Science 14

Unit A: Properties of matter

Dilution and packaging

Frozen orange juice in a small can

- A small can of juice concentrate becomes a pitcher after water is added.
- The juice solids stay the same mass while the volume of the drink grows.

Dilution and a concentrate

- Dilution adds water so the same solute is spread through more volume.
- A concentrate is sold strong so you add the water at home.

Key terms

dilution

Adding solvent so the same solute mass is spread through a larger solution volume.

concentrated product

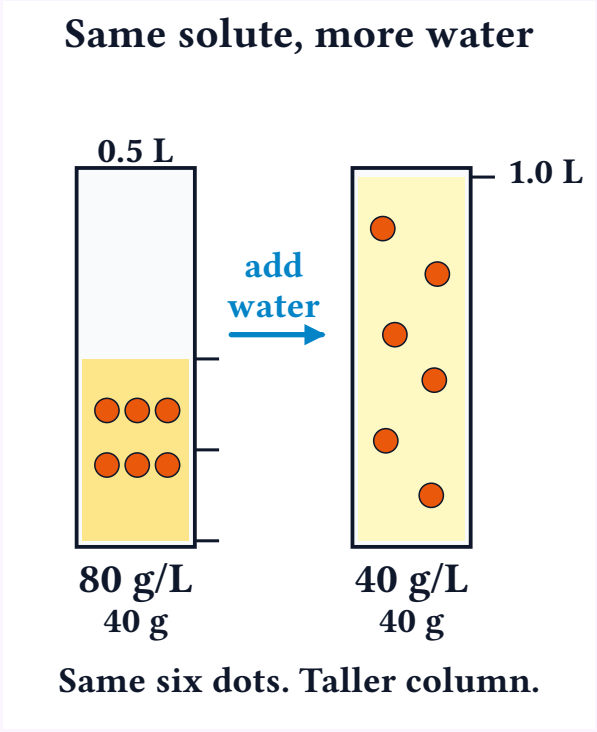
A product sold with a high solute amount so the user adds solvent before use.

ratio

A comparison of two amounts, here the amount of solute compared with the amount of solvent.

Dilution and concentration

- Dilution adds solvent and lowers the mass of solute in each litre.
- A concentrate can uses less packaging than the same number of ready-to-drink cartons.



Syrup and added water

- Thirty grams of sugar stay in the pitcher.
- Tripling the volume drops the concentration from 150 g/L to 50 g/L.

Sugar stays in the pitcher

- Added water increases the volume.
- Each litre then holds less sugar.

Juice from a small can

- The juice solids stay in the pitcher.
- Added water increases the volume, so the drink is weaker.

Ratios and container waste

- One job is the new grams per litre. The other job is which empty packages pile up.
- A darker drink can hint at a stronger mix. Mass and volume give the number you record.