO2 USD}}{\text{gallon diesel EUR}}$$

Conversion USD / tonne CO2 to USD / gallon of diesel

1 gallon diesel has 22.384 lbs CO2

1 ton is equal to 2000 lbs or 907.1847 kg and 1 tonne is equal to 1000 kg

This means 1 tonne is equal to $2000 * (1000 / 907.1847) = 2204.622719$ lbs

1 gallon diesel is equal to $22.384 / 2204.622719 = 0.010153$ tonne diesel

Conversion factor:

$$\frac{1 \text{ tonne CO2}}{2204.62 \text{ lbs CO2}} \times \frac{22.384 \text{ lbs CO2}}{1 \text{ gallon diesel}} = \frac{0.01015 \text{ tonne CO2}}{\text{gallon diesel}}$$

Conversion factor for USD / tonne CO2 to EUR / gallon of diesel:

$$\frac{1 \text{ tonne CO2}}{2204.62 \text{ lbs CO2}} \times \frac{22.384 \text{ lbs CO2}}{1 \text{ gallon diesel}} \times \frac{a \times \text{EUR}}{1 \times \text{USD}} = \frac{a \times 0.01015 \text{ tonne CO2 EUR}}{\text{gallon diesel USD}}$$

Conversion factor for EUR / tonne CO2 to USD / gallon of diesel:

$$\frac{1 \text{ tonne CO}_2}{2204.62 \text{ lbs CO}_2} \times \frac{22.384 \text{ lbs CO}_2}{1 \text{ gallon diesel}} \times \frac{b \times \text{USD}}{1 \times \text{EUR}} = \frac{b \times 0.01015 \text{ tonne CO}_2 \text{ USD}}{\text{gallon diesel EUR}}$$

Conversion USD / ton CO2 to USD / liter of diesel

1 gallon is equal to 3.785412 liter

This means 1 liter diesel has $22.384 / 3.785412 = 5.913227$ lbs CO2 and

1 liter diesel is equal to $5.913227 / 2000 = 0.002957$ ton diesel

Conversion factor:

$$\frac{1 \text{ ton CO}_2}{2000 \text{ lbs CO}_2} \times \frac{22.384 \text{ lbs CO}_2}{1 \text{ gallon diesel}} \times \frac{1 \text{ gallon}}{3.785 \text{ liter}} = \frac{0.00296 \text{ tonne CO}_2}{\text{liter diesel}}$$

Conversion factor for USD / ton CO2 to EUR / liter of diesel:

$$\frac{1 \text{ ton CO}_2}{2000 \text{ lbs CO}_2} \times \frac{22.384 \text{ lbs CO}_2}{1 \text{ gallon diesel}} \times \frac{1 \text{ gallon}}{3.785 \text{ liter}} \times \frac{a \times \text{EUR}}{1 \times \text{USD}} = \frac{a \times 0.00296 \text{ tonne CO}_2 \text{ EUR}}{\text{liter diesel USD}}$$

Conversion factor for EUR / ton CO2 to USD / liter of diesel:

$$\frac{1 \text{ ton CO}_2}{2000 \text{ lbs CO}_2} \times \frac{22.384 \text{ lbs CO}_2}{1 \text{ gallon diesel}} \times \frac{1 \text{ gallon}}{3.785 \text{ liter}} \times \frac{b \times \text{USD}}{1 \times \text{EUR}} = \frac{b \times 0.00296 \text{ tonne CO}_2 \text{ USD}}{\text{liter diesel EUR}}$$

Conversion USD / tonne CO2 to USD / liter of diesel

1 gallon is equal to 3.785412 liter

This means 1 liter diesel has $22.384 / 3.785412 = 5.913227$ lbs CO2 and

1 ton is equal to 2000 lbs or 907.1847 kg and 1 tonne is equal to 1000 kg

This means 1 tonne is equal to $2000 * (1000 / 907.1847) = 2204.622719$ lbs

1 liter diesel is equal to $5.913227 / 2204.622719 = 0.002682$ tonne diesel

Conversion factor:

$$\frac{1 \text{ tonne CO}_2}{2204.62 \text{ lbs CO}_2} \times \frac{22.384 \text{ lbs CO}_2}{1 \text{ gallon diesel}} \times \frac{1 \text{ gallon}}{3.785 \text{ liter}} = \frac{0.00268 \text{ tonne CO}_2}{\text{liter diesel}}$$

Conversion factor for USD / tonne CO2 to EUR / liter of diesel:

$$\frac{1 \text{ tonne } CO_2}{2204.62 \text{ lbs } CO_2} \times \frac{22.384 \text{ lbs } CO_2}{1 \text{ gallon diesel}} \times \frac{1 \text{ gallon}}{3.785 \text{ liter}} \times \frac{a \times EUR}{1 \times USD} = \frac{a \times 0.00268 \text{ tonne } CO_2 \text{ EUR}}{\text{liter diesel USD}}$$

Conversion factor for **EUR / tonne CO2** to **USD / liter** of diesel:

$$\frac{1 \text{ tonne } CO_2}{2204.62 \text{ lbs } CO_2} \times \frac{22.384 \text{ lbs } CO_2}{1 \text{ gallon diesel}} \times \frac{1 \text{ gallon}}{3.785 \text{ liter}} \times \frac{b \times USD}{1 \times EUR} = \frac{b \times 0.00268 \text{ tonne } CO_2 \text{ USD}}{\text{liter diesel EUR}}$$

Web Page 2: Fuel Price Unit Conversion

This web page provides the fuel price conversion between gallon volume unit and liter with US Dollar currency and in Euro.

1 gallon is equal to 3.785412 liter.

For conversions between two different currencies: “a” is the euro currency exchange rate for 1 dollar and “b” is the dollar currency exchange rate for 1 euro

Conversion USD / gallon to USD / liter

The conversion factor is:

$$\frac{USD}{USD} \times \frac{1 \text{ gallon}}{3.785412 \text{ liter}} = \frac{1 \text{ gallon}}{3.785412 \text{ liter}} = \frac{0.264172 \text{ gallon}}{\text{liter}}$$

Conversion USD / gallon to EUR / gallon

The conversion factor is:

$$\frac{a \times EUR}{1 \times USD} \times \frac{1 \text{ gallon}}{1 \text{ gallon}} = \frac{a \times EUR}{USD}$$

Conversion USD / gallon to EUR / liter

The conversion factor is:

$$\frac{a \times EUR}{1 \times USD} \times \frac{1 \text{ gallon}}{3.785412 \text{ liter}} = \frac{0.264172 \times a \times EUR \text{ gallon}}{USD \text{ liter}}$$

Conversion USD / liter to USD / gallon

The conversion factor is:

$$\frac{USD}{USD} \times \frac{3.785412 \text{ liter}}{1 \text{ gallon}} = 3.785412 \frac{\text{liter}}{\text{gallon}}$$

Conversion USD / liter to EUR / gallon

The conversion factor is:

$$\frac{a \times EUR}{1 \times USD} \times \frac{3.785412 \text{ liter}}{1 \text{ gallon}} = \frac{3.785412 \times a \times EUR \text{ liter}}{USD \text{ gallon}}$$

Conversion USD / liter to EUR / liter

The conversion factor is:

$$\frac{a \times EUR}{1 \times USD} \times \frac{1 \text{ liter}}{1 \text{ liter}} = \frac{a \times EUR}{USD}$$

Conversion **EUR / gallon to USD / gallon**

The conversion factor is:

$$\frac{b \times USD}{1 \times EUR} \times \frac{1 \text{ gallon}}{1 \text{ gallon}} = \frac{b \times USD}{EUR}$$

Conversion **EUR / gallon to USD / liter**

The conversion factor is:

$$\frac{b \times USD}{1 \times EUR} \times \frac{1 \text{ gallon}}{3.785412 \text{ liter}} = \frac{0.264172 \times b \times USD \text{ gallon}}{EUR \text{ liter}}$$

Conversion **EUR / gallon to EUR / liter**

The conversion factor is $1 / 3.785412 = 0.264172$

$$\frac{EUR}{EUR} \times \frac{1 \text{ gallon}}{3.785412 \text{ liter}} = \frac{1 \text{ gallon}}{3.785412 \text{ liter}} = \frac{0.264172 \text{ gallon}}{\text{liter}}$$

Conversion **EUR / liter to USD / gallon**

The conversion factor is:

$$\frac{b \times USD}{1 \times EUR} \times \frac{3.785412 \text{ liter}}{1 \text{ gallon}} = \frac{3.785412 \times b \times USD \text{ liter}}{EUR \text{ gallon}}$$

Conversion **EUR / liter to USD / liter**

The conversion factor is:

$$\frac{b \times USD}{1 \times EUR} \times \frac{1 \text{ liter}}{1 \text{ liter}} = \frac{b \times USD}{EUR}$$

Conversion **EUR / liter to EUR / gallon**

The conversion factor is:

$$\frac{EUR}{EUR} \times \frac{3.785412 \text{ liter}}{1 \text{ gallon}} = \frac{3.785412 \text{ liter}}{\text{gallon}}$$

Web Page 3: C and CO2 Tax Comparison

This web page provides the carbon and carbon-dioxide tax calculation per ton and tonne weight unit.

The molecular weight comparison of CO₂ to C is 44/12

1 tonne is equal to 2000 * (1000 / 907.1847) = 2204.622719 lbs = 1.10233114 ton.

The multiplication factor has to be multiply once again with the currency exchange rate if the currencies from both sides are different. A conversion between USD to EUR and EUR to USD are shown for each conversion unit type.

Note: “a” is the euro currency exchange rate for 1 dollar and “b” is the dollar currency exchange rate for 1 euro

Conversion **USD / ton C** to **USD / ton CO₂**:

$$\frac{1}{\text{ton C}} = \frac{12}{44 \times \text{ton CO}_2} = \frac{x}{\text{ton CO}_2} \rightarrow x = \frac{C}{\text{CO}_2}$$

The conversion factor is C/CO₂ = 12 / 44 = 0.272727

Conversion **USD / ton C** to **EUR / ton CO₂**:

$$\frac{\text{USD}}{\text{ton C}} = \frac{a \times \text{EUR} \times 12}{44 \times \text{ton CO}_2} = \frac{x \times \text{EUR}}{\text{ton CO}_2} \rightarrow x = \frac{a \times \text{EUR}}{\text{USD}} \times \frac{C}{\text{CO}_2}$$

The conversion factor is a * C/CO₂ = a * 12 / 44 = a * 0.272727

Conversion **EUR / ton C** to **USD / ton CO₂**:

$$\frac{\text{EUR}}{\text{ton C}} = \frac{b \times \text{USD} \times 12}{44 \times \text{ton CO}_2} = \frac{x \times \text{USD}}{\text{ton CO}_2} \rightarrow x = \frac{b \times \text{USD}}{\text{EUR}} \times \frac{C}{\text{CO}_2}$$

The conversion factor is b * C/CO₂ = b * 12 / 44 = b * 0.272727

Conversion **USD / ton C** to **USD / tonne C**:

$$\frac{1}{\text{ton C}} = \frac{1.102331}{\text{tonne C}} = \frac{x}{\text{tonne C}} \rightarrow x = \frac{\text{tonne}}{\text{ton}}$$

The conversion factor is tonne/ton = 1.102331

Conversion **USD / ton C** to **EUR / tonne C**:

$$\frac{USD}{ton\ C} = \frac{a \times EUR \times 1.102331}{tonne\ C} = \frac{x \times EUR}{tonne\ C} \rightarrow x = \frac{a \times EUR}{USD} \times \frac{tonne}{ton}$$

The conversion factor is $a * \text{tonne/ton} = a * 1.102331$

Conversion **EUR / ton C** to **USD / tonne C**:

$$\frac{EUR}{ton\ C} = \frac{b \times USD \times 1.102331}{tonne\ C} = \frac{x \times USD}{tonne\ C} \rightarrow x = \frac{b \times USD}{EUR} \times \frac{tonne}{ton}$$

The conversion factor is $b * \text{tonne/ton} = b * 1.102331$

Conversion **USD / ton C** to **USD / tonne CO2**:

$$\frac{1}{ton\ C} = \frac{12 \times 1.102331}{44 \times tonne\ CO2} = \frac{x}{tonne\ CO2} \rightarrow x = \frac{tonne}{ton} \times \frac{C}{CO2}$$

The conversion factor is $\text{tonne/ton} * C/CO2 = 0.300636$

Conversion **USD / ton C** to **EUR / tonne CO2**:

$$\frac{USD}{ton\ C} = \frac{a \times EUR \times 12 \times 1.102331}{44 \times tonne\ CO2} = \frac{x \times EUR}{tonne\ CO2} \rightarrow x = \frac{a \times EUR}{USD} \times \frac{tonne}{ton} \times \frac{C}{CO2}$$

The conversion factor is $a * \text{tonne/ton} * C/CO2 = a * 0.300636$

Conversion **EUR / ton C** to **USD / tonne CO2**:

$$\frac{EUR}{ton\ C} = \frac{b \times USD \times 12 \times 1.102331}{44 \times tonne\ CO2} = \frac{x \times USD}{tonne\ CO2} \rightarrow x = \frac{b \times USD}{EUR} \times \frac{tonne}{ton} \times \frac{C}{CO2}$$

The conversion factor is $b * \text{tonne/ton} * C/CO2 = b * 0.300636$

Conversion **USD / ton CO2** to **USD / ton C**:

$$\frac{1}{ton\ CO2} = \frac{44}{12 \times ton\ C} = \frac{x}{ton\ C} \rightarrow x = \frac{CO2}{C}$$

The conversion factor is $CO2/C = 44 / 12 = 3.666667$

Conversion **USD / ton CO2** to **EUR / ton C**:

$$\frac{USD}{ton CO2} = \frac{a \times EUR \times 44}{12 \times ton C} = \frac{x \times EUR}{ton C} \rightarrow x = \frac{a \times EUR}{USD} \times \frac{CO2}{C}$$

The conversion factor is $a * C/CO2 = a * 44 / 12 = a * 3.666667$

Conversion **EUR / ton CO2** to **USD / ton C**:

$$\frac{EUR}{ton CO2} = \frac{b \times USD \times 44}{12 \times ton C} = \frac{x \times USD}{ton C} \rightarrow x = \frac{b \times USD}{EUR} \times \frac{CO2}{C}$$

The conversion factor is $b * C/CO2 = b * 44 / 12 = b * 3.666667$

Conversion **USD / ton CO2** to **USD / tonne C**:

$$\frac{1}{ton CO2} = \frac{44 \times 1.102331}{12 \times tonne C} = \frac{x}{tonne C} \rightarrow x = \frac{tonne}{ton} \times \frac{CO2}{C}$$

The conversion factor is $tonne/ton * CO2/C = 4.041880$

Conversion **USD / ton CO2** to **EUR / tonne C**:

$$\frac{USD}{ton CO2} = \frac{a \times EUR \times 44 \times 1.102331}{12 \times tonne C} = \frac{x \times EUR}{tonne C} \rightarrow x = \frac{a \times EUR}{USD} \times \frac{tonne}{ton} \times \frac{CO2}{C}$$

The conversion factor is $a * tonne/ton * CO2/C = a * 4.041880$

Conversion **EUR / ton CO2** to **USD / tonne C**:

$$\frac{EUR}{ton CO2} = \frac{b \times USD \times 44 \times 1.102331}{12 \times tonne C} = \frac{x \times USD}{tonne C} \rightarrow x = \frac{b \times USD}{EUR} \times \frac{tonne}{ton} \times \frac{CO2}{C}$$

The conversion factor is $b * tonne/ton * CO2/C = b * 4.041880$

Conversion **USD / ton CO2** to **USD / tonne CO2**:

$$\frac{1}{ton CO2} = \frac{11.102331}{ton CO2} = \frac{x}{tonne CO2} \rightarrow x = \frac{tonne}{ton}$$

The conversion factor is $tonne/ton = 1.102331$

Conversion **USD / ton CO2** to **EUR / tonne CO2**:

$$\frac{USD}{ton\ CO2} = \frac{a \times EUR \times 1.102331}{ton\ CO2} = \frac{x \times EUR}{tonne\ CO2} \rightarrow x = \frac{a \times EUR}{USD} \times \frac{tonne}{ton}$$

The conversion factor is $a * tonne/ton = a * 1.102331$

Conversion **EUR / ton CO2** to **USD / tonne CO2**:

$$\frac{EUR}{ton\ CO2} = \frac{b \times USD \times 1.102331}{ton\ CO2} = \frac{x \times USD}{tonne\ CO2} \rightarrow x = \frac{b \times USD}{EUR} \times \frac{tonne}{ton}$$

The conversion factor is $b * tonne/ton = b * 1.102331$

Conversion **USD / tonne C** to **USD / ton C**:

$$\frac{1}{tonne\ C} = \frac{0.907185}{ton\ C} = \frac{x}{ton\ C} \rightarrow x = \frac{ton}{tonne}$$

The conversion factor is $ton/tonne = 0.907168$

Conversion **USD / tonne C** to **EUR / ton C**:

$$\frac{USD}{tonne\ C} = \frac{a \times EUR \times 0.907185}{ton\ C} = \frac{x \times EUR}{ton\ C} \rightarrow x = \frac{a \times EUR}{USD} \times \frac{ton}{tonne}$$

The conversion factor is $a * ton/tonne = a * 0.907168$

Conversion **EUR / tonne C** to **USD / ton C**:

$$\frac{EUR}{tonne\ C} = \frac{b \times USD \times 0.907185}{ton\ C} = \frac{x \times USD}{ton\ C} \rightarrow x = \frac{b \times USD}{EUR} \times \frac{ton}{tonne}$$

The conversion factor is $b * ton/tonne = b * 0.907168$

Conversion **USD / tonne C** to **USD / ton CO2**:

$$\frac{1}{tonne\ C} = \frac{12 \times 0.907185}{44 \times ton\ CO2} = \frac{x}{ton\ CO2} \rightarrow x = \frac{ton}{tonne} \times \frac{C}{CO2}$$

The conversion factor is $ton/tonne * C/CO2 = 0.247409$

Conversion **USD / tonne C** to **EUR / ton CO2**:

$$\frac{USD}{tonne\ C} = \frac{a \times EUR \times 12 \times 0.907185}{44 \times ton\ CO2} = \frac{x \times EUR}{ton\ CO2} \rightarrow x = \frac{a \times EUR}{USD} \times \frac{ton}{tonne} \times \frac{C}{CO2}$$

The conversion factor is $a * ton/tonne * C/CO2 = a * 0.247409$

Conversion **EUR / tonne C** to **USD / ton CO2**:

$$\frac{EUR}{tonne\ C} = \frac{b \times USD \times 12 \times 0.907185}{44 \times ton\ CO2} = \frac{x \times USD}{ton\ CO2} \rightarrow x = \frac{b \times USD}{EUR} \times \frac{ton}{tonne} \times \frac{C}{CO2}$$

The conversion factor is $b * ton/tonne * C/CO2 = b * 0.247409$

Conversion **USD / tonne C** to **USD / tonne CO2**:

$$\frac{1}{tonne\ C} = \frac{12}{44 \times tonne\ CO2} = \frac{x}{tonne\ CO2} \rightarrow x = \frac{C}{CO2}$$

The conversion factor is $C/CO2 = 12 / 44 = 0.272727$

Conversion **USD / tonne C** to **EUR / tonne CO2**:

$$\frac{USD}{tonne\ C} = \frac{a \times EUR \times 12}{44 \times tonne\ CO2} = \frac{x \times EUR}{tonne\ CO2} \rightarrow x = \frac{a \times EUR}{USD} \times \frac{C}{CO2}$$

The conversion factor is $a * C/CO2 = a * 12 / 44 = a * 0.272727$

Conversion **EUR / tonne C** to **USD / tonne CO2**:

$$\frac{EUR}{tonne\ C} = \frac{b \times USD \times 12}{44 \times tonne\ CO2} = \frac{x \times USD}{tonne\ CO2} \rightarrow x = \frac{b \times USD}{EUR} \times \frac{C}{CO2}$$

The conversion factor is $b * C/CO2 = b * 12 / 44 = b * 0.272727$

Conversion **USD / tonne CO2** to **USD / ton C**:

$$\frac{1}{tonne\ CO2} = \frac{44 \times 0.907185}{12 \times ton\ C} = \frac{x}{ton\ C} \rightarrow x = \frac{ton}{tonne} \times \frac{CO2}{C}$$

The conversion factor is $ton/tonne * CO2/C = 0.300636$

Conversion **USD / tonne CO2** to **EUR / ton C**:

$$\frac{USD}{tonne\ CO2} = \frac{a \times EUR \times 44 \times 0.907185}{12 \times ton\ C} = \frac{x \times USD}{ton\ C} \rightarrow x = \frac{a \times EUR}{USD} \times \frac{ton}{tonne} \times \frac{CO2}{C}$$

The conversion factor is $a * ton/tonne * CO2/C = a * 0.300636$

Conversion **EUR / tonne CO2** to **USD / ton C**:

$$\frac{EUR}{tonne\ CO2} = \frac{b \times USD \times 44 \times 0.907185}{12 \times ton\ C} = \frac{x \times USD}{ton\ C} \rightarrow x = \frac{b \times USD}{EUR} \times \frac{ton}{tonne} \times \frac{CO2}{C}$$

The conversion factor is $b * ton/tonne * CO2/C = b * 0.300636$

Conversion **USD / tonne CO2** to **USD / ton CO2**:

$$\frac{1}{tonne\ CO2} = \frac{0.907185}{ton\ C} = \frac{x}{ton\ C} \rightarrow x = \frac{ton}{tonne}$$

The conversion factor is $ton/tonne = 0.907185$

Conversion **USD / tonne CO2** to **EUR / ton CO2**:

$$\frac{USD}{tonne\ CO2} = \frac{a \times EUR \times 0.907185}{ton\ CO2} = \frac{x \times EUR}{ton\ CO2} \rightarrow x = \frac{a \times EUR}{USD} \times \frac{ton}{tonne}$$

The conversion factor is $a * ton/tonne = a * 0.907185$

Conversion **EUR / tonne CO2** to **USD / ton CO2**:

$$\frac{EUR}{tonne\ CO2} = \frac{b \times USD \times 0.907185}{ton\ CO2} = \frac{x \times USD}{ton\ CO2} \rightarrow x = \frac{b \times USD}{EUR} \times \frac{ton}{tonne}$$

The conversion factor is $b * ton/tonne = b * 0.907185$

Conversion **USD / tonne CO2** to **USD / tonne C**:

$$\frac{1}{tonne\ CO2} = \frac{44}{12 \times tonne\ C} = \frac{x}{tonne\ C} \rightarrow x = \frac{CO2}{C}$$

The conversion factor is $CO2/C = 44 / 12 = 3.666667$

Conversion **USD / tonne CO2** to **EUR / tonne C**:

$$\frac{USD}{\text{tonne } CO_2} = \frac{a \times EUR \times 44}{12 \times \text{tonne } C} = \frac{x \times EUR}{\text{tonne } C} \rightarrow x = \frac{a \times EUR}{USD} \times \frac{CO_2}{C}$$

The conversion factor is $a * CO_2/C = a * 44 / 12 = a * 3.666667$

Conversion **EUR / tonne CO₂** to **USD / tonne C**:

$$\frac{EUR}{\text{tonne } CO_2} = \frac{b \times USD \times 44}{12 \times \text{tonne } C} = \frac{x \times USD}{\text{tonne } C} \rightarrow x = \frac{b \times USD}{EUR} \times \frac{CO_2}{C}$$

The conversion factor is $b * CO_2/C = b * 44 / 12 = b * 3.666667$