

Acetic acid: molecular formula and molecular weight

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Also known as: ethanoic acid, Glacial acetic acid, Ethylic acid, Vinegar acid, Acetic acid, glacial, Methanecarboxylic acid, Acetasol, Essigsaeure Molecular Formula: $C_2H_4O_2$ Molecular Weight: 60. 05196 Acetic acid is a weak acid which is probably most famous for being the primary acid in vinegar. In fact, acetic acid has a wide range of uses beyond sprinkling on salads, and it is produced in large volumes all over the world. People have been working with this acid in a number of contexts for centuries, with acetic acid being one of the substances explored by alchemists, the predecessors of modern chemists. This organic acid can be prepared in varying concentrations. In pure form, it is known as glacial acetic acid because it crystallizes in cool temperatures. This form of the acid is extremely corrosive and can be hazardous to work with, requiring special precautions for protection. Vinegar, by contrast, usually has an acetic acid concentration of around five percent. There are a number of ways in which this acid can be prepared. One method is bacterial fermentation, the technique used to make vinegars, in which acetic acid is generated as a byproduct of bacterial digestion. Other techniques involve producing chemical reactions which result in this acid, as is done in commercial manufacture of this product. When the acid is destined for use in food, however, it is usually produced biologically because this is often required for food labeling reasons. This clear, colorless acid has a distinctive sour taste, although tasting it is not recommended unless it is clearly labeled as fit for human consumption. It also has a strong, sharp odor which is familiar to many people because it smells like vinegar. Or, rather, vinegar smells like acetic acid. In food preparation, it can be used as a flavoring, with the sharp taste being desirable in some foods, and also as a

food preservative. The acid inhibits bacterial growth, keeping food safe from contamination. The historic use of vinegar as a food preservative has created an acquired taste in some cultures for the distinctive tang of vinegar, so foods which no longer require preservation may have some added vinegar for flavor. Industrially, acetic acid is used in a wide range of processes. It is also used in chemical production and research, in settings where people have need for a weak acid. Like other acids, acetic acid is corrosive for many substances, and it can be involved in a variety of chemical reactions. Acetic acid is used as a solvent, a reagent, a catalyst, and a pesticide. It can be used in the preparation of paints, varnishes, and glazes, and in medical treatment, as for example in the treatment of jellyfish stings. Acetic acid, otherwise known as ethanoic acid, is a clear colourless liquid which has a pungent, vinegar-like odour. Large quantities of acetic acid are used to make products such as ink for textile printing, dyes, photographic chemicals, pesticides, pharmaceuticals, food preservatives, rubber and plastics. Acetic acid is the main component of vinegar albeit at very low concentrations that are harmless to humans. Acetic acid can enter the environment from discharge and emissions from industries. The burning of plastics or rubber, and exhaust fumes from vehicles may also release acetic acid into the environment. When released into soil it evaporates into the air where it is broken down naturally by sunlight. As a result there are very low levels present in the environment that are not likely to cause harm to the general public or the environment. Exposure to acetic acid is more likely to occur in an occupational setting.