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Ap chemistry thermodynamics multiple choice

-----The process is spontaneous if it takes place without external intervention (a cup of hot coffee cools, iron rust, etc.). What determine spontaneity is 1) enthalpy (is a process that reduces the energy of the system) and / or 2) entropy (is a process that increases system disorder). ENTROPY is a coincidence, disorder, degree of freedom. The process, which increases the likelihood of the position of the system, can be spontaneous. The probability of a situation is the probability, which depends on the number of possible agreements. Processes can be spontaneous if it increases the likelihood of system position. GIBBS FREE ENERGY (G) is the final call for spontaneity - G takes into account S, H and T. If the Gibbs Free Energy process is negative, the process is spontaneous (the end of the story . . . Period... the end of the -----THERMODYNAMICS VIDEO #1: Review of the department's fellow AP teacher Ms. Laub - discusses priorities for the unit ENTROPY Crash Course Video - ENTROPY Entropy Changes Chem Rxns Predict Sign Change Entropy, S 1, 2 and 3 Law THERMODYNAMICS GIBBS FREE ENERGY Applying Gibbs Free Energy Gibbs Free Gibbs Free Gibbs Free Gibbs Free Gibbs Free Energy and Equilibrium First . . difference between Delta G and Delta G node:It is very important to know about this difference; that little ° symbol makes a difference! First, the standard change in free energy ΔG° has one specific reaction value at a given temperature and pressure; this is the difference (ΣG°f, products ΣG°f, reactive) that you receive from the tables. This corresponds to a free energy change for a process that never happens: the complete transformation of pure N2O4 into pure NO2 at a constant pressure of 1 ATM. The other content ΔG defined in ΔG = ΔG ° + RT ln Q corresponds to the total free content of all substances in the reaction mixture in any particular composition of the system. (Free energy G is the quantity that becomes more negative in any natural process. So, as the chemical reaction happens, G only falls and never gets positive. Finally, a point is reached where any further transformation of reactants into products would increase G. G is at least present (see plot below) and no further net change can occur; reaction is balanced. N2O4(g) → 2 NO2(g) Available energy of 1 mole N2O4 (1) less than 2 moles with a NO2 (2) capacity of 5,3 kJ; ΔG° = +5,3 kJ to completely transform reactive products into products. Red curved lines show the free energy of the actual reaction mixture. It goes through the minimum (3), where 0.814 mol N2O4 is balanced with 0.372 mol NO2. The difference (4)corresponds to the free mixing energy of reactants and products, which always leads to a mixture of equilibrium with a free energy lower than pure reactants or pure products. Thus, a certain reaction will occur, even if the ΔG° process is positive. EXCELLENT TUTORIAL VIDEO - Clear explanations: *Page by thermodynamics Video list -----Process is spontaneous if it takes place without external intervention (cup of hot coffee cools, iron rust, etc.). What determine spontaneity is 1) enthalpy (is a process that reduces the energy of the system) and / or 2) entropy (is a process that increases system disorder). ENTROPY is a coincidence, disorder, degree of freedom. The process, which increases the likelihood of the position of the system, can be spontaneous. The probability of a situation is the probability, which depends on the number of possible agreements. Processes can be spontaneous if it increases the likelihood of system position. 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IIF are not only weaker than bond-attractive forces due to simultaneous attractions of electrons that exist between 2 nuclei, but they also depend on particle-type material in the sample*. Among the electrically neutral molecules there are three types of intermolecular forces: london dispersion forces, dipole-dipole attractions and hydrogen bonding. And another attractive force, ion-dipole is important in decisions. The London Dispersion Force london dispersion force (LDFs) is the weakest type of IMF and occurs in all molecular samples. They are the only types of forces that exist between two non-polar molecules and iniquitous gases (solid or liquid form). ☹️Yes the AP exam, if you are asked to list inf types seen in a particular molecule, london dispersion forces will always be the answer. They can be easily forgotten, so make sure they always show their answer (along with other forces to provide)! At any time, one non-polar molecule on one side may have more electrons than on the other side, so it is polar. At that time, the molecule would have a partial negative side and a partial positive side and it the dioule. That temporary diode (molecule) then causes diyoule on a neighboring molecule and is the forces of LDF between one negative side of the molecular part and the partial positive side of the other molecule. Here is a quick visual to summarize this idea of LDF:☼Pay important information that is usually asked in the exam:The strength of the least developed parts increases when the size of the molecule increases. This is because more electrons give a stronger instant dipole due to the more polarized electron cloud. Polarizability is easy when the electron cloud can be distorted to give dipole charging distribution. Dipole-Dipole Interactions Dipole-Dipole attractions arise from opposite partial charges that exist at opposite ends of the dipole. Dipole-dipole attractions occur only in a sample of polar molecules and are slightly stronger than LDF. HCl dipoles cause a positive side and negative side that attracts each otherImage Courtesy of EMedicalPrepAs to reduce the distance between the two dipoles, you enhance the interaction of traction and diole-dipole. Please note that because it is related to polar molecules, an element with higher electronegativeness (in this case Cl-) has a partial negative (δ-). It also means that the polar molecules, the greater the dipole-dipole attraction, which is also associated with higher melting and cooking points. Example Question - LDF + Dipole-DipoleThis question is from the 2018 AP chemistry exam. All credits to the College Board. In the table above, explain why the boiling point CS2 (l) is higher than the COS (l) boiling point for each compound. Sample response: CS2 and COS both have a London dispersion force, but since COS is a polar molecule, it also has dipole-dipole forces. However, the London dispersion force CS2 is so strong as to overwhelm the strength of both MFF and DIPOLE-dipole forces in COS. Remember👁 that while the least developed countries are the weakest forces when they are strong and there are many, they can overwhelm the forces of dipole-dipole. It all depends on the size of the molecule! Hydrogen BondingHydrogen bonding is definitely everyone's favorite! It's the easiest set and the strongest, so they really stick to their thoughts throughout the year☺️ Hydrogen bonding (which is not a bond) is actually an unusually strong attraction of dipole-dipole and occurs only when hydrogen in the molecule is directly bound to F, O or N. It occurs between these molecules due to their large electronity difference and small sizes, which leads to really strong reps.☹️Compare the acronym FON and that it occurs only in polar hydrogen bound to F, O or N is partially positively charged and attracts neighboring unscathed electrons F, O or N. Because these values are so strong, the molecular boiling points with hydrogen connections are very high! An example of a molecule containing hydrogen bonding is water (H2O). It is also visible in DNA ☹️Let's clean up a quick misconception before moving:AP exam you may be asked to draw a molecule with the right orientation and create hydrogen bonding. Make sure you don't get confused☺️ the difference between intermolecular and intramolecular, intermolecular is between two molecules. Fiveable is here to help! 📺🔔Watch: AP Chemistry - Intermolecular Forceson Dipole Forceson-Dipole attractions occur only in a mixture of ionic compounds with polar molecules. These values occur when ions attract dipoles (i.e. melting NaCl H2O). Overall, this IMF is stronger than dipole-dipole and H-Bonding. Image Courtesy of ck12.orgIon-Ion AttractionIon-Ion attractions occur in a sample of ion compounds. This is the strongest type of attraction, because there are no partial fees, and all charges for ions. An example of ision interaction would be nacl attracted by other NaCl molecules to form crystal gratings. SummaryYou may be wondering how we can identify the dominant IMF – well it's pretty simple with this simple chart: Image Courtesy of Pearson Education🔔Watch: AP Chemistry - Halfway Unit 3 Review Review