

Quantitative equilibrium calculations▼ [Fundamentals](#)↓ ● [In environmental chemistry we want to know:](#)↓ ● **What is the use of knowing f_{i2} ?**↓ ● [Spreadsheet](#)↓ ● [Recommendation](#)▶ [Problems](#)▶ [Exercises for an improved intuitive understanding](#)▶ [Questions for recapitulation](#)● [Good to know](#)▶ [Minesweeper-problems](#)

What is the use of knowing f_{i2} ?

- f_{i2} multiplied by 100 gives the **percentage** of the total amount of i in the system, $M_{i\text{ tot}}$, that resides in phase 2.
- f_{i2} multiplied by $M_{i\text{ tot}}$ gives the **absolute amount** of i in phase 2.
- $f_{i2} M_{i\text{ tot}} / V_2$ gives the **equilibrium concentration** of i in phase 2.
- $1 - f_{i2}$ gives i.e., the fraction of i that resides in phase 1. And so on.

$$f_{i2} = \frac{1}{1 + K_{i12} \frac{V_1}{V_2}}$$

Analogous equations can be derived for multiphase systems and for phases that are not quantified by volume but by their mass or surface area (see Chapter 3 in the script).

With these equations one can do many useful calculations (see below for examples). In order not to do all these calculations by hand it helps to have a spread sheet at hand that can do all these calculations.



