

# Uses and applications of acid and bases



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### Acid and bases in our life

Acid and bases are very important in our everyday activity. Almost every liquid you find is acid or bases but it is not just liquid you can find it almost everywhere. Both are used in our usual activity especially in our body. They have a variety of uses like in medicine, food, cleaning, fertilization, industry and as I mentioned before they are used in our body so it allow it to function properly.

Acid is a substance that produces hydrogen ions ( $H^+$ ) in water solution. <sup>(1)</sup> The ability to produce these ions give acid their unique property that they have. <sup>(1)</sup> It is also a substance that have a PH less than 7 when it is seven that mean it is neutral . <sup>(2)</sup> A PH scale is a scale that show acidic or basic a solution is. <sup>(2)</sup> . The more a substance is acidic then that means the lower its PH is. <sup>(2)</sup> for example we have lemon juice that have citric acid and ascorbic acid which is vitamin C, lemon have a PH of two which mean it is acidic. <sup>(2)</sup> There is an organic substance that is called indicator that changes color when it touches an acid or a base. <sup>(1)</sup> An example of this organic substance is blue litmus paper that turns red in acid. <sup>(1)</sup> There are many types of acids like hydrochloric acid, nitric acid, phosphoric acid, sulfuric acid, etc. <sup>(3)</sup> When some acid is intact with metal it sometimes react strongly which eat it away as metallic compound and hydrogen gas form, acids also donate  $H^+$  and its solution can transfer/move electricity. <sup>(1)</sup> Also is have a sour taste and when

it react with base it give us salt and water. <sup>(1)</sup> Give sharp stinging pain when put on a cut or wound. <sup>(4)</sup>

Bases are a substance that produces hydroxide ions when it dissolves in water. <sup>(1)</sup> It is considered any substance that accepts (H<sup>+</sup>) from acids. <sup>(1)</sup> When acids donate H<sup>+</sup> the one to take them is bases in other world both are complement to each other. <sup>(1)</sup> Of course that is not all; bases have a lot of property. For example it feel slippery this feeling is caused because when it touch your skin it to dissolve a little bit, taste bitter, react with oils and greases, and it is frequently solids. <sup>(5)</sup> When the PH is above seven that mean that it is a base. <sup>(5)</sup> It also cause red litmus indicator to turn blue and its solution can transfer electricity. <sup>(6)</sup> There are a lot of types of bases like aluminum hydroxide, calcium hydroxide, ammonia, etc. <sup>(1)</sup>

As you know in the blood you have acid and bases and there are mechanisms in our body that control the balance between acid and bases. <sup>(7)</sup> The one in charge in controlling the blood PH are the lungs and the kidney. <sup>(7)</sup> The lungs can increase the blood PH by releasing higher amount of carbon dioxide than usually. <sup>(7)</sup> As you know carbon dioxide is mildly acidic which cause the acidity of the blood to increase in the lungs the things that affect the increase of PH in blood are depth and speed of breathing. <sup>(7)</sup> We also have the kidney that helps control the acids and bases by regulating their release but it take more time for it to regulate the PH than the lungs because it release bases and acid in minute amount. <sup>(7)</sup> In our body there is a place where you can find acid (HCl) which is found in the stomach. There is also <https://assignbuster.com/uses-and-applications-of-acid-and-bases/>

the Buffer system that contain weak bases and the weak acids that form naturally in the body but once the balance is broke and incline toward one of them, the weaker one start to excreting correspondingly and as a result of that it become balanced again there are two things that help the buffer system which are carbonic acid and bicarbonate ions. <sup>(7)</sup>

Acid and bases can be found also at our houses. They can be found in food, cleaning fluid, etc. At home they are of a great use in mostly cleaning and food. In case of food we have these which are acids: vinegar, soda, beer, lemons, grapefruits, tomatoes, etc. <sup>(8)</sup> anything from a citric fruit contains citric acid which is weak, the vinegar contains acetic acid which is strong, in soda it contain carbonic acid which is weak. We also have batteries that contain sulfuric acid. <sup>(9)</sup> In case of household bases we have antacids, milk of magnesia, ammonia, drain openers, baking soda, soap, oven cleaners and detergents. <sup>(9)</sup> Baking soda contains sodium hydrogen carbonate which is base, ammonia (NH<sub>3</sub>) is found in some cleaners, soap have potassium hydroxide, oven cleaners contain sodium hydroxide. <sup>(7)</sup>

We can also find acid and bases in agriculture which is used to grow plant. The effect of acid and base on plants varies, depending on the concentration they may improve the plant health or damage it. <sup>(7)</sup> Both of them have been used for centuries as fertilizer to give the plants nutrients they needed to grow. <sup>(7)</sup> You need a proper PH level for plans to grow and to ensure its health. <sup>(7)</sup> With and imbalanced level of PH the plant can become sick, refuse to grow and can die. <sup>(7)</sup> Some soils already contain a specific amount of acid

and bases but that depend of where you live and with this you can determine what type of plant to grow and suited for this area and what are not. <sup>(7)</sup> in the case of fertilizers they are rated by their acidity or basicity. <sup>(7)</sup> Some contain a lot and some contain a little so you have to be careful with which one you use in your plant because some are very strong that they cause an unbalance and raise the PH of the plant and that may cause it to die, stop growing, etc. <sup>(7)</sup> there is Hydrangea which is one of the flowers that show different colors, and that depend on the acidity of the soil that it grow in. <sup>(6)</sup> If the top part is blue that mean it was planted in a slightly acidic soil and if the bottom part is pink that mean it was planted in more based soil. <sup>(6)</sup> What I want to say that the acidity and the basic of the soil I very important in the grow of plants and before planting you have to see if the soil have a balanced PH or not.

Acid and bases can be also use in medicine to avoid getting your body pH-high. if in our body the PH level change it will damage us a lot because it will it affects our cell production and reproduction. <sup>(10)</sup> The PH level have to be balanced because if not the digestion won't work properly in our stomachs. <sup>(10)</sup> if doesn't go back to normal it will cause harm to our body. <sup>(10)</sup> To avoid having your PH level high you must avoid food that have acids in them. <sup>(10)</sup> If you have too much acid your organs your organs will stop neutralizing acid and then you need a doctor because if the PH level go over the normal level it can be very dangerous. <sup>(10)</sup> There are a lot of different disease that shut your neutralization like for example we have Heartburn which is a disease where the PH of your stomach acid decreases from its average level of PH

which is 2, if you have this disease you will need medicine against the decrease of PH and the medicine which you take to cure you are produced from bases which can return the level of PH to its normal state which is 2.

<sup>(10)</sup> If in the other hand you have an increase in the level of PH of acidity in your stomach you have to take a medicine like magnesium hydroxide to lower the level of PH to its normal state.

Both acids and bases are also used in industries. Acid is often used to clean and remove rust in a process called pickling. <sup>(9)</sup> They use sulfuric acid as an electrolyte in wet cells battery for the car battery. <sup>(9)</sup> strong acids especially sulfuric acid is used in mineral processing for example we have phosphate mineral that react with sulfuric acid and produce phosphoric acid that can be used as phosphates fertilizers. <sup>(9)</sup> In chemical industries acids react in neutralization reaction that are used to produce salt for example we have nitric acid that react with ammonium and that produce ammonium nitrate which is salt. <sup>(9)</sup> Acids are added to food and to drinks to alter their taste and it serve as preservative for example we have phosphoric acid which is used as a component of cola drinks. <sup>(9)</sup> now we have bases that are used a lot in industries after all acids and bases are complement of each other. Bases are used to make soaps, also fertilizers, some others are used as explosive like in mining works, also it is used to make paper which is very important and an important resource in the removal of grease and they are needed for neutralizing acids they are needed. <sup>(9)</sup>

Although there were big evolution in the chemical industry in the use of acid, bases, and other substance but these industry polluted the world to an

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unimaginable level they polluted the sea, lakes, the air, etc. it also caused a lot of diseases and the release of pollutant into the atmosphere caused acid rain which will destroy vegetation and will kill off fishes because it lower the level of PH in the water and that caused the fish to die. After doing this essay I learned a lot about acid and bases and their use in our daily life.

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