**What is Urea**

Urea, also called carbamide, is an organic chemical compound, and is essentially the waste produced by the body after metabolizing protein. Naturally, the compound is produced when the liver breaks down protein or amino acids, and ammonia; the kidneys then transfer the urea from the blood to the urine. Extra nitrogen is expelled from the body through urea, and because it is extremely soluble, it is a very efficient process. The average person excretes about 30 grams of urea a day, mostly through urine, but a small amount is also secreted in perspiration. Synthetic versions of the chemical compound can be created in liquid or solid form, and is often an ingredient found in fertilizers, animal feed, and diuretics, just to name a few.

**Discovery**

Naturally, the chemical compound is not only produced by humans but also by many other mammals, as well as amphibians and some fish. Discovered in 1773 by the French chemist Hillaire Rouelle, urea became the first organic compound to be synthetically formulated. German chemist Friedrich Wöhler, one of the pioneers of organic chemistry, invented the process to create the synthetic version of the compound in 1828, just 55 years after its discovery.

**Production**

The synthetic version of the compound is created from ammonia and carbon dioxide can be produced as a liquid or a solid. In 1870, the process of producing the compound synthetically by dehydrating ammonium carbamate under conditions of high heat and pressure was invented, and this process is still used today. There are many common uses of the synthetic compound, and therefore its production is high; in fact, approximately one million pounds of urea is manufactured in the United States alone each year.

**Common Uses**

Most of the manufactured compound is used in fertilizers; when nitrogen is added to urea, the compound becomes water soluble, making it a highly desired ingredient for lawn fertilizer. The synthetic version is also used commercially and industrially to produce some types of plastics, animal feed, glues, toilet bowl cleaners, dish washing machine detergents, hair coloring products, pesticides, and fungicides. Medicinally, it is used in barbiturates, dermatological products that re-hydrate the skin, and diuretics

Physicians can use urea levels to detect diseases and disorders that affect the kidneys, such as acute kidney failure or end-stage renal diseasse (ESRD). The blood urea nitrogen (BUN) and the urine urea nitrogen (UUN) tests, which measure urea nitrogen levels in the blood and urine, are often used to assess how well a patient's kidneys are functioning. Increased or decreased levels of the compound, however, do not always indicate kidney problems, but instead may reflect dehydration or increased protein intake.