What is a solvent example

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Organic compounds used as solvents include aromatic compound s and other hydrocarbons, alcohol s, ester s, ether s, ketone s, amine s, and nitrated and halogenated hydrocarbons. Their chief uses are as media for...

Water is a universal solvent and is least expensive and also widely. But there are other solvents preferred based on ethanol, oils, petroleum products, etc.They find many applications in the formulation of food, drugs, cosmetics (lipsticks), and research.

Solvents are chemical compounds that are physically liquids at room temperature. Besides these, even gases can act as solvents when required.In science, solvents are useful for chemical analysis by titration, chromatography, spectrometry, etc.

Whereas in the industry, these solvents are mainly used for the extraction, purification, and molding of substances into different shapes.There are different types of solvents that are routinely used.Different types of solventsSolvents can be classified based on their chemical nature and behavior.

In general, most solvents have polarity in their internal chemistry.This polarity is due to the concentration of opposite charges on one of the atoms or elements inside a solvent molecule.It imparts changes to the solute molecule structure such that they get dissolved by forming ions.When a solute is mixed in a solvent, the solvent molecules dissolve the solute by separating the solute molecules using forces like hydrogen bonding, Vanderwal forces, etc.

Examples: Sodium chloride has a NaCl molecule, which breaks into Na+ and Cl- ions when dissolved in water.1. Polar solventsThese are solvents having a dielectric constant of more than 15. They can dissolve salts and other ionizable solutes.Polar solvents Ex: water, alcohol. Polar solutes like salts dissolve in polar solvents.

These solvents are non-polar and have dielectric constants less than 15. They cannot form intermolecular bonds by use of hydrogen bonding, Vanderwal forces, etc. Hence they cannot dissolve polar compounds.Nonpolar solvents Ex: Benzene, CCl4.Fats and oils are soluble in non-polar solvents. Hence to remove lipids from an extract, petroleum ether is used in the industry.B. Based on Chemical nature1. Aprotic solvents (No protons).These solvents are nonreactive and chemically inert. They neither take protons nor give protons.

Ex: benzene (C6H6). Chloroform (CHCl3).2. Amphiprotic typeThese solvents can provide and take up protons on reaction. They have a neutral pH.Ex: Water, alcohol.3. Protogenic type (proton+genesis = give)These are the solvents acidic by nature. They can donate a proton and hence called "protogenic."Ex: HCL, H2SO4, perchloric acid.4. Protophyllic typeThese are the solvents that take up protons. They are basic by nature and are mostly alkalies.

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Ex: NaOH, KOH, etc.These and protophilic solvents can be again classified as leveling agents and differentiating agents.A strong acid or base is a leveling agent as it can donate or accept protons to even weak base or acid, respectively.While weak acids and weak bases cannot do so, they can only give proton to a strong base or take up a proton from a strong acid, respectively. Hence due to this differentiation, they are called differentiating agents.

The above nature seems highly specific. Because, sugar (C12H22O12) molecules are organic by nature due to the presence of carbon in it.But interestingly, sugar is insoluble in organic solvents like benzene. This is because sugar molecules have polarity and require polar solvents to dissolve.Hence we see sugar dissolves well in plain water, which is inorganic but having polarity.