**Detergents & Cleaners**

As innovative formulators for consumer, industrial and institutional products look for alternatives to higher priced organic compounds, inorganic borates have a well-established history of providing improved performance value for laundry detergent and cleaning compounds.

**Borate Benefits**

* Active oxygen bleaching (Perborate)
* Enhanced surfactant performance
* Enzyme stabilization
* Improved alkaline buffering
* Improved stain removal
* Lipid (fats & oils) emulsifier action
* Viscosity or rheology control
* Water softening

**Detergents**

Today’s detergent formulations both solid and liquid contain several additives however the main components are builders, surfactants and a bleach compound.

**Builders**

These are typically water softeners that will remove hard water calcium ions by reacting and precipitating out calcium. Typical builders are sodium carbonate, soap and zeolites. Another builder having very good cleaning action is Sodium triphosphate however environmental concerns have limited its use.

**Surfactants**

Surfactants are compounds that reduce the surface tension between two liquids or between a liquid and a solid. Common surfactant used sodium dodecylbenzenesulfonate an organic colorless salt.

**Bleach**

Most bleach compounds today are oxidizers and take the form of Sodium carbonate, Sodium perborate. Other oxidizers include Sodium hypochlorite which is much more aggressive on clothes. They target laundries whose spots contain chlorophylls, dyes, tannin and other pigments that can stain clothing.

**Other additives include**

Enzymes in liquid detergents and their specific types such as Protease (protein stain); Lipase (fats and greases); Amylase (carbohydrates), provide cleaning action.

Still others such as foam stabilizers, viscosity modifiers, corrosion inhibitors (equipment), antideposition agents, dye transfer inhibitors, optical brighteners, colorants, fabric softeners and perfumes all help to complete the total detergent package.

As high efficiency laundry machines reduce water requirements and detergents the trend today is toward higher concentrated liquid detergents. Borates continue to be represented by major manufacturers globally, particularly in liquid detergents.

**Borated Laundry Detergents**

Borates offer value to both Consumer and Commercial laundry detergents formulations. This includes Powdered Detergents either in its refined form as Sodium borate (Borax 10 Mol & Etibor 48 – Borax 5 Mol) or as an additive in Sodium perborate, used for its oxygen bleaching value.

Borates (including boric acid) continue this value by offering enhanced enzyme stabilization that will allow enzymes in liquid detergents to remove stains.

**Borated Cleaning Compounds**

Many of the same borate benefits offered to laundry detergents can find value in general cleaning compounds. Manufacturers offering cleaning compounds continue to require improved cleaning performance while keeping costs down. Borates (Borax 10 Mol & Etibor 48 – Borax 5 Mol) plus Boric acid again bring value to these products used in bathrooms, kitchens and general cleaning applications.

Specific areas include dishwashing, hard surface cleaners, glass cleaners, liquid and powdered hand soaps, metal cleaning and in selected areas detergent bar soap applications where enzyme stabilization is required. Many of the benefits offered above can be found in these hard surface cleaners both consumer plus industrial and institutional versions.

**American Borate Company** **Products:**

**Refined**

Borax 10 Mol, Etibor 48 (Borax 5 Mol), Etibor® 68 (anhydrous borax), Boric oxide, Boric acid

**Minerals**

Ulexite, Colemanite

**Investigate these potentially helpful links.**

Links:

 American Cleaning Institute (Soap and Detergent Association)

<http://www.cleaninginstitute.org/>

 Household & Personal Products Industry (HAPPI) <http://www.happi.com/>

 ISSA World Wide Cleaning Association <http://www.issa.com/>