BAKING SODA

DISHWASHING SOAP

MEAT TENDERIZER

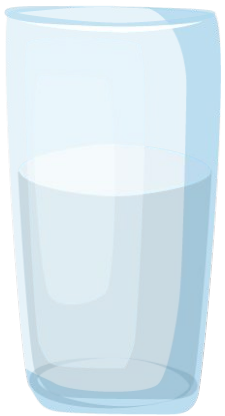
OIL

SALT

SUGAR

VINEGAR

WATER



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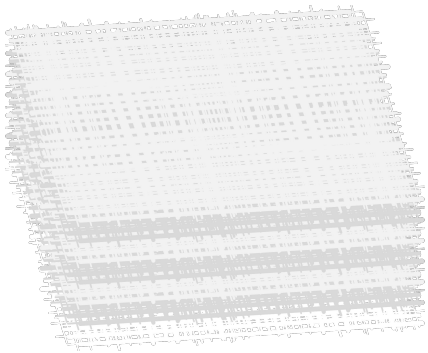


MEAT TENDERIZER

pH: 6-8 (slightly alkaline)

DESCRIPTION:
Meat tenderizer is a solid, seasoning like compound added to meat to make it more tender. The active ingredient is papain.

FUNCTION:
Meat tenderizer interacts with the proteins, breaking them down so the meat becomes softer and easier to chew/digest.

TYPE OF MOLECULE:
papain—an enzyme derived from papaya functionally digests proteins

DISHWASHING SOAP

pH: 6-8 (slightly alkaline)

DESCRIPTION:
Dishwashing soap is often a liquid that is added to water to aid in washing dishes or other materials.

FUNCTION:
Removes grease (lipids) and disrupts the connections (bonds) between fat molecules .

TYPE OF MOLECULE:
surfactant— allows hydrophobic (water hating) molecules to be broken apart

BAKING SODA

pH: 9 (alkaline)

DESCRIPTION:
Baking soda is a salt composed of sodium ions and bicarbonate ions. It is a white solid that is usually a fine powder. It has a slightly salty, alkaline taste.

FUNCTION:
Baking soda is a well-known cooking ingredient used to raise soda breads, cookies and cakes. In addition, it has wide range of applications, including cleaning, deodorizing, maintaining pH, and fire extinguishing.

TYPE OF MOLECULE:
ionic, a chemical salt

SUGAR

pH: neutral

DESCRIPTION:
Sucrose is a disaccharide, meaning it is made of simple sugars joined together. It is 50% glucose and 50% fructose.

FUNCTION:
Sucrose is a naturally occurring sugar (carbohydrate) It is found primarily in plants, where it serves as a way to store energy. It is usually found in roots, fruits and nectars. Animals obtain sucrose by feeding on plants.

TYPE OF MOLECULE:
polar, covalent bonds, carbohydrate (disaccharide)

SALT

pH: 7-8 (mostly neutral)

DESCRIPTION:
Salt water is water containing salt (NaCl). The salt dissociates into charged sodium (Na+) and chlorine (Cl-) ions.

FUNCTION:
Salt in water allows free Na and Cl ions to easily interact with polar molecules. In salt solutions, polar molecules can form clumps.

TYPE OF MOLECULE:
Ionic compounds

OIL

pH: neutral

DESCRIPTION:
Triglycerides are the main component of most food fats and oils. A triglyceride is composed of glycerol and three fatty acids.

FUNCTION:
Assists in heat transfer in cooking. Add flavor and texture

TYPE OF MOLECULE:
non-polar, covalent bonds, lipid

PAPER FILTER

pH: N/A

DESCRIPTION:
A type of paper or cloth that has very fine mesh (openings) and can trap oils and other fine particles.

FUNCTION:
Filters are used to collect large piece of materials or debris that can be found in liquids—separating large pieces from small pieces—letting small pieces through the filter while large pieces stay on top of the filter.

TYPE OF MOLECULE:
N/A

WATER

pH: 7 (ideal, neutral)

DESCRIPTION:
A polar molecule made of hydrogen and oxygen, participates in hydrogen bonding, important for all life

FUNCTION:
Water acts as a solvent, allow salts to dissolve and providing a pH buffer in chemical reactions.

TYPE OF MOLECULE:
polar, covalent bonds, hydrogen bonds

VINEGAR

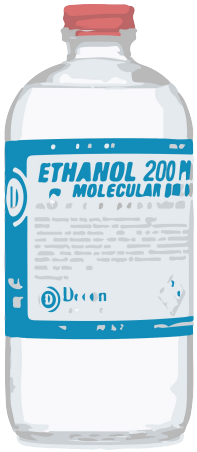
pH: ~2.4 (acidic)

DESCRIPTION:
Vinegar is a liquid that is produced from the fermentation of ethanol into acetic acid. The fermentation is carried out by bacteria. Vinegar consists of acetic acid (CH3COOH), water and trace amounts of other chemicals.

FUNCTION:
A cooking ingredient also used for pickling

TYPE OF MOLECULE:
Polar, covalent bonds

ETHANOL



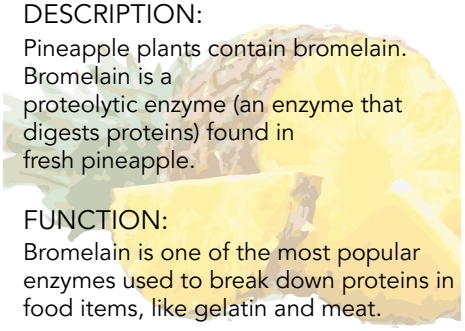
PINEAPPLE JUICE

PINEAPPLE JUICE (BROMELAIN)

pH: 3.5 (acidic)

DESCRIPTION:

Pineapple plants contain bromelain. Bromelain is a proteolytic enzyme (an enzyme that digests proteins) found in fresh pineapple.



FUNCTION:

Bromelain is one of the most popular enzymes used to break down proteins in food items, like gelatin and meat.

TYPE OF MOLECULE:

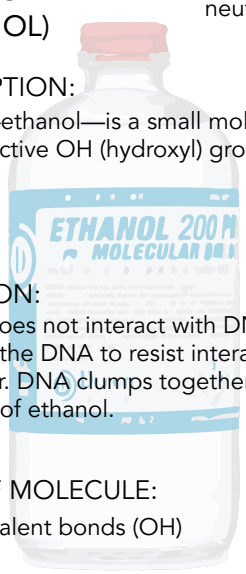
Protein, peptide

ALCOHOL (ETHANOL)

pH: 7.33 (mostly neutral)

DESCRIPTION:

Alcohol—ethanol—is a small molecule with a reactive OH (hydroxyl) group present.



FUNCTION:

Ethanol does not interact with DNA and will allow the DNA to resist interaction with water. DNA clumps together in the presence of ethanol.

TYPE OF MOLECULE:

polar, covalent bonds (OH)