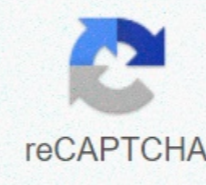




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## Ionic solids are hard and brittle why

Ionic compounds are not uncommon in its brittle beginning assumption that ionic compounds are often fragile is misleading. Many, if not most, solids are fragile, ions or not. The reasons why things are fragile have more to do with the larger structure of the material and less to do with chemical makeup of the material. Table salt is an ion compound and fragile. But the diamond is also fragile, although it is a molecular solid where all carbon bonds are covalent. But forged iron is strong and far from fragile. Pure honey is soft and not brittle. Nylon and kevlar are the opposite of fragile. The force is more or less unrelated to brittle or not and, correctly defined, is a measure of deformation resistance. But it is almost unrelated to fragility. The glass is very strong, but like salt, very fragile, which is why dropping your phone on hard surfaces is a bad idea. Hardness is a better term for the opposite of fragility. Solid compounds can be deformed without crushing. Nylon is weak, but healthy, kevlar is strong, but tough, forged iron is also strong and strong. But the cast iron is strong but fragile, which gives a hint that overall chemistry is not everything. What it actually does for solid compounds is the ability to mitigate external stress in the molecular structure of the material. In many polymers, ligaments in long polymer chains can rotate and rearrange to relieve this stress. In some metals (forged iron, but not cast iron) the crystalline structure of the metal contains defects that can move and rearrange to relieve the voltage concentration. In contrast glass and table salt can not do this and even small surface scratches concentrate stress and quickly grow causing the compound to break down. They lack a molecular mechanism to mitigate stress concentrations caused by small cracks. This can be partially overcome by more complex treatments on the surface of the compound. Strong glass (such as Gorilla glass used for mobile phone screens) uses a process that treats glass to create tension in the surface. This voltage reduces the concentration of tension from small scratches on the surface and makes the resulting glass much stronger (this is sometimes achieved by deliberately adding ions to the surface of the glass). Hardness is a product of bulk material, not the type of binding of the molecules or atoms that make it. In summary, fragility is not a property uniquely associated with ionic compounds. Most crystals are fragile. These compounds that are not fragile are not distinguished by the type of binding involved, but by complex mechanisms that can relieve the concentration of stress in bulk compound. So many covalent crystals are fragile not only ionic. Some metals are fragile, although many are not. Ion connection • connection is obtained as a result of metal atom donation the outer shell electrons of a non-metallic atom. •The metal becomes positively charged -->Cation. •The non-metal becomes negatively charged -->Anion. •When combined, they give a chemically neutral compound called SALT. Salts are solid and fragile. •Ionic compounds have particles that are arranged in a regular pattern -->they are CRYSTALLINEImage- the Wikimedia generally accepted ion compounds MELT AND BOIL POINTS Ion solids have very high melting and boiling points due to strong ion connections in 3 dimensions that require huge amounts of energy to overcome connections. E.g. NaCl mp 801 °C, bp 1465 °C CLATTICE ENTHALPY Latpy (energy) is the measure of the amount of energy needed to break the ion grid and convert the crystal into gaseous ions. E.g. NaCl à 780 kJ mol<sup>-1</sup>PHYSICAL CHARACTERISTICS Ion solids are very hard and fragile. It's hard because of the strong connections. Fragile, as when distorted as charged ions approach each other, and strong electrostatic repel the crystal. CONDUCTIVITY • Ionic solids cannot carry electricity. • Ionic liquids (solutions and molten) are excellent conductors of electricity. This is because IONS are free to move when they are not in a rigid grid. A liquid that leads to an electric current is called ELECTROLYTE. Ionic and metal blinding quiz ion connections and ion compounds quiz Q) Please log in or sign up to add a comment. Please log in or register to answer this question. Tags: Class 12 , Chemistry , Solid state, asked by kashish bhatia Ionic compounds are very hard and fragile. In ionic compounds, ions are firmly held in a grid, because positive and negative ions are strongly attracted to each other and difficult to separate. But the fragility of the compound is how easy it is to move the position of atoms or ions into a grid. If we press the ion compounds, the layers shift slightly. The same charged ions in the grid are approaching. Repulsive force occurs between the same charged ions. Due to this disgust, the grid structure breaks down responses to: 2019/05/05 by ExamFear Education Explained Ionian solids are solid and brittle. Ionic solids are solid and fragile. Explain that the constituent particles of ionic crystals are ions. These ions are held together in three-dimensional facilities by the electrostatic force of attraction. Since the electrostatic attraction force is very strong, charged ions are held in fixed positions. This is the reason why ionic crystals are solid and fragile. Ionic solids are solid and fragile. Ionic solids are difficult due to the presence of strong electrostatic forces of attraction. The fragility in the ionic crystals is due to the neo-direction of the bonds in them. Is there an error in this question or solution? × For This page is not currently available for bookmark. Tag. Tag.

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