Enzymes Basics

To understand how any cleaning product works we must first understand what dirt is or rather comprised of.

Dirt is actually layers of fine films made up of grease, oils, fats, bacteria, germs, dust mites, non-organic material and organic micro-organisms. These films are bonded to each other and to the surface by amino and fatty acids.

Most cleaners emulsify some of these films but do not break down all the amino or fatty acids. Usually the visible layers of the films can be removed with general cleaning products giving the appearance of a clean surface. Quite often the organicmicro-organism remain to collect and feed bacteria and germs. These areas often re-soil quicker and are the main cause of odor problems.

Enzymes attack or digest the amino and fatty acids that bond these films together and to the surface being cleaned so that they can be transferred completely off the surface. Enzymes are simply chemical catalysts that accelerate the natural biodegrading or break-down of organic substrate.

More specifically enzymes are manufactured proteins that exists in all living organisms such as plants, animals and bacteria. Their purpose is simply to digest waste. It's this natural "Dust to Dust" process that constantly occurs in our environment that keeps plant, animal and human waste from over-running us.

Enzymes are derived from all living organisms and are harmless to humans, animals and marine life. They perform their catalytic function on contact, with no effect to themselves. Enzymes are non-toxic, non-irritating, non-gaseous, non-flammable, non-pathogenic and non-hazardous.

There are hundreds of thousands of enzymes each having specific, individual characteristics. For example an enzyme that causes proteins to break down will not react on fats and oils. Therefore any effective enzyme cleaning system must contain enough different classes and types of enzymes to assure proper catalytic reaction to speed up the natural "dust to dust" process.

The four basic classes of enzymes are grouped as follows:

A. Lipase ------ Those that break down fats and greases.
B. Protease ---- Those that break down proteins.
C. Cellulase --- Those the break down cellulose such as wood, cotton & paper.
D. Amylase ----- Those the break down carbohydrates and starches.

Available to the market place today are two basic types of enzyme cleaning products. The first group are Bacteria Producing Enzymes. This type of product contain actual strains of bacteria that produce the needed digestive enzymes when added to organic material.

The other product group are Preformed Enzymes which contain only the protein manufactured enzymes and emulsifiers. This is the preferred group although somewhat more expensive to manufacture.

Preformed Enzymes work best in Health Care, Restroom and Food Handling areas where the introduction of any kind of bacteria may cause concerns.

Enzymes actually out-perform Germicidal Cleaners because they digest the host material where the germs and odor causing bacteria live and reproduce. Germicides will kill germs and odor causing bacteria but because they do not eliminate the host organic material, new bacteria can and will begin to reproduce very soon after the germicidal has been applied.

Although enzymes are very effective in cleaning and eliminating odors they are not designed to perform well in a restorative cleaning situation where heavy grease, dirt, lime or calcium build up is present. They are designed to be very effective in maintaining certain levels of cleanliness and should be incorporated into a maintenance cleaning cycle where odor and appearance is a concern.

.