



CHEMISTRY GLOSSARY

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Newtonian fluid is a fluid whose viscosity does not depend on gradients in flow speed. Gases and low-molecular weight liquids are usually Newtonian fluids.

non-Newtonian fluid → **nenewtonski fluid**

Non-Newtonian fluid is a fluid whose viscosity changes when the gradient in flow speed changes. Colloidal suspensions and polymer solutions like ketchup and starch/water paste are non-Newtonian fluids.

cryogenic fluid → **kriogenski fluid**

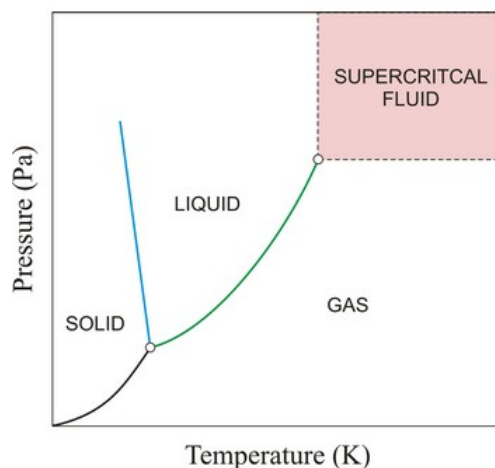
Cryogenic fluids are used for accessing low temperatures, usually below $-150\text{ }^{\circ}\text{C}$. Cryogenic temperatures are achieved by the rapid evaporation of volatile liquids. The most common laboratory cryogenic fluids are liquid nitrogen ($-196\text{ }^{\circ}\text{C}$). Nitrogen gas is colorless and odorless. The cloud formed when pouring liquid nitrogen is condensed water vapour from the air, not nitrogen gas.

fluid mechanics → **mehanika fluida**

Fluid mechanics is the study of various properties of the fluid (liquids and gases): velocity, pressure, density and temperature, as functions of space and time.

supercritical fluid → **superkritični fluid**

Supercritical fluid is any substance above its critical temperature and critical pressure (see phase diagram). It shows unique properties that are different from those of either gases or liquids under standard conditions. A supercritical fluid has both the gaseous property of being able to penetrate anything, and the liquid property of being able to dissolve materials into their components. Solubility increases with increasing density (i.e. with increasing pressure). An example of this is naphthalene which is practically insoluble in low pressure carbon dioxide. At 100 bar the solubility is 10 g/L and at 200 bar it is 50 g/L. Rapid expansion of supercritical solutions leads to precipitation of a finely divided solid.

[→ Download high quality image](#)**supercritical fluid chromatography** → **superkritična fluidna kromatografija**

Supercritical fluid chromatography (SFC) is a hybrid of gas and liquid chromatography. SFC is of importance because it

permits the separation and determination of a group of compounds that are not conveniently handled by either gas or liquid chromatography. These compounds are either nonvolatile or thermally labile so that gas chromatography cannot be used and they do not contain functional groups that make possible detection by liquid chromatography. SFC has been applied to a wide variety of materials including natural products, drugs, foods, pesticides and herbicides, fossil fuels, explosives and propellants.

[supercritical fluid extraction](#) → [superkritična fluidna ekstrakcija](#)

Supercritical fluid extractions (SFE) have solvating powers similar to liquid organic solvents, but with higher diffusivities, lower viscosity, and lower surface tension. The main advantages of using supercritical fluids for extractions is that they are inexpensive, contaminant free, and less costly to dispose safely than organic solvents. For non-destructive isolation choose SFE, which is simply the best technology for sensitive raw materials. For these reasons supercritical carbon dioxide (scCO₂) is the reagent used to extract caffeine from coffee and tea. Its gaslike behavior allows it to penetrate deep into the green coffee beans, and it dissolves from 97 % to 99 % of the caffeine present.

[thixotropic fluid](#) → [tikotropni fluid](#)

Thixotropic fluid (thixotropy) is a liquid that becomes less viscous when stirred. Paint and printing inks are thixotropic fluids, they are formulated so that they flow more freely when brushed or rolled.

[Archimedes law](#) → [Arhimedov zakon](#)

The upward force (buoyancy force) is exerted on a body floating in a fluid. It equals the weight of the displaced fluid.

[Brownian motion](#) → [Braunovo gibanje](#)

Brownian motion is the continuous random movement of small particles suspended in a fluid, which arise from collisions with the fluid molecules. First observed by the British botanist R. Brown (1773-1858) when studying pollen particles. The effect is also visible in particles of smoke suspended in a gas.

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