Science 14

Unit A: Properties of matter

Pure substances and useful mixtures

Salt on an icy Alberta road

- Rock salt scattered on November ice changes how that ice behaves under tires.
- The salt and the ice keep their own identities while they work together as a mixture.



Pure substance and mixture

- Distilled water is one substance, with the same properties in every sample.
- Salt water is a mixture, and the amount of salt can change.

Key terms

pure substance

Matter with one set of identifying properties throughout, such as distilled water or a sample of the element zinc.

mixture

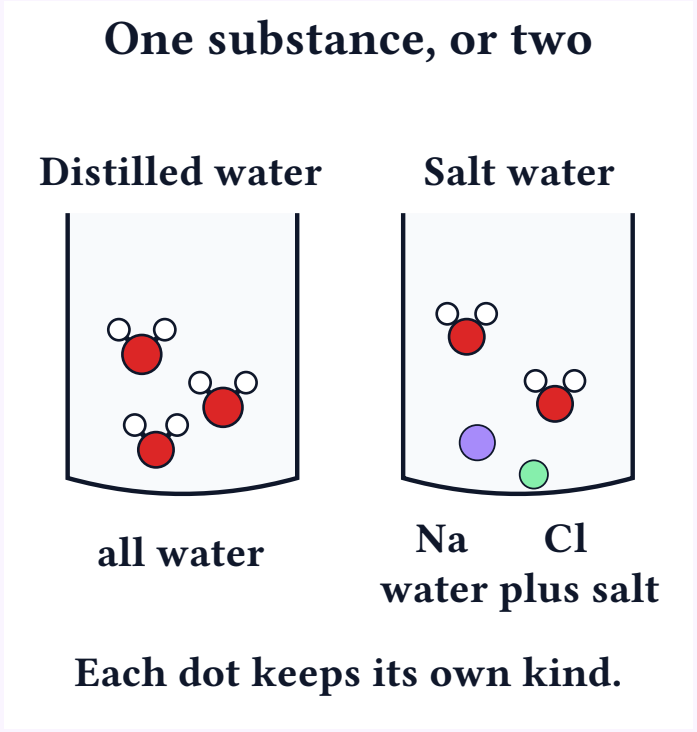
Matter made of two or more substances that keep their own properties and can be present in varying amounts.

mechanical mixture

A mixture whose parts are visibly distinct or settle into different regions, such as sandy water.

Properties that stay with each part

- A pure substance shows one set of identifying properties from sample to sample.
- A mixture can vary in proportion, and each part still brings its own properties.



Salt water on the road

- Salt scattered on ice is a mixture with a job in winter.
- The salt and the water still keep their own properties.

Brass and zinc

- Brass is a mixture of metals, so its recipe can vary.
- Zinc is one metal, with one set of properties.

Vinegar or acetic acid

- Vinegar contains water and acetic acid.
- Say which sample is the mixture and which property still belongs to the acid.

Mixtures for a purpose

- Road salt, radiator antifreeze and kitchen soap are mixtures chosen for Alberta conditions.
- The pure substances inside them still matter because their properties explain the job.

Image credits

Gogerr, Road Salt on a Sidewalk in Canada, CC BY-SA 4.0