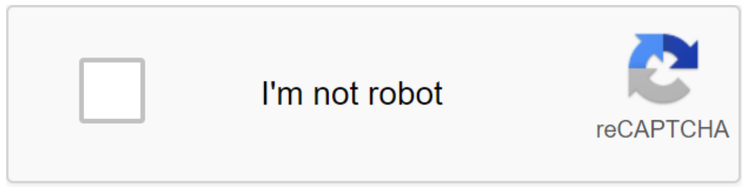

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Slow exothermic reaction graph

Sisyphuf was a mythological creature who was a very evil king. As punishment, he had to roll a large stone to the top of a long hill. The spell has been placed on the stone so that it will roll back down before reaching the top, never to perform the task. Sisyphuf was doomed to eternity, trying to reach the top of the hill, but never succeeded. Energy changes occurring during a chemical reaction can be shown in a diagram called a potential energy chart, or sometimes referred to as the reaction progress curve. A potential energy chart shows a change in the potential energy of the system as the reactions are converted into products. The figure below shows the main potential energy charts for endothermic (A) and exothermic (B) reactions. Recall that the enthalpy change (left (Delta H right) is positive for endothermic reaction and negative for exothermic reaction. This can be seen on potential energy charts. The total potential energy of the system increases for an endothermic response because the system absorbs energy from the environment. The total potential energy of the system decreases for an exothermic response as the system releases energy into the surrounding environment. Figure: Potential energy chart {1} shows the total potential energy of the reacting systems as the reaction continues. (A) In the endothermic reaction, energy products are more energy than reactionary and (Delta H) is positive. (B) In the exothermic reaction, the energy of the products is lower than the reactionary energy and (Delta H) is negative. (CC BY-NC; CK-12) Reaction activation energy is illustrated on a potential hill height energy chart between reactionaries and products. For this reason, the reaction activation energy is sometimes referred to as the activation energy barrier. Reacting particles must have enough energy to overcome this barrier in a collision (see figure below). Figure (PageIndex{2}): Activation energy (left (E_a)) reaction is a barrier that must be overcome for reactionary to be able to become products. (A) Activation energy is low, which means the reaction is likely to be quick. (B) Activation energy is high, which means the reaction is likely to be slow. (CC BY-NC; CK-12) Consolidated diagrams of potential energy for endothermic and exoteric reactions are described. These are diagrams of the energy activation and the progress of the reaction. Written and attributions by the CK-12 Foundation Sharon Bewick, Richard Parsons, Teresa Forsyth, Shonna Robinson, and Gene Dupont. If you see this message, it means that we are having trouble downloading external resources on our site. If you're behind a web filter, please make sure that the domains and no.kasandbox.org unlocked. Unlocked.