

CHEMISTRY OF SOLIDS

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What are the 4 types of solids in chemistry? The major types of solids are ionic, molecular, covalent, and metallic. Ionic solids consist of positively and negatively charged ions held together by electrostatic forces; the strength of the bonding is reflected in the lattice energy. Ionic solids tend to have high melting points and are rather hard.

What is a solid in chemistry? Solid is one of the four fundamental states of matter along with liquid, gas, and plasma. The molecules in a solid are closely packed together and contain the least amount of kinetic energy. A solid is characterized by structural rigidity (as in rigid bodies) and resistance to a force applied to the surface.

What is the chemistry of solid materials? Solid state materials form the basis of many areas of modern science and technology, ranging from long-established materials, such as glasses and cements, to materials associated with the newer technologies, such as advanced ceramics, optoelectronics and thin film devices.

Is there a publication fee for physics and chemistry of solid state? There are no submission or publication fees in our journal.

What holds solids together? Solids are generally held together by ionic or strong covalent bonding, and the attractive forces between the atoms, ions, or molecules in solids are very strong. In fact, these forces are so strong that particles in a solid are held in fixed positions and have very little freedom of movement.

Do all solids melt when heated? Melting and freezing of materials is dependent on their temperature. When something melts the liquid is the same substance as the solid. Not all solids melt on heating (they may burn or decompose).

What is the strongest type of solid? Diamond is the hardest material known, because C-C bonds are among the strongest single bonds known.

What is a fun fact about solids? Solid is the hardest state of matter because the atoms present inside it are very tightly packed, and it can never move unless a high amount of external force is given to it.

What best describes a solid chemistry? Solid is characterized by structural rigidity and resistance to change of shape or volume. Unlike a liquid, a solid object does not flow to take on the shape of its container, nor does it expand to fill the entire volume available, like a gas does. The atoms in a solid are tightly bound to each other.

What are 5 solid elements?

Do all solids conduct electricity? Solid metals conduct electricity and heat, while ionic solids do not. Many solids are opaque, but some are transparent. Some dissolve in water, but some do not.

What are the chemical properties of solids?

What does a solid-state physicist do? Solid-state physics studies how the large-scale properties of solid materials result from their atomic-scale properties. Thus, solid-state physics forms a theoretical basis of materials science. Along with solid-state chemistry, it also has direct applications in the technology of transistors and semiconductors.

Is solid-state physics difficult? Solid state physics is considered hard by some students because: 1. its study draws on a variety of topics such as quantum mechanics, classical mechanics and statistical thermodynamics, and 2.

How much does it cost to publish in the journal of Solid State Chemistry?

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What are the 4 states of matter? Four states of matter are observable in everyday life: solid, liquid, gas, and plasma. Many other states are known such as Bose–Einstein condensates and neutron-degenerate matter but these only occur in extreme situations such as ultra cold or ultra dense matter.

What are the 22 states of matter?

What is the Carnelley's rule? In organic chemistry, Carnelley's rule, established in 1882 by Thomas Carnelley, states that high molecular symmetry is associated with high melting point. Carnelley based his rule on examination of 15,000 chemical compounds.

Is there a metal that cannot be melted? All elements, not only metals, will melt at a certain temperature as the other answers state, though the only exception to this is Arsenic, which will sublime before it reaches its melting point. All metals melt if you get them hot enough. Tungsten has the highest melting point at 3422°C. It boils at 5555°C.

Why can't wood melt? If you heat wood, the water boils away first and then the lignin and cellulose (both long-chain organic molecules) will react with oxygen and burn. Even in a vacuum, these molecular chains are too long and tangled to wiggle free into the liquid phase before they reach temperatures high enough to break their bonds.

What is the toughest material on Earth? A team of researchers from the Lawrence Berkeley National Laboratory and Oak Ridge National Laboratory has identified the toughest material on Earth – a metal alloy of chromium, cobalt and nickel. Contrary to other materials, its strength increases as it gets colder.

What is the weakest solid in the world? According to the Mohs scale, talc, also known as soapstone, is the softest mineral; it is composed of a stack of weakly connected sheets that tend to slip apart under pressure. When it comes to metals, scientists try to measure hardness in absolute terms.

What is the hardest solid in Earth? Diamond is the hardest known material to date, with a Vickers hardness in the range of 70–150 GPa.

Can solids be compressed? The particles in the solid are tightly packed and held in fixed places where they can only vibrate and cannot migrate or flow. Solids have small inter-particle gaps and are densely packed, hence they cannot be compressed since there is no room for particles to migrate. As a result, solid cannot be easily compacted.

What is the Speciality of solids? Solids have atoms that are packed closely together and have lower kinetic energy than liquids and gases. Along with plasma, gas and liquid, solid is also a fundamental state of matter which has closely packed molecules and contains minimum kinetic energy.

What does solid mean in a person? If you describe someone as solid, you mean that they are very reliable and respectable. [approval]

What are the 4 types of matter in chemistry? Matter has mass and takes up space. The four main states of matter are solids, liquids, gases, and plasma. Under exceptional conditions, other states of matter also exist.

What are 4 properties of solids?

What are the 4 states solid liquid? Four states of matter are observable in everyday life: solid, liquid, gas, and plasma.

What are the 4 elements solid liquid gas? Solid, liquid, gas, and plasma share many attributes with the corresponding classical elements of earth, water, air, and fire, but these states describe the similar behavior of different types of atoms at similar energy levels, not the characteristic behavior of certain atoms or substances.

Are humans liquid or solid? Examples of solids within our body include our bones and musculature. Simultaneously, our body holds various liquids such as our blood and bone marrow. Finally, the gasses of our digestive tract and the oxygen stored in our lungs are good examples of gasses in our bodies.

What is the 5th state of matter? In 1995, researchers made the ground-breaking discovery that there is a fifth state of matter: Bose-Einstein Condensates (BECs). Essentially, BECs are formed when particles are cooled to near absolute zero, causing them to coalesce into a single quantum object that acts as a wave in a

relatively large packet.

Is flour a liquid or a solid? Even though they can be poured, salt, sugar and flour are all solids.

What are the 7 characteristics of solids?

What are the 4 groups of solids? This approach categorizes solids as either molecular, covalent, ionic, or metallic. Iodine (I_2), sugar ($C_{12}H_{22}O_{11}$), and polyethylene are examples of compounds that are molecular solids at room temperature.

What are 5 characteristics of a solid?

What is the fastest moving state of matter? Particles with the highest speeds: In general, the gas state has particles moving at the highest speeds compared to solids and liquids. This is because gas particles have the most space between them, allowing them to move freely and collide less frequently.

Is fire gas solid or liquid? Fire is a plasma, not a gas or a solid. It's a kind of transient state between being composed of the elements prior to ignition and the spent fumes (Smoke - solid particles and Gasses = Gas molecules.)

What solid things turn into liquids? Water ice, iron, gallium, carbon dioxide (under pressure). Each of these solids turns to liquid when heated, but under different temperatures, and even under different pressures than our normal experience (aka Standard Temperature-Pressure of 1 atmosphere and 20 degrees Celsius).

What are the 4 stages of matter? Four states of matter are observable in everyday life: solid, liquid, gas, and plasma. Many other states are known such as Bose–Einstein condensates and neutron-degenerate matter but these only occur in extreme situations such as ultra cold or ultra dense matter.

What is the most common state of matter in the universe? Plasma is the most common state of matter in the universe Matter in the plasma state is far more abundant than matter in the liquid, solid, or gaseous states. 99 percent of all matter, other than the mysterious "dark matter" that astronomers have been puzzling over, is plasma.

What is it called when a gas goes to a solid? Deposition is the phase transition in which gas transforms into solid without passing through the liquid phase. Deposition is a thermodynamic process. The reverse of deposition is sublimation and hence sometimes deposition is called desublimation.

Why did my mug cake fail? Don't overfill your mug with ingredients Even with the perfect mini whisk, things can still go wrong when making a mug cake. One big mistake involves overfilling the mug. Just like with any other baked good, mug cakes rise during the cooking process.

Why did my mug cake turn out rubbery? A rubbery mug cake is indicative of being overcooked, or incorrect measurements. Please be precise with the measurements and stop cooking once the cake is soft but not wet on the top.

Are mug cakes okay to eat? To make a double portion, we recommend using two separate mugs! Are microwave mug cakes safe to eat? Yes! Mug cakes are completely safe to consume.

Can you eat raw mug cake batter? Eating uncooked dough or batter can make you severely sick. The primary risk comes from flour. That's right... flour. That fluffy powder may look innocent, but it should be viewed as a potentially dangerous "raw" food.

What is the science behind mug cakes? Two of the ingredients are key to making a tasty mug cake! Baking powder will make your cake spongy because it produces gas bubbles that get trapped in the batter as it cooks. The egg will help your cake rise because it has proteins that create a strong structure.

What is the shelf life of mug cake? Therefore, there's generally no printed expiry date to consider. However, if for some reason you have leftover mug cake or you want to make it in advance, it can generally stay fresh for up to 2 days at room temperature, and up to a week if refrigerated.

Why are my vegan cupcakes sinking? Over mixing Over mixing the mixture once the leavening agent has been added is a sure fire way to end up with a deflated cupcake as a result. This also results in a denser than intended texture too. This is most likely the reason why this particular batch of cupcakes came out sunken in in

the middle.

Why are my vegan cupcakes gummy? If your ingredients, even vegan ingredients, aren't all room temperature (i.e. some are cool, some are warm, some are hot), the cake will come out gummy. Another reason is that you might have been checking on your cake in the oven...by opening the door! Try to keep the oven door closed as much as possible.

Why is my vegan cake rubbery? The ratio of wet ingredients (fat and vegan milk) to dry ingredients (flour, cocoa powder etc.) has to be in perfect balance. If you have too much fat and too little milk and/or flour, you'll get a greasy cake. If you have too much milk and not enough fat, you'll end up with a gummy, dense cake.

Can you eat mug cakes cold? This cake is perfect as is or with a little dollop of something special on top like whipped cream, melted peanut butter, or a little spread of frosting. However you decide to eat it: hot or cold, with toppings or without; you're going to be so thankful you've got this quick and easy desert in your repertoire!

Are mug cakes legit? Microwave mug cakes are not as good as real cakes. But they are awesome in a different way: You can make them fast enough to satisfy an emergency homemade treat craving without an oven, and eat them in their entirety without feeling comatose afterward.

Why does my mug cake taste weird? This is especially true when you add too much baking soda to your mug cake mixture, which often results in an unpleasant bitter flavor that makes for a disappointing cake.

Is it OK to lick cake batter? Is It Safe to Eat Cake Mix Raw? Unfortunately, according to the CDC, the answer is no, and for the same reason you shouldn't eat raw cookie dough. Despite popular belief, the danger isn't in the raw eggs going into the mix—it's in the flour.

Can I eat cookie dough? Raw cookie dough may contain raw eggs that can have Salmonella bacteria, so it is not safe to eat.

Can you eat undercooked mug cake? Can you eat slightly undercooked cake? It is not recommended to eat raw flour, so eating a slightly undercooked cake is not a good idea. Make sure your cake is thoroughly baked before eating it.

Why is my mug cake chewy? Just don't add too much; you might think more baking powder would produce a taller, fluffier cake, but the ones I made with extra baking powder rose far over the edge of the mug and then sank back into it, giving the dessert an undesirably dense, chewy texture.

Why is my mug cake hard? Excessive whipping after adding flour - After adding the dry ingredients, just avoid too much whipping, especially when you have added the flour. It can result in activated gluten because when you beat the flour too much with a certain speed, the gluten gets activated, which forms a dry and hard cake.

When did mug cake come out? Some say wedding cake, but a better answer, I think, is mug cake. A mug cake is a single serving of cake made by quickly stirring up batter in a mug and nuking it in the microwave. It apparently came to widespread public attention in a YouTube video back in 2009.

Can you bake cake in the microwave? Yes, you heard that right! Microwave oven, a kitchen essential for short and handy cooking, can also function as a tool for baking cakes and other goodies. However, it is always better to use a microwave-safe glass cookware like a mug or bowl to bake a cake in a microwave.

Does cake go bad? Cakes can be stored in the fridge for up to a week. If you need to store the cake for longer than that, put it in the freezer. Wrap the cake tightly in plastic wrap or aluminium foil, and then place it in a freezer-safe bag. Cakes will stay fresh in the freezer for up to two months.

What cake has the longest shelf life?

Why is my vegan cake so dry? If you have too much flour in a recipe and not enough fat, like butter or oil, your cake is going to be dry and hard. For best results, I would encourage you to use a scale when baking, but if you don't have a scale, then just make sure you're using measuring cups correctly.

Why has my vegan cake cracked? The batter contains too much raising agent. Too much baking powder will cause a cake to rise too quickly and too much, making it crack or spill over the sides of the tin. Reducing the amount of raising agent or using a combination of plain and self-raising flours will help produce a more even surface.

Do vegan cupcakes go bad? Vegan cakes are particularly good at being stored at room temperature for up to five days.

Why is my vegan cake sinking? In vegan cakes, the absence of the egg makes it so that it's all about taking advantage of gluten formation to build structure. This means that when you take the egg out of a cake recipe, you're going to be taking out the primary structure builder, which means that the cake is going to fall flat.

Why do vegan cakes need vinegar? The reason that you'll see apple cider vinegar or vinegar in a lot of vegan baked goods is because it helps with the leavening. It's an acid and it helps the cakes to rise.

Do vegan cakes taste good? Yes, vegan cakes can be delicious and satisfying. They are made without animal products, using plant-based ingredients, and many people enjoy their unique flavors and textures. The use of ingredients like flaxseeds, applesauce, and almond milk can contribute to moist and flavorful vegan cakes.

What are the common causes of having a failure cake?

How do you fix a failed cake?

How to know if mug cake is cooked? Start with 1 minute and check the cake's doneness by inserting a toothpick into the center. If it comes out clean, your mug cake is ready. If not, continue microwaving in 15 to 30-second intervals until done.

Why is my mug cake rock hard? If your mug cake is rock hard, it has been over-baked! Next time, lower the amount of time it cooks, because microwaves vary in wattage, causing some to cook faster than others. Also, be sure to use a standard-size regular coffee cup, not a deep mug.

Why is my cake sad? Your cake is often subject to sinking in the middle due to various factors, including inaccurate oven temperature, excessive or insufficient leavening agent, overmixing of the batter, or premature opening of the oven door. Moisture loss or incorrect ingredient ratios may also play a role.

Is cracked cake bad? It's important to check the recipe and make sure that you have the right size pan for the cake. Cake cracking isn't the end of the world, but it

can be disappointing after putting in the time and effort to try and get a beautiful cake. There's always room for improvement so that you can get it right next time.

Why is my cake like jelly? Apart from the Gluten, insufficient creaming of sugar and eggs will also make a tight texture because there isn't enough air trapped in the mix to give it a lift. Many of the inexperienced bakers who try to bake mug cakes usually end up baking it rubbery.

How to ice a sunken cake?

Why does my sponge have a crusty top? Assuming this happens with all your cake recipes, not just with a particular recipe, it's likely your oven and/or the placement of the oven racks. Electric ovens in particular are more likely produce cakes and cupcakes that are hard on the top. You might also have the oven rack too high in the oven.

How to fix a broken bundt cake? Depending on how your cake broke, your best option might be to “glue” it back together. Think of the frosting as mortar and spread it in and around the crack to get the cake to hold. Then frost all around it to cover the mistake, chill, and voila!

Why are mug cakes so dry? Many protein mug cake recipes suffer from dryness because they don't contain enough fat. They use wheat or oat flour, protein powder, and no eggs or oils. Naturally, it's going to be very dry with these ingredients.

Why does my mug cake sink? Too much leavening agent like baking soda or powder can cause a cake to rise too high too quickly. The gas from the leavening agents builds up and escapes before the cake bakes through in the center. This causes the center to collapse and makes your cake layers sink in the middle.

Can you eat mug cakes cold? This cake is perfect as is or with a little dollop of something special on top like whipped cream, melted peanut butter, or a little spread of frosting. However you decide to eat it: hot or cold, with toppings or without; you're going to be so thankful you've got this quick and easy desert in your repertoire!

Why is my mug cake wet? In most cases, giving a mug cake an extra one or two minutes in the microwave with it turned off is the best way to help turn your batter into a completed cake. If your mug cake is still a bit runny after this time, put it back

in the microwave for 10-20 seconds.

Why is my mug cake eggy? Skip eggs - Since mug cakes are typically single servings, using one egg often results in an overly "eggy" taste and texture.

Why is my cake squishy? Most common reason is when the oven door is opened too soon and the cake hasn't set up and baked properly. The mixture could be too soft due to not enough ingredients or if there is too much liquid added. Using too much raising agents can make the cake rise too much too quickly and it implodes on itself.

Wildlife of Southern Africa: Princeton Pocket Guides

The "Wildlife of Southern Africa" Princeton Pocket Guides are a comprehensive series of field guides that provide detailed information on the diverse and fascinating wildlife found in the southern African region. These compact and portable guides cover a wide range of topics, from mammals and birds to reptiles, amphibians, and insects.

Q: What types of animals are covered in the guides? A: The guides include information on over 1,500 species of mammals, birds, reptiles, amphibians, and insects, with detailed descriptions, photographs, and distribution maps.

Q: What level of detail is provided? A: The guides provide a wealth of information for each species, including their physical characteristics, behavior, habitat, diet, and conservation status. They also include notes on similar species to help with identification.

Q: Are the guides easy to use? A: Yes, the guides are designed to be easy to use, with color-coded sections for each group of animals. The clear organization and concise descriptions make it easy to find the information you need quickly and efficiently.

Q: What are the benefits of using the guides? A: The "Wildlife of Southern Africa" Princeton Pocket Guides are invaluable tools for wildlife enthusiasts, students, and anyone interested in exploring the natural world of Southern Africa. They provide a reliable and comprehensive source of information, helping users to identify, understand, and appreciate the diverse wildlife of the region.

Q: How do I purchase the guides? A: The guides can be purchased online through the Princeton University Press website or from major book retailers. They are available individually or as a complete set.

What is the difference between right of bang and left of bang? Being “right of bang” means the attack has already happened, and now you're reacting to it, scrambling in the heat of battle. Trying to strategize as bullets are flying. (Sound familiar?) But learning how to stay “left of bang” means the Marines can now become the predators, not the prey.

What does the term left of bang mean? “Left of bang” means taking a proactive approach to possible threats by making a decision based on observation and intuition to prevent the bad from happening.

How many pages is left of Bang?

What is the difference between left and right politics? The left seeks social justice through redistributive social and economic policies, while the right defends private property and capitalism. The nature of the conflict depends on existing social and political cleavages and on the level of economic development.

What should you be doing when you find yourself left of the bang? However, when you are left of bang you are able to identify some of the pre-event indicators that exist before a crime is committed and have done so with enough time to be proactive. Getting left of bang is about being able to intervene earlier on the attack timeline and prevent criminal acts from occurring.

Where did left of bang come from? Left of bang is a concept with roots in a U.S. Marine Combat Profiler training program that has been globally adopted by other training programs for people in high-risk job. The main idea behind it is that every critical incident has its' precursors, no matter how surprising and/or overwhelming it feels in the moment.

What is the right of bang? “Bang” is when shots are fired, a bomb goes off, damage is done. On a timeline, “right of bang” is after that happens where, in the worst-case scenario, you're a casualty. “Left of bang” is where you need to be—“alert, ready, prepared and able to respond before the bad stuff happens.”

What is likely happening to the right of the bang? “Left of bang” means before the bad things happen; “right of bang” means that bad things have already happened, e.g., ambush, improvised explosive device (IED), etc.

How many pages are in the last book in the universe?

What does it mean to be left with a bang? If someone or something goes out with a bang, they stop existing or doing something in an exciting way. (Definition of go out with a bang from the Cambridge Learner's Dictionary © Cambridge University Press)

How to distinguish between left and right? Part of what allows people to tell right from left is the sense of proprioception, which is in many ways our real sixth (or perhaps seventh or eighth) sense. Proprioception is our sense of where our body is in space.

What is likely happening to the right of the bang? “Bang” is when shots are fired, a bomb goes off, damage is done. On a timeline, “right of bang” is after that happens where, in the worst-case scenario, you're a casualty.

What is the difference between proportional and bang bang? Proportional control is how you usually drive; every time you notice the car drifting a tiny bit to the left, you steer slightly to the right and vice versa. Bang-bang control would mean ignoring the steering wheel until the car crossed a lane marker line.

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