

Gases, Liquids, Solids

This is the third text which will be used for practicing dictation and translation in the written part of the exam.

The key words are emphasized in bold
and there is a list of them in the presentation

Solutions, transitions, thermodynamics

Gases – Properties:

A gas has no fixed volume or shape: it will expand to fill its container. Gas particles are widely spaced. Forces between the particles are very weak and the particles move freely.

Vapor – gaseous molecules when they are in contact with liquids.

Volume – zapremina

To expand – širiti se

Widely spaced – sa velikim proredom/prostorom između njih

Vapor – para

Gas/gaseous – gas/gasovit

Liquids – Properties:

A liquid has a definite volume but no fixed shape, it will flow and take the shape of its container. Liquid particles are more loosely bound than solid particles. Fluidity of liquids depends on the **friction** between particles.

Definite – određeni

To flow – teći

Container – posuda

Loosely bound – labavije povezani

To depend on – zavisiti od

Friction – trenje

Solids – Properties:

A solid has a fixed shape and volume. Solid particles are tightly packed in **regular** patterns. The particles can vibrate, though strong forces hold them firmly in place.

Crystals: are pure solids with a regular **lattice** structure giving a regular polyhedral shape. All crystals of a particular substance grow so that they have the same regular **arrangement** of molecules, ions or atoms, and so have the same angles between their faces.

Tightly packed – blizu raspoređeni

Regular pattern – pravilan raspored

Firmly – čvrsto

Lattice – rešetka

Polyhedral – poliedarski

Arrangement – raspored

Face – lice, površina

Amorphous solids: a solid which has no crystalline structure. Examples: **carbon black (soot)** and plastic.

Plasma – plasma forms when electrons are torn from their atoms by electricity or heat. Plasma forms when a strong electric current passes through low pressure gases.

Amorphous solid – amorfno čvrsto telo

Carbon black (soot) – čađ

To tear – cepati, vaditi

Transition of States

A **melting point** is the temperature at which a solid completely changes into a liquid. **Impurities** cause lower melting points.

A **freezing point** is the temperature at which all of a liquid changes into a solid. Impurities lower freezing points.

A **boiling point** is the temperature at which all of a liquid changes into a gas (or vapor) because the vapor pressure of the liquid is equal to atmospheric pressure. Impurities raise (elevate) boiling points.

Impurity – nečistoća

Freezing point – tačka mržnjenja

To elevate – povećati

A solution is a mixture of one substance (the **solute**) dissolved in another (the **solvent**). Many compounds break down in water (**dissociation**) into charged particles (ions) that form weak bonds with water molecules (**hydration**).

Adding anything to the solvent results in an increased boiling point and decreased melting point. As a consequence the freezing point of water with NaCl is lower than for pure water.

Solute – rastvorak

Dissociation - disocijacija

To dissolve – rastvoriti

Hydration – hidratacija

Solvent – rastvarač

Consequence – posledica

Solution – rastvor

This is why we throw salt on our roads during winter:

Salt decreases the freezing point, hence water with salt (a solution) freezes at e.g. -50°C , and not because the salt is rough (like sand for example).

Pressure cooking:

The increased pressure inside a pressure cooker raises the boiling point of water because the water molecules need more heat energy to escape as a gas. The higher temperature cooks the food more quickly.

To increase/to decrease – povećati/smanjiti To escape – pobeći

Rough – grub, hrapav

Hence - stoga

Pressure cooker – ekspres lonac