

# The Shaklee Ingredient Philosophy

## When Selecting Ingredients, We Look to Nature First

Founded on the philosophy of offering products in harmony with nature and good health®, Shaklee adheres to the principles that were established by our founder, Dr. Forrest C. Shaklee. When we select ingredients for our products, we hold to two important principles. These principles set us apart as a company and are the basis for our advanced approach to product development and production.

First of all, our ingredients must be as natural as possible. Secondly, those ingredients must reflect the most recent scientific and technological advances. The superior quality of Shaklee products is a result of our respect for nature's wisdom and our use of state-of-the-art research and production methods.

The Nutritional and Herbal Products Ingredient Glossary that follows is a testament to the principles and philosophy established by Dr. Shaklee. Information is the key to understanding. In our ingredient glossary, you will find a description of every ingredient found in Shaklee nutritional products. We've included information about ingredient sourcing and processing, as well as the roles the ingredients perform in our products and in our bodies.

## The Shaklee Difference — The Highest Standards

Our Nutritional and Herbal Products Ingredient Glossary is a reflection of the Shaklee philosophy and principles at work. Each ingredient is as natural as can be and illustrates the leading advances in science and technology. That's the approach to making products that Dr. Shaklee pioneered, exacting the highest ingredient standards possible.

The ingredients, though, are only one part of the Shaklee Difference. Our unique blend of ingredients, ingredient delivery systems, and product forms, coupled with the cumulative power of the ongoing science behind our products, make Shaklee unique. Furthermore, as we constantly strive to make exceptionally high quality products, we place great value in being ecologically and socially responsible. The Shaklee Difference is reflected in our research, in our product development, in the care we take to adhere to strict clinical testing and in our meeting the highest manufacturing standards in the industry, while minimizing our impact on the environment. That's the combination that sets Shaklee products apart from all others. That's the Shaklee Difference—demanding and providing the best and the purest—by setting the highest standards.

## Natural Ingredients

Our number one priority is to use natural ingredients in our products whenever possible. In fact, when you look through the glossary, you will notice that the vast majority of our ingredients are naturally sourced and are categorized as natural. Ingredients in this category are primarily obtained directly from a natural source, or they may be obtained through simple chemical reactions such as acidification, basification, hydrolysis and fermentation. Such reactions do not significantly alter the chemical structure of the original natural ingredient. For example, beta carotene is harvested from specially grown algae, and vitamin E is obtained from soybean oil. We also include many plant-derived ingredients in our products as potential sources of other plant compounds that may be important to health but have yet to be identified by scientists.

The mineral ingredients that we use are also categorized as natural ingredients. Minerals are natural elements of the earth, and some are dietary essentials for good health. Sometimes, essential minerals can be sourced directly as they are found within the earth — for example, calcium from limestone. But more commonly, minerals must be purified and bound to specific carriers to enhance their bioavailability and digestibility. When a mineral source has a carrier, it is noted in the Nutritional Products Ingredient Glossary. Mineral carriers include natural compounds like mineral salts, organic acids, and protein/amino acids.

## Naturally Derived Ingredients

Although an ingredient may be found in nature, it may not occur in a concentration that is high enough for our high-potency formulations. Fortunately, such ingredients can often be derived from natural sources through a series of chemical processes including many of those described for natural ingredients (e.g. fermentation). Vitamin C is a good example. Rose hips and acerola are two of nature's most concentrated sources of vitamin C, but they are not concentrated enough for high-potency vitamin C-containing formulations. Fortunately, vitamin C can be derived from the carbohydrate that is present naturally in corn through a multistep process that includes fermentation. Ingredients like these are categorized as *naturally derived*.

There are certain ingredients that are derived from natural sources that may be modified to perform a certain function. For example, soy lecithin can be modified to make hydroxylated soy lecithin. This modification of soy lecithin increases its solubility in water and enhances its ability to coat and protect tablets. So, modified natural ingredients like these are also categorized as *naturally derived*.

*Naturally derived* also includes ingredients originating from natural sources which undergo significant modifications so that their final form is structurally and functionally different from the starting material. Although properties of such ingredients have been changed, they are extensively tested for safety and efficacy. This subcategory of “naturally sourced” ingredients includes the ingredient hydroxypropyl methylcellulose. Cellulose is a natural plant fiber, originating from wood pulp. In this case it is custom tailored by a series of chemical modifications so that it takes on different properties that make it functionally advantageous to certain products.

## **Scientifically Formulated Ingredients**

Sometimes, a sufficiently concentrated source of an ingredient cannot be found in nature, nor can it be derived from natural sources. In these instances, advances in nutritional technology allow us to use highly bioavailable ingredients formulated from biochemical building blocks. Whenever we use these types of ingredients, they are tested thoroughly to ensure bioavailability, purity, and potency. The B vitamin, folic acid, is an example of a nutrient that is formulated from biochemical building blocks and in clinical studies has been proven to be more bioavailable than the folate found in foods.

# The Shaklee Nutritional Ingredient Glossary

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No listing under this category

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[Zinc Gluconate](#)  
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## A

### **Acacia Gum (natural)**

Acacia gum, also known as gum arabic, is a natural plant gum that seeps from breaks in the bark of acacia trees, which are grown in the Middle East and Africa. The hardened gum is collected, dried, put into solution, and then spray-dried into a powder. Acacia gum is used in Shaklee food products as a natural source of dietary fiber; an emulsifying agent to improve flavor, texture, and mouth feel; and a natural binder to help hold tablets together.

### **Acerola Extract (natural)**

Acerola (*Malpighia glabra*), also known as the West Indian cherry, is a small, bright-red fruit indigenous to Central America and Puerto Rico. Acerola berries are crushed and the juice extracted under carefully controlled conditions to avoid oxidation. The juice is then prepared into a dried, powdered extract. Acerola berries are among nature's most concentrated sources of natural vitamin C.

### **Agar-Agar (natural)**

Agar-agar is a natural plant gum with gel-forming properties obtained from red seaweed (*Rhodophyceae*). It is hot-water extracted, dried, and prepared into a powder. Agar-Agar is used in Iron Plus C Complex.

### **Alfalfa Powder (natural)**

Alfalfa powder is made from premium alfalfa leaves (*Medicago sativa*) grown in California under carefully controlled conditions. After being harvested, alfalfa plant cuttings are dried in the sun and open air. The leaves are separated from the stems and milled into a fine, green powder or concentrated under special conditions. Alfalfa leaves are a natural source of the plant pigment, chlorophyll, and the mineral magnesium. Trace amounts of iron, copper, zinc, boron, chromium, molybdenum, manganese, potassium, beta carotene, and vitamin K are also present. In ancient times, alfalfa was called the "father of all foods." Alfalfa is a key ingredient in Shaklee Alfalfa Complex and Herb-Lax®.

### **Alginic Acid (natural)**

Alginic acid is the acidic and insoluble form of algin, a natural plant gum obtained from brown seaweed such as *Macrocystis pyrifera*. It is a component in Shaklee Sustained Release Vita-C® 500 mg tablets.

### **Alpha Carotene (see Palm Oil Carotenes)**

### **d-Alpha Tocopherol (Vitamin E) (natural)**

### **d-Alpha Tocopherol Concentrate (Vitamin E) (natural)**

### **d-Alpha Tocopheryl Acetate (Vitamin E Acetate) (naturally derived)**

### **d-Alpha Tocopheryl Acid Succinate (Vitamin E Succinate) (naturally derived)**

d-Alpha tocopherol is natural vitamin E that has high antioxidant potency. Vitamin E is an essential, fat-soluble, antioxidant vitamin that helps neutralize free radicals that can cause cell damage. d-Alpha tocopherol concentrate (vitamin E) is obtained from soybean oil (see **Soybean Oil**) and is used in capsule products. Vitamin E (d-Alpha tocopherol) is also combined with the organic acids, acetic acid or succinic acid, to produce d-Alpha tocopheryl acetate (vitamin E acetate), or d-Alpha tocopheryl acid succinate (vitamin E succinate). These are all stable forms of natural vitamin E that can be incorporated into tablets. The body converts these stable forms to free tocopherols that can act as antioxidants in the body.

### **Alpha d-Galactosidase Enzyme (natural)**

Alpha d-galactosidase is an enzyme derived from a plant source (*Aspergillus niger*) by the natural process of fermentation. The enzyme is purified by filtration or centrifugation. It is then concentrated and dried under vacuum and controlled temperature to preserve its activity. Alpha d-galactosidase aids in the breakdown of certain complex sugars present in beans, whole grains, and some vegetables and fruits. Undigested, these complex sugars can be metabolized by bacteria in the colon, producing gases as a by-product. Alpha d-galactosidase is a key ingredient in EZ-Gest®.

\*These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.

### **Alpha Lipoic Acid (scientifically formulated)**

Alpha lipoic acid is a sulfur-containing compound formulated from biochemical building blocks. Produced within the body, alpha lipoic acid plays a role in carbohydrate metabolism and the production of energy compounds. Both water- and fat-soluble, alpha lipoic acid is recognized for its antioxidant properties, and is involved in the recycling of other antioxidants such as vitamins C and E, and glutathione. It is a component of Glucose Regulation Complex\*.

### **Amylase Enzyme (natural)**

Amylase is an enzyme derived from a plant source (*Aspergillus oryzae*) by the natural process of fermentation. The enzyme is purified by filtration or centrifugation. It is then concentrated, dried under a vacuum, and temperature-controlled to preserve its activity. Amylase helps break down complex carbohydrate to its smaller sugar components. Amylase enzyme is an ingredient in EZ-Gest®.

### **Anise Seed Powder (natural)**

Anise (*Pimpinella anisum*) is an herb native to Egypt and cultivated in Turkey and Spain. After harvesting, the seed is sifted and ground into a powder. Anise seed has an aromatic scent and a sweet, licorice-like taste that makes it a popular flavoring ingredient in herbal blends. Traditionally, anise seed has been a valued ingredient in herbal formulas. Anise seed is a key ingredient in Stomach Soothing Complex\* and Herb-Lax®.

### **Annatto (natural)**

Annatto powder is a natural color derived from the seeds of the annatto tree (*Bixa orellana*). Annatto seed coatings contain a natural plant carotenoid called bixin, which is pale yellow to dark orange in color. Annatto powder serves as a natural vegetable coloring in Shaklee products.

### **Artichoke Extract (natural)**

The artichoke (*Cynara scolymus*) is a well known plant that grows to a height of five feet. It is widely cultivated in central Europe and the northern United States as a food. The leaves, stem, and root contain a number of enzymes, tannins, and other compounds, including cynarin. Fresh leaves are put through an extraction process. The extract is then concentrated, filtered, and spray-dried. Artichoke extract is an ingredient in Liver DTX® Complex.

### **Ascorbic Acid (naturally derived)**

Ascorbic acid, the scientific name for vitamin C, is derived through a process that includes the hydrolysis and enzymatic fermentation of the carbohydrate glucose, which is obtained from the starch naturally present in corn (*Zea mays*). Vitamin C is an essential, water-soluble vitamin critical to the development of collagen found in cartilage, bones, teeth, and healthy gums. Vitamin C also promotes the absorption of iron from foods and is recognized as a protective antioxidant nutrient that helps neutralize free radicals that can cause cell damage.

### **Ascorbyl Palmitate (naturally sourced)**

Ascorbyl palmitate is a fat-soluble form of vitamin C (see **Ascorbic Acid**) made by combining naturally derived ascorbic acid with palmitic acid, a natural fatty acid obtained from plants. Vitamin C is an essential, water-soluble vitamin critical to the development of collagen found in cartilage, bones, teeth, and healthy gums. Vitamin C also promotes the absorption of iron from foods, and is recognized as a protective antioxidant nutrient that helps neutralize free radicals that can cause cell damage. Ascorbyl palmitate, along with mixed tocopherols (see **Mixed Tocopherols**) and rosemary extract (see **Rosemary Extract**), are the components of ShakleeGuard®, the unique, patented, natural antioxidant system used in Menopause Balance Complex\*, GLA Complex, and Garlic Complex.

### **Ashwagandha Root Extract (natural)**

Ashwagandha (*Withania somnifera*) is an evergreen shrub widely distributed in the Mediterranean and Middle Eastern regions. The roots are extracted, and the extract is then concentrated and dried. It is standardized to contain 1.5% withanolides. Ashwagandha is traditionally used in Ayurvedic medicine, where it is valued as a tonic that promotes calm and vitality. It is a component of Stress Relief Complex\*.

\*These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.

### **Asian Plantain Seed Extract (natural)**

Asian plantain seeds (*Plantago asiatica*) come from a plant similar to that which produces psyllium seeds. It is not related to the plantain fruit, which is a cousin to the banana. The Asian plantain is a small herbaceous plant that grows in the lowlands and woods of Japan, Korea, and China. The extract derived from the seed is an ingredient in the MACH™ proprietary blend of interferon-boosting plant extracts in NutriFeron®.

### **Astaxanthin (natural)**

Astaxanthin is a reddish carotenoid pigment found in the microalgae *Haematococcus pluvialis*. Salmon, shrimp, and lobster contain substantial amounts of astaxanthin; however, microalgae are the richest sources. Astaxanthin is structurally similar to beta carotene and contains the highest relative antioxidant activity when compared with alpha-tocopherol, alpha carotene, beta carotene, lutein, and lycopene. The algae used to produce the astaxanthin that Shaklee uses is grown in ponds on the Kona coast of the island of Hawaii under carefully controlled conditions that maximize the astaxanthin content. Astaxanthin is one of the key ingredients in CarotoMax® antioxidant supplement.\*

## **B**

### **Bacopa Extract (natural)**

*Bacopa monnieri*, also known as brahmi or water hyssop, is a small creeping herb that grows in marshes throughout India. This plant has been part of the Ayurvedic medicinal system in India for centuries and is used to enhance the brain's memory and learning functions. This extract is standardized to contain a minimum of 50% of the active saponin components called bacosides. Bacopa extract is a key ingredient in Memory Optimizer®\* capsules.

### **Banaba Leaf Extract (natural)**

Banaba leaf extract is derived from the banaba tree (*Lagerstroemia speciosa*), which grows throughout Asia. The mature leaves are washed and extracted, and the extract is then filtered, concentrated, and spray-dried. It is standardized to contain 1% colosolic acid. Banaba has been traditionally valued in the Philippines as a medicinal herb. It is a key ingredient in Glucose Regulation Complex\* and Cinch™ 3-in-1 Boost™ Dietary Supplement.

### **Barley Flour and Roasted Barley Powder (natural)**

Barley flour is a powder made from grinding and sifting barley (*Hordeum vulgare*). Roasted barley powder is made from raw barley that has been malted (sprouted and dried) and roasted. These barley flours serve as sources of natural color and as components of the natural ingredient base in select Shaklee products.

### **Barley Malt Extract (natural)**

Barley malt extract is made from barley (*Hordeum vulgare*) that has been sprouted and dried. This process produces enzymes that convert starch into simple carbohydrates, such as dextrans and maltose. The barley and malted barley are mashed in hot water, and the resulting enzyme-containing extract is dried into a powder. Barley malt extract serves as a natural means of adding sweetness and enhancing flavor.

### **Beeswax (natural)**

Beeswax is the purified yellow wax obtained from honeycombs. It is used as a means of suspending ingredients within certain encapsulated products.

### **Beet Fiber (natural)**

Beet fiber is made from the fibrous portions of the sugar beet (*Beta vulgaris*). It serves as a natural source of dietary fiber in Shaklee Fiber Plan® Tablets.

### **Beet Juice Concentrate (natural)**

Beet juice concentrate is derived from beets (*Beta vulgaris*) that have been cleaned and extracted with hot water to produce a thick liquid concentrate. The concentrate is spray-dried onto maltodextrin (see **Maltodextrin**) to form a powder. Beets contain the natural red plant pigment, betanin. It serves as a natural vegetable coloring in Vita-Lea® Ocean Wonders® tablets.

### **Beet Powder and Red Beet Powder (natural)**

Natural beet powder is made by spray-drying the juice of red beets (*Beta vulgaris*) onto maltodextrin (see **Maltodextrin**). As a natural source of the red pigment betanin, beet powder serves as a natural vegetable color.

### **Beta Carotene (natural)**

Beta carotene (provitamin A) is a natural yellow-orange pigment found in many plant foods. Vitamin A is an essential fat-soluble vitamin required for healthy skin, skeletal development, and normal vision. When needed, the body converts beta carotene to vitamin A. When not needed, beta carotene is safely stored in body tissues where it functions as an antioxidant. The beta carotene in CarotoMax® is provided by palm oil carotenes (see **Palm Oil Carotenes**) and specially grown and harvested *Dunaliella salina* algae. Soybean oil (see **Soybean Oil**) is used to extract beta carotene and other carotenoids from the algae. The beta carotene used in the Vita-Lea line of products is derived from a natural fermentation process from the microorganism *Blakeslea trispora*. Once fermented, it is isolated, purified, and deposited on a modified food starch carrier.

### **Beta-Sitosterol (natural)**

Beta-sitosterol is a common phytosterol found in grains, beans, fruits, and vegetables. Beta-sitosterol is produced by distilling soybean oil under high a vacuum. Phytosterols and fats are then crystallized out of the vitamin E-rich distillate. Beta-sitosterol and other important phytosterols such as campesterol, stigmasterol, and brassicasterol are purified further by a sequence of recrystallization and filtration steps. These sterols are a primary component of Saw Palmetto Complex. Beta-sitosterol is also an ingredient in Stress Relief Complex\*.

### **Beta and Delta Tocopherol (see **Tocopherols** and **Tocotrienols, mixed**)**

### **Bifidobacterium Longum (natural)**

(*Bifidobacterium longum*) is one of the most important and dominant of the beneficial microflora found in the human gastrointestinal tract. These beneficial microflora help to maintain healthy intestinal microbial balance. Bifidobacterium longum is cultured under stringent laboratory conditions, where it is protected from contamination. It is easily destroyed and needs protection from heat, light, moisture, acidity, and other environmental factors. Bifidobacterium is measured in colony forming units (CFU), which represents the total number of viable bacterial cells. Bifidus is a key ingredient in the Optiflora® Probiotic Complex and in the Vitalizer™ Dietary Supplement Pack.\*

### **Bilberry Extract (natural)**

Bilberry (*Vaccinium myrtillus*) is a small, shrubby perennial plant that grows in the woods of Europe, Asia, and North America. The fruit, which is very rich in anthocyanin flavonoids, is ground, put through an extraction process, and then concentrated. The concentrate is spray-dried to produce a powdered extract. Bilberry extract is an ingredient in Mental Acuity® Plus.

### **Bio-Build® (see **Exclusive Shaklee Ingredient Complexes**)**

### **d-Biotin (scientifically formulated)**

Biotin is formulated from biochemical building blocks including the organic acid, fumaric acid. It is an essential, water-soluble B vitamin that functions in the metabolism of fats, amino acids, and carbohydrates.

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### **Black Cohosh Extract (natural)**

Black cohosh (*Cimicifuga racemosa*) is a perennial herb that is native to the rich, wooded areas of North America. The extract is prepared from the dried roots and rhizomes of the plant, which contains many constituents, including triterpene glycosides, and isoflavones, a class of phytoestrogens. These components are extracted, concentrated under vacuum, and then spray-dried and standardized to contain a minimum of 2.5% triterpene glycosides. Black cohosh extract is a key herbal ingredient in Menopause Balance Complex\*.

### **Blue Malva Flower Powder (natural)**

Blue malva (*Malva sylvestris*) is an herb grown in Eastern Europe. Its purplish-pink flowers are collected, dried, and prepared into a powder. Traditionally, blue malva flower has been appreciated for its soothing properties. Blue malva is one of the herbal ingredients in Herb-Lax®.\*

### **Blueberry Extract (natural)**

Wild blueberry (*Vaccinium angustifolium*) is a small, shrubby perennial plant that is one of the few fruits native to North America. The fruit, which is very rich in anthocyanin flavonoids, is harvested, ground, extracted, and concentrated. The concentrate is spray-dried and standardized to contain a minimum of 12.5% anthocyanins. Blueberry extract is a key ingredient in FlavoMax® capsules.

### **Borage Oil (natural)**

Borage (*Borago officinalis*) is a hardy annual found throughout Europe and North America. It produces bright blue flowers that form brownish-black seeds when mature. Borage seeds are crushed to extract crude borage oil. The crude oil is then blanketed with nitrogen to protect it from oxidation, sprayed under a vacuum to remove water, and then decolorized using citric acid and clay. These materials are removed in a filter press, producing a clean, purified oil that has the highest natural concentration of gamma-linolenic acid (GLA) available. Borage oil is the primary source of GLA in GLA Complex.

### **Boron Rice Protein Hydrolysate (natural, protein/amino acid bound)**

Boron rice protein hydrolysate is a trace mineral-protein/amino acid-bound complex. It is produced by enzymatically hydrolyzing rice protein and then combining the resulting peptides (small protein fragments) with boron. Boron, a trace mineral, is found in numerous tissues in the body.

### **Boswellia Extract (natural)**

Boswellia extract comes from the small *boswellia serrata* tree, which grows in the dry hills of India. The bark exudes a milky liquid that solidifies into an amber-colored gum resin also known as frankincense. The resin is purified further through an ethanol-extraction process and standardized for its active boswellic-acids constituents. Boswellia is a key ingredient in Pain Relief Complex\*.

### **Brewer's Yeast (natural)**

Brewer's yeast (*Saccharomyces cerevisiae*) is a nutritional yeast and a natural source of B vitamins. It is produced during commercial brewing processes when malted grain extracts are fermented for the production of beer. The yeast is separated from the brew and washed to remove the bitter flavor without affecting the nutritional value of the yeast. The yeast is pasteurized and spray-dried, producing a powder. Brewer's yeast is an ingredient used in the base of B-Complex tablets.

*Note: The nutritional yeasts used in Shaklee products are not active, and they cannot grow in the body. They serve solely as a source of natural nutrition.*

### **Brown Rice Syrup (natural)**

Brown rice syrup is made from whole-grain brown rice (*Oryza sativa*) that has been cooked to convert its starch to maltose and dextrin. The liquid produced from the cooking process is filtered and concentrated by evaporation, yielding a syrup. Brown rice syrup is used as a natural flavoring agent in Cinch™ Bars and Shaklee Fiber Plan® Daily Crunch.

### **Buckthorn Bark Powder (natural)**

Buckthorn bark (*Rhamnus frangula*) is obtained from the bark of buckthorn, a shrub or small tree native to Europe, Western Asia, and Northern Africa. Traditionally, buckthorn bark has been used in many herbal formulas, and is an ingredient in Herb-Lax® tablets.

## **C**

### **Calcium Ascorbate (naturally derived)**

Calcium ascorbate is a form of vitamin C that is bound to the mineral calcium. It is manufactured by dissolving and fully reacting high purity ascorbic acid in a solution with calcium carbonate. Since calcium ascorbate is a neutral salt rather than an acid, it is used mainly as a buffered vitamin C supplement that is gentler on the stomach for sensitive individuals. Calcium ascorbate provides not only ascorbate but also elemental calcium in a bioavailable form. It is a key nutrient in the Shaklee Vitalizer™ Dietary Supplement.

### **Calcium Carbonate (natural, mineral salt)**

Calcium carbonate is a bioavailable source of the essential mineral calcium, made from limestone by processes that include the use of calcium chloride and sodium bicarbonate. Calcium is necessary for the development and maintenance of healthy bones and teeth, blood clotting, muscle contraction, and conduction of nerve impulses. Calcium carbonate is one of the sources of calcium in OsteoMatrix® and Chewable Cal Mag Plus.

### **Calcium Citrate (natural, mineral salt)**

Calcium citrate is a highly bioavailable source of the essential mineral calcium. It is prepared by combining calcium carbonate or hydroxide with citric acid, an organic acid (see **Citric Acid**). Calcium is necessary for the development and maintenance of healthy bones, teeth, blood clotting, muscle contraction, and conduction of nerve impulses. Calcium citrate is one of the sources of calcium in OsteoMatrix® and Chewable Cal Mag Plus.

### **Calcium Citrate Malate (natural, mineral salt)**

Calcium citrate malate is a bioavailable source of calcium, an essential mineral. It is prepared by combining calcium carbonate or hydroxide with the organic acid citric acid and malic acid. Calcium is necessary for the development and maintenance of healthy bones, teeth, blood clotting, muscle contraction, and conduction of nerve impulses. Calcium citrate malate is one of the three sources of calcium in OsteoMatrix® caplets.

### **Calcium Lactate (natural, organic acid bound)**

Calcium lactate is a bioavailable source of the essential mineral calcium, made by combining calcium carbonate or calcium hydroxide with organic lactic acid. Lactic acid is produced by the fermentation of simple carbohydrates found in sugar beets (*Beta vulgaris*). Calcium is necessary for the development and maintenance of healthy bones and teeth, blood clotting, muscle contraction, and conduction of nerve impulses.

### **D-Calcium Pantothenate (scientifically formulated)**

Calcium pantothenate is a bioavailable form of the B vitamin, pantothenic acid. It is formulated from biochemical building blocks by the condensation of d-pantolactone with the calcium salt of beta alanine. Pantothenic acid is a water-soluble B vitamin required for the metabolism of carbohydrates, fats, and protein, and the synthesis of cholesterol, phospholipids, and some hormones.

### **Calcium Sodium Caseinate (natural)**

Casein is a bioavailable protein naturally present in milk. Calcium sodium caseinate is the isolated form of this milk protein. Nonfat milk is first pasteurized and the natural casein and whey milk proteins are isolated by coagulation using a special process involving lactic acid-producing microorganisms and the natural enzyme, rennet. Whey protein is removed, yielding a casein curd. The curd is mixed with calcium hydroxide and sodium hydroxide and dried. Caseinate is used in protein-containing food products for its mild flavor, smooth mouth feel, and ease in mixing in powdered drinks.

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### **Canola Oil (natural)**

Canola oil is a natural vegetable oil extracted from an edible variety of grapeseed (*Brassica*). A natural source of monounsaturated fatty acids, canola oil is one of the vegetable oils lowest in saturated fatty acids. It is also a source of the essential fatty acid, linoleic acid. Canola oil is the main fat and essential fatty acid source in Cinch™ Shake Mixes.

### **Caramel Color (natural)**

Caramel is a natural color that is produced from the carefully controlled heat treatment of food-grade carbohydrates. The carbohydrate is dehydrated and undergoes polymerization reactions, which result in browning. By adjusting the reaction conditions, the intensity and shade of the color can be controlled. Caramel is used as a natural coloring agent in a number of Shaklee softgel capsule products.

### **Carbohydrate Gum (see Hydroxypropyl Methylcellulose)**

### **Carnauba Wax (natural)**

Carnauba wax is a natural plant wax obtained from the leaves of the Brazilian wax palm tree (*Copernicia cerifera*). The wax is separated from the leaves, melted, resolidified, and milled into a powder. Similar to dietary fiber, natural plant waxes pass through the digestive tract unabsorbed. A thin layer of the natural plant wax is used to coat Scientifically Advanced Vita-Lea® Multivitamin and Multimineral Dietary Supplement tablets. It provides a protective moisture barrier and aids in swallowing.

### **Carrageenan (natural)**

Carrageenan is a natural gum with gel-forming properties, obtained from red seaweeds (*Chondrus crispus* and *Gigartina mammosa*) that grow in the shallow seawaters along the coastlines of France, Ireland, Portugal, the United States, and Canada. It is a component of Sustained Release Vita-C® 500 mg vitamin C tablets.

### **Cat's Claw Extract (natural)**

Cat's claw (*Uncaria guianensis*) or "una de gato" is a large climbing vine found in the forests of Peru and other tropical areas, including Bolivia, Venezuela, and Guiana. Its name is derived from the hook-like thorns that grow along its vine. It has a long history of traditional use by the indigenous people of the Amazon, and the vine can now be sustainably harvested. The inner bark is extracted with water, then filtered and dried. The *guianensis* species has a high level of glycosides, which account for its antioxidant properties. Cat's claw is a key ingredient in Joint Health Complex\*.

### **Cellulose (natural)**

Cellulose is obtained from the pulp of natural plant fibers, and is purified and made into a powder. Cellulose powder serves as a natural means for binding ingredients together in tablets.

### **Cellulose Gum (naturally sourced)**

Cellulose gum is made from natural cellulose obtained from both wood pulp and cotton fibers. The natural cellulose is then modified to form a gum or gel-like material that has a variety of uses, including tablet binder, disintegrant, and suspending agent. Used as part of a tablet coating system, cellulose gum helps ease tablet swallowability. Shaklee uses cellulose gum in the natural film coating for the Cinch™ 3-In-1 Boost Dietary Supplement.\*

### **Chocolate Liquor (natural)**

Chocolate liquor is the basis of all chocolate and cocoa products. It is produced by grinding the center of the cocoa bean (the "nib") to a smooth, liquid state. This mixture is then cooled and molded into blocks also known as unsweetened baking chocolate containing roughly 53% cocoa butter. Contrary to its name, chocolate liquor does not contain alcohol. Chocolate liquor is a key component of the chocolate flavor in Cinch™ Chocolate Decadence Snack Bars.

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### **Choline Bitartrate** (scientifically formulated)

Choline bitartrate is formulated from biochemical building blocks including the organic acid, tartaric acid. Choline is a component of lecithin (*phosphatidylcholine*) and a key component of cell and nerve membranes, lipoproteins, and the neurotransmitter, acetylcholine.

### **Cholecalciferol** (see **Vitamin D<sub>3</sub>**)

### **Chromium Nicotinate, Polynicotinate** (natural, organic acid bound)

Chromium nicotinate is a bioavailable source of the essential trace mineral, chromium, made by combining trivalent chromium (Cr<sup>3+</sup>) obtained from chromium chloride with the nicotinic acid form of the B vitamin, niacin (see **Niacin**). Chromium is an essential trace mineral that works with insulin to facilitate the uptake of blood glucose into cells. It is a key ingredient in Glucose Regulation Complex\* and a number of products in the Cinch™ Inch Loss Plan.

### **Chromium Yeast** (natural, protein/amino acid bound)

Chromium yeast is a natural source of organically bound and organically based chromium. It is prepared by growing nutritional yeast cells (*Saccharomyces cerevisiae*) in a chromium-rich medium. Chromium is incorporated into the protein structure of the yeast cells, which are then harvested and dried. An essential trace mineral, chromium works with insulin to facilitate the uptake of blood glucose into cells.

*Note: The nutritional yeasts used in Shaklee products are not active and they cannot grow in the body. They serve solely as a source of natural nutrition.*

### **Citric Acid** (natural)

Citric acid is an organic acid derived by fermentation from cornstarch and molasses. It is the predominant organic acid found in citrus fruits. The tartness of citric acid enhances the natural citrus and fruit flavors in chewable tablets, drink mixes, and bars. Citric acid also helps maintain the acidity of Liqui-Lea® and serves as a natural preservative.

### **Citrus Bioflavonoids** (natural)

Lemon bioflavonoids, orange bioflavonoids, grapefruit bioflavonoids, hesperidin complex, and citrus bioflavonoids are special blends of bioflavonoids obtained from the inner peels of lemon (*Citrus limon*), orange (*Citrus sinensis*), and grapefruits (*Citrus paradisi*). The citrus peels are crushed and then undergo a series of extractions. The resulting mixture is dried into a powder form. Bioflavonoids are a family of compounds found naturally in plants and believed to act as antioxidants. These bioflavonoids are ingredients found in Vita-Lea®, Vita-Lea Gold®, Vita-Lea® Ocean Wonders®, Vita-C® 100, 500, FlavoMax®, and in Vitamin B+C Complex in the Vitalizer™ Dietary Supplement.\*

### **Citrus Fiber Blend** (natural)

Citrus fiber blend is a special fiber concentrate made from the pulp and peels of lemons (*Citrus limon*), oranges (*Citrus sinensis*), and grapefruit (*Citrus paradisi*). It is made by removing the juice and oils from thoroughly washed and cleaned whole fruits. The citrus pulp and peels are cleaned and pressed to remove any remaining water and soluble citrus compounds. After further dehydration and concentration, the pulp and peels are ground and blended into a powder. Citrus fiber blend serves as a natural source of dietary fiber in Shaklee Fiber Plan® Tablets.

### **Cocoa Powder and Low-Fat Cocoa** (natural)

Cocoa powder is made from the beans of cocoa trees (*Theobroma cacao*) grown in the equatorial belt. Much of the commercially grown cocoa comes from South America. After the cocoa beans are harvested, cleaned, and shelled, the cocoa is alkalized (Dutch-processed), roasted, ground, and pressed into cakes, which are then ground into a fine cocoa powder. The total fat content of this powder can be reduced to suit its use in specific products. Cocoa powder is used in select Shaklee products for its natural cocoa flavor and rich brown color.

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### **Coenzyme Q<sub>10</sub> (natural)**

Coenzyme Q<sub>10</sub> (CoQ<sub>10</sub>), also known as ubiquinone, is a yellow crystalline powder produced by the fermentation of sugar beets (*Beta vulgaris*). Coenzyme Q<sub>10</sub> is also made naturally within the body, where it plays a vital role in the production of cellular energy. CoQ<sub>10</sub> is recognized for its protective antioxidant properties that help to neutralize free radicals that can cause cell damage. Coenzyme Q<sub>10</sub> is a key ingredient in CoQHeart®.\*

### **Copper Gluconate (natural, organic acid bound)**

Copper gluconate is prepared by combining copper sulfate with gluconic acid, an organic acid produced by the fermentation of glucose from corn (*Zea mays*). Copper is an essential mineral that is a constituent of many enzymes in the body, including the antioxidant enzyme, superoxide dismutase (SOD). Copper functions in the formation of red blood cells, the protein hemoglobin, and the collagen found in bone and connective tissue. In addition, copper contributes to the synthesis of hormone-like compounds, called prostaglandins, which help regulate heart rate and blood pressure.

### **Copper Lysinate (natural, protein/amino acid bound)**

Copper lysinate is a bioavailable source of the essential mineral, copper. It is made by binding copper obtained from the mineral salt, copper sulfate, with the amino acid, lysine. Copper is a constituent of many enzymes in the body, including the antioxidant enzyme, superoxide dismutase (SOD). Copper functions in the formation of red blood cells, the protein hemoglobin, and the collagen found in bone and connective tissue. In addition, copper contributes to the synthesis of hormone-like compounds called prostaglandins, which help regulate heart rate and blood pressure.

### **Copper Oxide (natural, mineral salt)**

Copper oxide occurs in nature as minerals tenorite and paramelaconite. Copper is an essential trace mineral that is a constituent of many enzymes in the body, including the antioxidant enzyme, superoxide dismutase (SOD). Copper functions in the formation of red blood cells, the protein hemoglobin, and the collagen found in bone and connective tissue. In addition, copper contributes to the synthesis of hormone-like compounds called prostaglandins, which help regulate heart rate and blood pressure.

### **Cordyceps Extract (natural)**

Cordyceps (*Cordyceps sinensis*) is a black, blade-shaped mushroom. Once harvested from remote, high-altitude regions on the Chinese-Tibetan border, this once rare mushroom is now hydroponically grown. To prepare the extract, the mature fruiting body is removed, concentrated and then dried. Cordyceps has traditionally been one of the most valued Chinese medicinal herbs. It is one of the key ingredients in CorEnergy®.

### **Corn Oil (natural)**

Corn oil is extracted from the crushed germ of corn (*Zea mays*). It is a natural source of polyunsaturated fatty acids and the essential fatty acid, linoleic acid.

### **Corn Syrup (natural)**

Corn syrup is a viscous liquid containing maltose, dextrin, dextrose, and other carbohydrates. It is obtained from the hydrolysis of starch in corn (*Zea mays*) and serves as a key structural component and a natural sweetener in select Shaklee products.

### **Corn Syrup Solids (natural)**

Corn syrup solids is a dried, powdered form of corn syrup (see **Corn Syrup**) containing maltose, dextrin, dextrose, and other carbohydrates. Used in products in which liquid syrup would be impractical, it serves as a natural binder and natural sweetener in select chewable tablets.

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### **Cranberries, dried (natural)**

Cranberries (*Vaccinium macrocarpon*) are harvested every autumn from farms in the Northern U.S. and parts of Canada. Cranberries are a rich source of proanthocyanidins or condensed tannins, compounds found to promote urinary tract health. Dried cranberries are naturally sweetened by infusing the fruit in apple juice concentrate and subsequently drying the infused fruit. Dried cranberries are used in Cinch™ Lemon Cranberry Snack Bars.

### **Croscarmellose Sodium (Cellulose Gum) (naturally sourced)**

Croscarmellose sodium, also known as modified cellulose gum, is made from natural cellulose obtained from cotton (*Gossypium species*) linters (the fuzz that adheres to cottonseeds). The cellulose is modified through a number of processes to form a highly absorbent gum. Croscarmellose sodium binds the tablet ingredients together and assists with tablet disintegration by helping to break them apart when they come in contact with the fluid environment of the digestive tract.

### **Cyanocobalamin (see Vitamin B<sub>12</sub>)**

## **D**

### **d-Alpha Tocopherol Concentrate (Vitamin E)**

### **d-Alpha Tocopheryl Acetate (Vitamin E Acetate)**

### **d-Alpha Tocopheryl Acid Succinate (Vitamin E Succinate) (see d-Alpha Tocopherol)**

### **Dandelion Extract (natural)**

Native throughout the northern hemisphere, the dandelion plant (*Taraxacum officinale*) contains a number of triterpenes, sterols, carotenoids, and potassium. The root and leaves are dried, cut, and milled. An extract is then prepared that is concentrated, filtered, and spray-dried. Dandelion extract is an important ingredient in Liver DTX® Complex.

### **Dextrose (natural)**

Dextrose, also called glucose, is a natural, simple carbohydrate made from the hydrolysis of starch in corn (*Zea mays*). Mildly sweet, dextrose is used to enhance flavors without imparting excessive sweetness in select products that contain simple carbohydrates.

### **Dicalcium Phosphate (natural, mineral salt)**

Dicalcium phosphate is a bioavailable form of the essential minerals, calcium and phosphorus. It is produced by the reaction of phosphoric acid (made from acidified phosphate rock) and calcium oxide (made from natural limestone), or calcium hydroxide (made from natural limestone that has been hydrated with water). Calcium is necessary for the development and maintenance of healthy bones and teeth, blood clotting, muscle contraction, and conduction of nerve impulses. Phosphorus is second only to calcium as the most abundant mineral in the body. In fact, about 85% of phosphorus is found combined with calcium in bones and teeth. It also serves as a natural buffer in blood, is a component of genetic material in cells, and plays many key roles in cellular metabolism. In addition to its role as a source of calcium and phosphorus, dicalcium phosphate can serve as a natural means for binding tablet ingredients together.

### **Dong Quai Extract (natural)**

Dong quai (*Angelica sinensis*) is a stout biennial or perennial herb, native to China, which has been used traditionally for several thousand years. Dong quai extract is prepared from the clean and dried roots, from which the components, such as ligustilides and ferulic acid, are extracted. The extract is filtered, concentrated, and spray-dried into a powdered form. Dong quai extract is an important herbal ingredient in Menopause Balance Complex\*.

## E

### ***Echinacea Purpurea* Powdered Extract (natural)**

*Echinacea (Echinacea purpurea)* is a perennial herb native to North America and extensively cultivated in the U.S. and Europe. The powdered extract is prepared from the dried root and leaves of the plant, which contain active components such as phenols, cichoric acid, and alkylamides. These components are extracted, concentrated, and spray-dried. The powdered extract has a characteristic aroma and taste, and may impart a tingling sensation in the mouth. *Echinacea purpurea* powdered extract is a key ingredient in Shaklee Defend & Resist Complex.

### **Elderberry Powdered Extract (natural)**

Black Elder (*Sambucus nigra*) is a tall shrub native to Europe. The extract is prepared from the ripe blackberries, which contain flavonoid compounds such as anthocyanidins and are the source of the berries' rich color. These components are extracted, concentrated under a vacuum, then spray-dried and standardized for anthocyanidin content. Elderberry powdered extract is a key ingredient of Defend & Resist Complex.

### **Elderberry Juice Powder Concentrate (natural)**

Black elder (*Sambucus nigra*) is a tall shrub native to Europe. A concentrate of the juice is obtained from the ripe blackberries. The concentrate has a sweet, berry flavor and is a source of flavonoid compounds such as anthocyanidins, which provide the berries' rich color. Elderberry juice powder concentrate is a key ingredient in Defend & Resist Complex.

### ***Eleutherococcus Senticosus* (formerly known as Siberian Ginseng) (natural)**

*Eleutherococcus senticosus* is an herb grown in northeastern China, Russia (Eastern Siberia), Manchuria, and Korea. A concentrated liquid extract is prepared from cut and cleaned roots by percolation, and then spray-dried into powder. Traditionally, *Eleutherococcus senticosus* has been valued for its use in herbal formulas. *Eleutherococcus senticosus* extract is an ingredient in MoodLift® Complex\*.

### **Evodia Extract (natural)**

Evodia (*Evodia rutaecarpa*) is a seasonal tree native to northern China and Korea that bears small, reddish-brown fruit and is harvested for its health benefits. Evodia has been used for thousands of years in traditional Chinese medicine. The fruit is harvested and dried, then extracted, concentrated, and redried. It contains numerous alkaloid compounds including evodiamine and rutaecarpine. Evodia extract is a key ingredient in Cinch Boost Proprietary Thermogenic Blend, which is part of the Cinch™ 3-in-1 Boost™ Dietary Supplement..

## F

### **Fennel Seed Powder (natural)**

Fennel (*Foeniculum vulgare*) is an herb native to the Mediterranean region and is also cultivated in China. Fennel is harvested and the seed is sifted and ground into a powder. The seed of the plant has a pleasant, aromatic scent and sweet flavor that makes it a popular flavoring in foods and in herbal blends. Traditionally, fennel seed has been valued for its use in herbal formulas. Fennel seed is an ingredient in Stomach Soothing Complex\* and Herb-Lax®.

### **Ferric Ammonium Citrate (natural, organic acid bound)**

Ferric ammonium citrate is a mineral salt containing iron complexed with ammonia and the organic acid, citric acid (see **Citric Acid**). It is prepared by combining ferric hydroxide with citric acid. Following the addition of ammonium hydroxide, it undergoes a drying and evaporation process. Ferric ammonium citrate is a bioavailable, water-soluble form of the essential trace mineral, iron. Iron is a component of hemoglobin, which transports oxygen from the lungs to the body's cells. Iron is also an essential component of myoglobin, the protein that stores oxygen reserves in muscle. Ferric ammonium citrate serves as the water-soluble source of iron in Liqui-Lea®.

### **Ferrous Fumarate (natural, organic acid bound)**

Ferrous fumarate is prepared by mixing hot solutions of ferrous sulfate and sodium fumarate (fumaric acid, an organic acid). The resulting slurry is separated and dried into a reddish-brown powder. Ferrous fumarate is a bioavailable form of the essential trace mineral, iron. Iron is a component of hemoglobin, which transports oxygen from lungs to the body's cells. Also, iron is an essential component of myoglobin, the protein that stores oxygen reserves in muscle.

### **Ferrous Lactate (natural, organic acid bound)**

Ferrous lactate is prepared by combining calcium lactate (see **Calcium Lactate**) or sodium lactate with ferrous sulfate, or by directly mixing iron filings with the organic acid, lactic acid. Lactic acid is produced by the fermentation of simple carbohydrates found in sugar beets (*Beta vulgaris*). Ferrous lactate is a bioavailable form of the essential trace mineral, iron. Iron is a component of hemoglobin, which transports oxygen from lungs to the body's cells. Also, iron is an essential component of myoglobin, the protein that stores oxygen reserves in muscle.

### **Fig Powder (natural)**

Fig powder is made from the fruit of fig trees (*Ficus carica*). The figs are dried, cut, and ground into a fine powder. Fig powder provides a mild, sweet, and fruity taste in select Shaklee products.

### **Flaxseed Extract (natural)**

Flaxseed (*Linum usitatissimum*) is a tall, erect, annual plant with star-shaped, turquoise-blue blossoms. It has been cultivated in many regions since the time of the ancient Egyptians. Today, the world leader for flax production is Canada. The extract is produced from whole seeds, which contain lignans, a class of phytoestrogens. Flaxseeds are the richest source of lignans, providing 75–80 times more than most plant foods. The seeds are ground, extracted, concentrated, filtered, and spray-dried to a powder form. Flaxseed extract is a key ingredient in Menopause Balance Complex\* capsules.

### **Flaxseed Oil (natural)**

Flaxseed oil is a seed oil extracted from flaxseed (*Linum usitatissimum*). The seeds are ground and steamed, then the oil is pressed out, cooled, and filtered. A unique feature of flaxseed oil is its high ratio of alpha-linolenic acid (an omega-3 fatty acid) to linoleic (an omega-6 fatty acid). Flaxseed serves as the main ingredient in the oil base of Menopause Balance Complex\* capsules.

### **Folic Acid (scientifically formulated)**

Folic acid is a water-soluble B vitamin formulated from biochemical building blocks, including triamine hydrochloride. It is involved in amino acid metabolism and plays an important role in the synthesis of compounds needed for the formation of genetic material, RNA, and DNA, which are essential to cell division.

### **FOS (Fructooligosaccharides) (natural)**

FOS (*Fructooligosaccharides*) is a family of short-chain carbohydrates extracted from the roots of the chicory plant (*Chicorium intybus*). FOS is extracted from cleaned chicory roots using a water-extraction process, resulting first in inulin (see **Inulin**), which is then enzymatically reduced to form FOS. Alternately, FOS is derived from beets (*Beta vulgaris*) using a water-extraction method. FOS is not broken down or absorbed in the stomach or small intestine. It reaches the colon intact, where it is metabolized by bifidobacteria. FOS from chicory roots is a key ingredient in Optiflora® Prebiotic Complex.

### **Fructose (naturally derived)**

Fructose is a natural simple carbohydrate found in many fruits and vegetables and made commercially by the enzymatic conversion of dextrose (see **Dextrose**) derived from corn (*Zea mays*). Also known as fruit sugar, fructose is the sweetest of all naturally occurring sugars, and serves as a natural sweetener in select Shaklee products.

### **Fructose Syrup** (naturally derived)

Fructose syrup is simply fructose dissolved in water at high concentrations to yield a clear liquid that is intensely sweet (see **Fructose**). It has a low glycemic index and is used as a natural sweetener in Cinch™ Bars.

## **G**

### **Gamma Tocopherol** (see **Tocopherols** and **Tocotrienols, mixed**)

### **Garlic Powder** (natural)

Garlic (*Allium sativum*) is an herb native to Europe and central Asia. Shaklee garlic is cultivated in California. Shaklee garlic powder is made from whole garlic cloves that undergo a gentle temperature-controlled drying process. The special drying process removes moisture from whole garlic, producing a pure powder that retains the natural phytochemical components found in fresh garlic. Additionally, this process controls garlic odor for enhanced consumer acceptance. Traditionally, garlic has been valued as a culinary herb and for its use in herbal formulas. Shaklee garlic powder is the main herbal ingredient in Shaklee Garlic Complex.

### **Gelatin** (natural)

Gelatin is a naturally occurring protein obtained by the partial hydrolysis of collagen found in animal skin, connective tissue, and bones. Gelatin is used for its natural gel-forming properties and is the primary component of softgel capsule shells.

### **German Chamomile Flower Extract** (natural)

German chamomile flower (*Matricaria chamomilla*) is grown in South America. A concentrated liquid extract is made from dried flowers by percolation, and spray-dried into a powder. Traditionally, the flower has been a valuable ingredient in herbal formulas and teas throughout Europe. The extract is used as an ingredient in Gentle Sleep Complex\*.

### **Ginger Root Powder** (natural)

Ginger (*Zingiber officinale*) is an herb grown in China and India. The ginger root is cleaned, dried, and ground into a fine powder. Ginger has been valued for over 2,500 years as a spice and flavoring agent in cooking. Traditionally, ginger root has also been valued for its use in herbal formulas. Ginger root powder is a key ingredient in Stomach Soothing Complex\*.

### **Ginkgo Biloba Extract** (natural)

Ginkgo biloba (*Ginkgo biloba*), native to Japan and China, is one of the world's oldest living tree species. It bears distinctive fan-shaped leaves that contain many constituents, including flavone glycosides, terpene lactones, bioflavones, and proanthocyanidins. Dried ginkgo leaves are crushed and put through an extraction process. The liquid extract is concentrated, filtered, and purified in a series of steps to produce an extract containing a minimum of 24% flavone glycosides and 6% terpene lactones. Ginkgo biloba extract is the key herbal ingredient in Mental Acuity Plus®.

### **Ginseng Root Extract** (natural)

Ginseng (*Panax ginseng*) is native to northeast China and Korea. The name ginseng means "man root," a reference to its shape, which resembles the human form. Mature ginseng roots contain saponin compounds, also known as ginsenosides. The cleaned roots are extracted, concentrated, and dried, then standardized to contain a minimum of 10% ginsenosides. Traditionally, *Panax ginseng* has been valued as a tonic that promotes vitality. Ginseng root extract is a key ingredient in CorEnergy®.\*

### **Glucosamine Hydrochloride (natural)**

Glucosamine hydrochloride is derived from chitin, which is most abundant in the shells of crabs, shrimps, and lobsters. Chitin is extracted from these shells. Through a series of further extraction and filtration steps, chitin is broken down into single units of glucosamine, which are then converted to glucosamine hydrochloride, an acid salt form that is more stable than its free form. Upon ingestion, glucosamine hydrochloride molecules are completely ionized into free glucosamine. Glucosamine hydrochloride is a key ingredient in Joint Health Complex\*.

### **Glucose (see Dextrose)**

### **Glycerin (natural)**

Glycerin is a clear and viscous liquid obtained by the hydrolysis of fats or oils (e.g., coconut, canola, tallow, or others), which involves a continuous high-pressure steam process. The glycerin is then concentrated, refined, and purified. Glycerin acts as a humectant to help maintain the integrity of the softgel capsule shells. It also promotes the hydration of gum ghatti (see **Gum Ghatti**) used in Liqui-Lea®.

### **Glyceryl Palmitostearate (naturally derived)**

Glyceryl palmitostearate is a viscous liquid composed of naturally occurring fatty acids—palmitic and stearic acids as glycerides—the compounds that provide fatty acids in foods. Glyceryl palmitostearate is made from fatty acids derived from vegetable oil. Glyceryl palmitostearate helps suspend Coenzyme Q<sub>10</sub> (see **Coenzyme Q<sub>10</sub>**) in the soybean oil base present in CoQHeart®, which contributes to CoQ<sub>10</sub>'s enhanced bioavailability.

### **Gotu Kola Extract (natural)**

Gotu kola (*Centella asiatica*) is a slender, creeping plant that grows in swampy areas of India, Madagascar, and the tropics. Extracts of the plant contain a number of triterpenoid compounds. The components are extracted from the dried herb. The extract is concentrated under vacuum and then spray-dried. Gotu kola is not related to Kola nut and has no caffeine. Gotu kola extract is an ingredient in Mental Acuity Plus®.

### **Grapefruit Bioflavonoids (see Citrus Bioflavonoids)**

### **Grapefruit Oil (natural)**

Grapefruit oil is an aromatic, flavorful oil extracted from the peels of grapefruit (*Citrus paradisi*). It is used as a natural flavor in Vita-C® vitamin C supplements.

### **Grapefruit Powder (see Citrus Fiber Blend)**

### **Grapeseed Extract (natural)**

Grapeseed extract is derived from red grapes (*Vitis vinifera*), which are cultivated worldwide. The extract is prepared from the seeds and skins, which are rich in flavanols, especially proanthocyanidins. The seeds and skins are separated from the grape pomace and washed prior to extraction. The extract is then purified, concentrated, and standardized for proanthocyanidin content before drying. Grapeseed extract is an ingredient in Vita-E Complex® and FlavoMax®.

### **Green Oats Powder Extract (natural)**

Green oats (*Avena sativa*) is an herb native to northern Europe, and now grown worldwide as a cereal crop. The young green parts of the oat plant, also known as oat straws, are harvested in late summer. A concentrated liquid is extracted by percolation from the cut and cleaned herb, and then spray-dried into powder. Oat straw has been used in herbal folk remedies. Green oats extract is an ingredient in MoodLift® Complex\*.

### **Green Tea Extract (natural)**

Green tea (*Camellia sinensis*) is an evergreen shrub native to East Asia and has been traditionally valued as a healthful beverage for thousands of years in Asia. Tea leaves are rich in polyphenolic compounds such as flavanols, flavandriols, flavonoids, and phenolic acids. Flavanols such as epigallocatechin gallate (EGCG), are referred to as catechins. After harvesting, the leaves are cleaned and extracted, then concentrated, dried, and standardized to various compounds depending on their use. Green tea extract is a key ingredient in CorEnergy®, FlavoMax®, Cinch™ 3-in-1 Boost™ and Cinch™ Energy Tea Mix.

### **Guar Gum (natural)**

Guar gum is obtained from the seed of the guar plant (*Cyamopsis tetragonoloba*), grown in India. The seeds are dehusked, dried, and ground into a fine powder. Guar gum is a water-soluble dietary fiber that thickens when mixed in water. It is a key dietary fiber in a number of Shaklee products including Shaklee Fiber Plan® and Shaklee Cinch™ Shake Mix.

### **Gum Ghatti (natural)**

Gum ghatti is a natural plant gum that seeps from breaks in the bark of a tree (*Anogeissus latifolia*), which grows in the forests of India and Sri Lanka. The hardened gum is collected, sorted by color, and ground into a powder. Gum ghatti is used as an emulsifier and thickener. In Liqui-Lea®, gum ghatti helps control viscosity or thickness and aids in the emulsification of fat-soluble vitamins.

## **H**

### **Hawthorn Extract (natural)**

Hawthorn (*Crataegus oxyacantha*) is a spiny bush that grows to 25 feet in height, bearing leaves that are divided into three to five lobes and strong-smelling flowers that grow in large bunches. The leaves and flowers contain the flavonoids hyperoside and vitexin-rhamnoside, as well as oligomeric proanthocyanidins. The leaves and flowers are dried, cut, and milled. A liquid extract is prepared, which is concentrated, filtered, and spray-dried. Hawthorn extract is an important ingredient in Mental Acuity Plus®.\*

### **Hesperidin Complex (see Citrus Bioflavonoids)**

### **High Oleic Sunflower Oil Powder (natural)**

High oleic sunflower oil powder is derived from the seed oil of the sunflower (*Helianthus annuus L*). This ingredient adds flavor and a rich mouth feel to beverages and provides a source of polyunsaturated fat to a healthy, well-balanced diet. High oleic sunflower oil powder is a key ingredient in Cinch™ Shake Mixes.

### **Honey (natural)**

Honey is one of the oldest sweeteners and was highly valued by ancient Egyptians for its medicinal and healing properties. It is a nutritious and sweet liquid made from the nectar gathered from flowers by honey bees. It is composed largely of dextrose and glucose and also contains water, vitamins, minerals, protein, and enzymes. Honey is used as a natural sweetener in Cinch™ Snack Bars.

### **Hydroxylated Soy Lecithin (naturally derived)**

Hydroxylated soy lecithin is made from lecithin, found naturally in soybean oil (*Glycine max*), which is then specially modified to make it highly water dispersible. It is incorporated into coating solutions that can be sprayed on tablets to help prevent the tablet coating from cracking or becoming brittle.

### **Hydroxypropyl Methylcellulose (Carbohydrate Gum) (naturally sourced)**

Hydroxypropyl methylcellulose, also known as carbohydrate gum, is made from natural cellulose obtained from pine trees (*Pinus* species) or cotton (*Gossypium* species) linters (the fuzz that adheres to cottonseeds). The natural cellulose is then modified to form a gum or gel-like material (modified cellulose) that serves as an excellent means of binding tablet ingredients together. As a component of the tablet coating, it aids ease of swallowing.

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## I

### **Inositol (natural)**

Inositol is a nutrient that is present as phytic acid in corn (*Zea mays*) and rice (*Oryza sativa*) bran. Corn or rice bran is subjected to a series of hydrolysis, filtration, concentration, and crystallization steps and then dried to become fine crystalline inositol. Inositol is a component of phosphatidylinositol, a phospholipid that is an enzyme modulator and key component of cell membranes and lipoproteins.

### **Inulin (natural)**

Inulin is a mixture of long- and short-chain carbohydrates that occurs naturally in the roots of the chicory plant (*Chicorium intybus*). Inulin is extracted from clean chicory roots using a water-extraction process, then purified and spray-dried into a powder form. Inulin is not broken down or absorbed in the stomach or small intestine. It reaches the colon intact, where it is metabolized by bifidobacteria. Inulin is a key ingredient in Optiflora® Prebiotic Complex, Cinch™ Shakes, and Cinch™ Bars.

## J

### **Japanese Honeysuckle Flower Extract (natural)**

Japanese honeysuckle (*Lonicera japonica*) is native to Asia. The flower buds have been used in Chinese medicine and herbal tea. It is an ingredient in the MACH™ proprietary blend of interferon-boosting plant extracts in NutriFeron®.\*

## K

### **Karaya Gum (natural)**

Karaya gum is a natural plant gum that seeps from a tree (*Sterculia urens*), which is native to India. Karaya gum serves as a natural means for binding ingredients together in Shaklee Herb-Lax® tablets.

## L

### **Lactase Enzyme (Beta d-Glactosidase) (natural)**

Beta d-galactosidase, also known as lactase, is an enzyme derived from a plant source (*Aspergillus oryzae*) by the natural process of fermentation. The enzyme is purified by filtration or centrifugation. It is then concentrated, dried under a vacuum, and temperature-controlled to preserve its activity. Lactase enzyme breaks down lactose (milk sugar) into simple sugars that can be absorbed and, thus, aids in the digestion of dairy products. Lactase enzyme is a key ingredient in EZ-Gest®.

### **Lactobacillus Acidophilus (natural)**

*Lactobacillus acidophilus* commonly known as acidophilus is one of the most important and dominant of the beneficial microflora found in the human gastrointestinal tract. These beneficial microflora help to maintain healthy intestinal microbial balance. *Lactobacillus acidophilus* is cultured under stringent laboratory conditions, where it is protected from contamination. Lactobacillus is measured in colony forming units (CFU), which represent the total number of viable bacterial cells. *Lactobacillus acidophilus* is a key ingredient in Optiflora® Prebiotic Complex, and in Vitalizer™ Dietary Supplement.\*

### **Larch Tree Powdered Extract (natural)**

Larch tree powdered extract is obtained from the heartwood of the larch tree (*Larix* species), which is a member of the pine family. The heartwood is rich in immunoactive carbohydrate compounds known as arabinogalactan. It is extracted under pressure, purified, and then spray-dried to yield a fine white powder. Larch tree powdered extract is an important ingredient in Defend & Resist Complex.

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**Lemon Bioflavonoids** (see **Citrus Bioflavonoids**)

**Lemon Powder** (see **Citrus Fiber Blend**)

**L-Leucine** (naturally derived)

Leucine is a branched-chain amino acid, nutritionally essential to humans. Dietary sources of leucine include protein-rich foods like milk, soy, poultry, and beef. It is produced by protein hydrolysis followed by purification and crystallization steps. Leucine is a key ingredient in the Cinch™ Shake Mix and Cinch™ Bars.

**Licorice Extract** (natural)

Licorice (*Glycyrrhiza glabra*) is a shrub, with graceful feathery foliage and spikes of small yellowish or purplish flowers, native to Southeast Europe and Southwest Asia. The extract is prepared from the cleaned and dried roots and rhizomes which contain mainly glycyrrhizin and naturally occurring sugars. The roots are crushed and boiled, and the decoction is filtered, concentrated and spray-dried to a powder form. Licorice extract is an important herbal ingredient in Menopause Balance Complex\*.

**Licorice Root Powder** (natural)

Licorice root (*Glycyrrhiza glabra* and *Glycyrrhiza uralensis*) is cultivated in China, India, Pakistan, and the Middle East. The rhizomes and roots of licorice are cleaned, dried, and milled into a fine powder. Licorice root is known for its characteristic sweet taste. *Glycyrrhiza glabra* is the species used most often in European herbal formulas; it is one of the herbs in Herb-Lax®.

**Lipase** (natural)

Lipase is an enzyme derived from a plant source (*Rhizopus oryzae*) by the natural process of fermentation. The enzyme is purified by filtration or centrifugation. It is then concentrated, dried under a vacuum, and temperature-controlled to preserve its activity. Lipase helps break down fats in foods to its smaller components, fatty acids, and glycerol. Lipase enzyme is an ingredient in EZ-Gest®.

**Locust Bean Gum** (natural)

Locust bean gum, also called carob gum, is obtained from the seeds of the Mediterranean-grown locust tree (*Ceratonia siliqua*). After removal of the husk, the endosperm or gum-containing part of the seed is ground into a fine powder. Locust bean gum is a key dietary fiber in Shaklee Fiber Plan®.

**Lutein and Zeaxanthin** (natural)

Lutein and zeaxanthin are naturally occurring dark-yellow carotenoid pigments abundant in plants such as yellow and dark-green leafy vegetables, pumpkins, and corn. The commercial extract is prepared from marigold flowers (*Tagetes erecta*). The marigold oleoresin is extracted, washed, and centrifuged to form a refined oleoresin, which is then hydrolyzed and filtered to remove the noncarotenoid components. The free lutein and zeaxanthin are standardized and suspended in vegetable oil. Lutein and zeaxanthin are key ingredients in CarotoMax®.

**Lutein and Zeaxanthin Esters** (natural)

Lutein and zeaxanthin are naturally occurring pigments that fall under the dark-yellow class of carotenoids called xanthophylls. Xanthophylls are abundant in plants such as yellow and dark-green leafy vegetables, pumpkins, and corn. In nature, lutein and zeaxanthin occur freely (not bound) or in the ester form (bound to fatty acids). The commercial lutein ester extract is prepared from marigold flowers (*Tagetes erecta*), which are dried, milled, and extracted. The resulting xanthophyll-ester mixture is then purified, concentrated and standardized for lutein and zeaxanthin content by suspension in vegetable oil. Lutein and zeaxanthin esters are hydrolyzed to free lutein and zeaxanthin by the body for absorption. Lutein and zeaxanthin esters are key ingredients in the Caroto-E-Omega capsule in Vitalizer™ Dietary Supplement.

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### **Lycopene (natural)**

Lycopene is a naturally occurring red carotenoid pigment found in vegetables and fruits such as tomatoes, watermelon, and pink grapefruit. Shaklee lycopene is produced via an extraction process from selected ripe tomatoes bred and cultivated for high lycopene content. Lycopene is a key ingredient in Shaklee CarotoMax® and in the Caroto-E-Omega capsule in Vitalizer™ Dietary Supplement.

## **M**

### **Magnesium Carbonate (natural, mineral salt)**

Magnesium carbonate powder is prepared from naturally occurring dolomite and saltwater brine. Magnesium is an essential mineral that works with calcium to help muscles contract and relax; it also aids in the transmission of nerve impulses. As a component of many enzymes in the body, magnesium plays an important role in the synthesis of proteins and in the maintenance of genetic material within cells. Magnesium is an important constituent of bone.

### **Magnesium Citrate (natural, mineral salt)**

Magnesium citrate is prepared by combining magnesium salt with citric acid, an organic acid (see **Citric Acid**). Magnesium is an essential mineral that works with calcium to help muscles contract and relax. It also aids in the transmission of nerve impulses, plays an important role in the synthesis of proteins and is an important constituent of bone matrix. Magnesium citrate is one of the three sources of magnesium in OsteoMatrix® and VitalMag®.

### **Magnesium Gluconate (natural, organic acid bound)**

Magnesium gluconate is prepared by combining a magnesium salt with gluconic acid, an organic acid produced by the fermentation of glucose from corn (*Zea mays*). Magnesium is an essential mineral that works with calcium to help muscles contract and relax; it also aids in the transmission of nerve impulses. As a component of many enzymes in the body, it plays an important role in the synthesis of proteins and in the maintenance of genetic material within cells. Magnesium is an important constituent of bone.

### **Magnesium Oxide (natural, mineral salt)**

Magnesium oxide is a powder made by combining a magnesium chloride solution with calcium oxide. Magnesium is an essential mineral that works with calcium to help muscles contract and relax, and in the transmission of nerve impulses. As a component of many enzymes in the body, it plays an important role in the synthesis of proteins and in the maintenance of genetic material within cells. Magnesium is an important constituent of bone. Magnesium oxide is one of the three magnesium sources in OsteoMatrix® and VitalMag®.

### **Malic Acid (naturally derived)**

Malic acid is a naturally occurring organic acid that provides the tartness to many fruits, particularly green apples. It is manufactured by combining and hydrating maleic and fumaric acids. It possesses a slight apple flavor and is used as a flavoring agent that can be used to mask certain bitter tastes and give foods a tart flavor. Malic acid also has antioxidant properties. It is used as a flavoring agent in Cinch™ Lemon Cranberry Snack Bar and Cinch™ Pomegranate Energy Tea Mix.

### **Malt and Barley Extract (see **Barley Malt Extract**)**

### **Malt Powder (natural)**

Malt powder is made from barley (*Hordeum vulgare*) that has been malted (sprouted and dried), and ground into a powder. The enzymes found naturally in malted barley break down starch into simple carbohydrates, such as dextrans and maltose. Malt powder serves as a natural means of adding sweetness and enhancing the flavor of products.

### **Maltodextrin (natural)**

Maltodextrin is a carbohydrate made from the partial breakdown of starch present naturally in corn (*Zea mays*). The partial breakdown produces glucose polymers of varying chain lengths. The solution is filtered, spray-dried, and prepared into a powder. Because the starch is only partially broken down, it has a bland taste and a very low level of sweetness. Maltodextrin serves as a source of carbohydrate in food and nutritional products, a natural means for binding tablet ingredients together, and as a carrier for vitamins, minerals, and natural flavors and colors.

### **Maltose (natural)**

Crystalline maltose is a simple carbohydrate made from the enzymatic breakdown of the starch naturally present in corn (*Zea mays*). The solution that results is filtered, spray-dried, and prepared into a crystalline powder. Less sweet than sucrose, maltose serves as a natural sweetener in Defend & Resist Complex.

### **Manganese Gluconate (natural, organic acid bound) Manganese Sulfate (natural, mineral salt)**

Manganese gluconate is prepared by combining a manganese compound, such as manganese sulfate, with gluconic acid, an organic acid produced by the fermentation of glucose from corn (*Zea mays*). Manganese sulfate is prepared by combining a manganese salt with sulfuric acid. Manganese is an essential mineral that is a constituent of many enzymes in the body, including the antioxidant enzyme, superoxide dismutase (SOD). Manganese functions in the formation of connective tissue and bone and is important for normal growth and reproduction.

### **Mannitol (naturally derived)**

Mannitol is naturally present in a variety of plants. It is found in seaweeds and in the honey-like fluid that seeps from the bark of the manna tree (*Fraxinus ornus*). Mannitol in Shaklee products is produced by the hydrogenation, purification, and crystallization of corn syrup (see **Corn Syrup**). Mannitol imparts a sweet, cooling sensation in chewable tablets such as Chewable Cal Mag Plus and Vita-Lea® Ocean Wonders®. Mannitol also serves as a natural means for binding ingredients together in tablets.

### **Marine Lipid Concentrate, Ultrapure (naturally derived)**

Omega-3 fatty acids are an important component of human nutrition and carry many health benefits, especially in the area of cardiovascular health and cognitive function. The richest dietary source of the omega-3 fatty acids eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) is deep water, fatty fish. Our pharmaceutical grade, marine lipid concentrate is derived from whole, small fish (such as sardine, herring, mackerel, and anchovy) primarily harvested from the cold pristine waters off the coast of Chile. The oil is separated from the fish and undergoes a series of state-of-the-art concentration and purification steps including molecular distillation. Ultrapure marine lipid concentrate is a key ingredient in OmegaGuard® and in the Caroto-E-Omega capsule in Vitalizer™ Dietary Supplement.

### **Matcha Green Tea Powder (natural)**

Matcha tea is a distinctive type of green tea traditionally used in Japanese tea ceremonies. It is produced from the same species as black, white, and green tea (*Camellia sinensis*), but it is made using a unique process and the finest fresh leaves. The leaves are protected from sunlight for several weeks prior to collection to enrich chlorophyll content. They are hand-picked, steamed, dried, and then ground to a very fine powder. Matcha tea is prepared using the whole powder to retain more nutrients in the leaves including fiber, minerals, and antioxidants. Matcha green tea powder is a key ingredient in Cinch™ Energy Tea Mix.

### **Medium-chain Triglycerides (natural)**

Medium-chain triglycerides (MCTs) are fatty acid esters of glycerol containing from six to 12 carbon atoms. They are derived from coconut and palm kernel oils due to their high content of the 12 carbon fatty acid, lauric or dodecanoic acid. The oils are hydrolyzed to medium-chain fatty acids and glycerol. Unlike most natural oils of animal or vegetable origin, MCTs are stable, resistant to oxidation, and metabolized by the body differently. They are rapidly absorbed from the small intestine and quickly converted by the body and burned as energy. As a result, very little ingested MCTs are deposited in the body as fat. MCTs are used in all three flavors of Cinch™ Snack Bars.

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### **Microcrystalline Cellulose (natural)**

Microcrystalline cellulose is a gum-like material purified from hydrolyzed cellulose derived from the hardwood pulp of trees. Used as a natural means for binding tablet ingredients together, it also assists with the disintegration of tablets by helping them break apart when they come in contact with the fluid environment of the digestive tract.

### **Milk Protein Isolate (natural)**

Milk protein isolate is a bioavailable protein isolated from pasteurized, nonfat milk by coagulation — a process involving lactic acid-producing microorganisms and the enzyme, rennet. The milk protein is cooked, washed, and dried to form a powder. Milk protein isolate imparts a mild flavor and smooth mouth feel, and aids in the mixing of powdered drinks.

### **Milk Thistle Extract (natural)**

Milk thistle (*Silybum marianum*) is an annual or biennial plant native to the Mediterranean region, now widely found on most continents. Various preparations of the plant, especially the seeds, have been used for over 2,000 years. Silymarin contains a mixture of isomeric flavonolignans found in the seeds. Almost all seeds used to produce milk thistle extract are now cultivated. The seeds are first ground and then put through an extraction process under controlled temperature conditions. The extract is filtered and then further concentrated and dried under vacuum. It is then combined with acacia gum to make a free-flowing, granular powder. Milk thistle extract is the key herbal ingredient in Liver DTX® Complex.

### **Mixed Tocopherols, Mixed Tocopherol Concentrate (natural)**

Mixed tocopherols is a blend of vitamin E forms (alpha, beta, gamma, and delta tocopherols) naturally present in soybean oil. It provides the entire spectrum of tocopherols as they exist in nature. Mixed tocopherols help neutralize free radicals that can cause cell damage. Gamma tocopherol is a nutrient associated with colon health.

### **Modified Food Starch (naturally derived)**

Modified food starch is made from starch obtained from potatoes (*Solanum tuberosum*) and has been modified for use in tableted products. Modified food starch assists with the disintegration of tablets by helping them break apart when they come in contact with the fluid environment of the digestive tract. It is also used as a carrier for some natural, powdered flavor ingredients.

### **Molybdenum Yeast (natural, protein/amino acid bound)**

Molybdenum yeast is a natural source of organically bound molybdenum. It is prepared by growing nutritional yeast cells (*Saccharomyces cerevisiae*) in a molybdenum-rich medium. Molybdenum is incorporated into the protein structure of the yeast cells, which are harvested and dried. As an essential trace mineral, molybdenum is a component of many enzymes in the body and is necessary for normal growth and development.

*Note: The nutritional yeasts used in Shaklee products are not active and they cannot grow in the body. They serve solely as a source of natural nutrition.*

## **N**

### **N-acetylcysteine (naturally sourced)**

N-acetylcysteine is derived from the sulfur-containing amino acid, cysteine, then acetylated to produce a compound shown to promote detoxification, to act as a potent antioxidant, and to serve as a precursor to glutathione in the body. It is a key ingredient in Cholesterol Regulation Complex and Vita-Lea Gold®.\*

### **Natural Flavors** (natural)

Natural flavors are the essential oils, essences, or extracts that contain flavoring constituents derived from fruits, vegetables, spices, herbs, and other plant sources. No animal or dairy-derived flavors are used in Shaklee products. Flavor components are prepared through processes including heat, fermentation, extraction, and concentration. Depending on the flavor and its product application, a flavor may be in liquid or powder form. Some natural flavors used by Shaklee may be placed on a carrier such as maltodextrin (see **Maltodextrin**), dextrose (see **Dextrose**), and food gums. Natural flavors impart, create, or enhance the desired flavor and taste characteristics in Shaklee food and nutritional products.

### **Niacin (Niacinamide)** (scientifically formulated)

Niacinamide is formed when nicotinic acid is reacted with ammonia to produce the amide form of niacin. Niacin is a water-soluble B vitamin and functions in the body as a component of coenzymes that are essential for the release of energy from carbohydrates, fats, and proteins. Niacinamide is the form used in all Shaklee nutritional products that contain niacin as an ingredient.

### **Nickel** (see **Trace Mineral Rice Protein Hydrolysate**)

### **Nonfat Dry Milk** (natural)

Nonfat dry milk is made by evaporating the water from pasteurized nonfat milk. The concentrate is then spray-dried to produce a powder. It is a natural source of highly bioavailable protein and calcium. Nonfat dry milk is used in Shaklee® Meal Shakes.

## **O**

### **Oat Bran** (natural)

Oat bran is derived from the high-fiber bran layer of oats (*Avena sativa*). Oats are harvested, cleaned, and dehulled to produce oat groats. The groats are cut and milled into small particles. The bran particles are separated from the flour and then ground. Oat bran serves as a natural source of water-soluble dietary fiber in Shaklee Fiber Plan® Daily Crunch.

### **OptiCarb®** (see **Exclusive Shaklee Ingredient Complexes**)

### **Orange Bioflavonoids** (see **Citrus Bioflavonoids**)

### **Orange Powder** (see **Citrus Fiber Blend**)

## **P**

### **Palm Oil** (natural)

Palm oil is a natural oil derived from the fruit of the oil palm (or red palm) (*Elaeis guineensis*) or from the meat of the nut of the coconut palm (*Cocos nucifera*). It contains no cholesterol and no trans fats. Palm/coconut oil is a key ingredient in the triple layer encapsulation technology that protects the probiotics used in Optiflora® Complex.

### **Palm Oil Carotenes** (natural)

Palm carotene is a suspension of natural mixed carotenoids extracted and purified from the fruit of the red palm (*Elae-sis guineensis*). It contains a naturally occurring mixture of carotenoids, predominantly beta carotene and alpha carotene, which are precursors of vitamin A. It contains no cholesterol and no transfatty acids. Palm oil from the fruit of the palm is physically and chemically different from palm kernel oil, which is derived from the seed, and from coconut oil. Carotenoids are extracted from the crude palm oil, and then concentrated, purified, standardized, and suspended in vegetable oil. Palm carotene is a key ingredient in CarotoMax®.

### **d-Panthenol (scientifically formulated)**

d-Panthenol is a bioavailable liquid form of the B vitamin, pantothenic acid. It is formulated from biochemical building blocks, including compounds such as d-pantolactone and beta-alanine. Pantothenic acid is a water-soluble B vitamin required for the metabolism of carbohydrates, fats, protein, and the synthesis of cholesterol, phospholipids, and certain hormones. d-panthenol serves as a source of pantothenic acid in Liqui-Lea®.

### **Passion Flower Extract (natural)**

Passion flower (*Passiflora incarnata*) is native to the United States and grows in southern states from Virginia to Florida and west to Texas. The herbal extract is made from dried flowers by percolation. The liquid extract is spray-dried into a powder. Traditionally, the flower has been a popular ingredient in both European and American herbal formulas. The extract is used as an ingredient in Gentle Sleep Complex\*.

### **Peanut Butter (natural)**

Peanut butter is made by roasting, blanching, grinding, and milling peanuts (*Arachis hypogaea*) into a creamy consistency. Peanut butter is a natural source of plant protein and has an appealing nutty flavor. It is used in the Cinch™ Snack Bars. (There is peanut butter listed in all three flavors).

### **Peanut Flour (natural)**

Peanut flour is made from raw peanuts (*Arachis hypogaea*) that are cleaned, blanched, and pressed to remove over half of their natural oil, then ground into a flour. Defatted peanut flour is a natural source of plant protein with an appealing nutty flavor, and is used in Cinch™ Peanut Butter Crunch Snack Bars.

### **Pectin (natural)**

Pectin is a natural plant gum extracted from apple (*Malus sylvestris*) pomace (the pulp that remains after the juice has been pressed from apples) or citrus fruit peels. Pectin is a water-soluble dietary fiber that thickens and forms a gel when mixed with water. It is a key dietary fiber in Shaklee Fiber Plan and Shaklee Fiber Plan® Daily Crunch.

### **Peppermint Ginger Herbal Blend (see [Exclusive Shaklee Ingredient Complexes](#))**

#### **Peppermint Leaf Extract (natural)**

Peppermint leaf (*Mentha piperita*) is an herb grown in the Pacific Northwest and in Europe. The leaves are harvested, milled, and ground, then a concentrated liquid is extracted from the leaves by percolation. It is purified and spray-dried to form a powder. Traditionally, peppermint has been valued for its use in herbal formulas.

#### **Peppermint Leaf Powder (natural)**

Peppermint leaf (*Mentha piperita*) is an herb grown in the Pacific Northwest and in Europe. Its green leaves are gathered during the plant's flowering period. The leaves are dried, sifted, and prepared into a fine powder. A natural source of aromatic menthol, the herb is popular for its pleasant minty flavor and scent. Traditionally, peppermint has been appreciated for its value in herbal formulas and is an ingredient in Stomach Soothing Complex\*.

#### **Peppermint Oil (natural)**

Peppermint oil is steam-distilled from the leaves and stems of the peppermint plant (*Mentha piperita*). Menthol is a natural constituent of the oil, and its minty aroma and taste make it a popular natural flavor. Traditionally, peppermint and its oil have been appreciated for their value in herbal formulas and are ingredients in Stomach Soothing Complex\* and other select Shaklee products.

#### **Plantain Seed Extract, Asian (natural)**

Asian plantain seeds (*Plantago asiatica*) come from a plant similar to that which produces psyllium seeds. It is not related to the plantain fruit, which is a cousin to the banana. The Asian plantain is a small herbaceous plant that grows in the lowlands and woods of Japan, Korea and China. The extract derived from the seed is an ingredient in the MACH™ proprietary blend of interferon-boosting plant extracts in Shaklee NutriFeron®.\*

\*These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.

### **Polygala Extract (natural)**

*Polygala tenuifolia*, also known as Chinese senega root, is an herb that has been used in traditional Chinese medicine. The herb has been used traditionally as a heart and kidney tonic, for calming the spirit, and for absent-mindedness, poor memory, and mental disorientation. The roots are cleaned, ground, and extracted with water and ethyl alcohol, then concentrated, filtered, and spray dried, resulting in a final product that is roughly five times as concentrated as the original root. Polygala extract is a key ingredient in Memory Optimizer®\* capsules.

### **Polyglycerol Dioleate (naturally derived)**

Polyglycerol dioleate is a liquid made from oleic acid, a naturally occurring fatty acid found in vegetable oil. As a solubility enhancer, it acts to make coenzyme Q<sub>10</sub> (see **Coenzyme Q<sub>10</sub>**) more soluble in oils. Along with glyceryl palmitostearate, polyglycerol dioleate increases the bioavailability of coenzyme Q<sub>10</sub> in CoQ Heart®.

### **Pomegranate Extract (natural)**

The pomegranate (*Punica granatum*) is a fruit bearing shrub or small tree native to the Middle East and India and has been used as food and medicine since ancient times. The pomegranate fruits are washed, extracted, concentrated, and spray-dried to a fine powder. Pomegranate extract is an ingredient in the Cinch™ Pomegranate Tea Mix.

### **Potassium Chloride (natural, mineral salt)**

Potassium chloride occurs in nature as the mineral salt, sylvite. Potassium chloride crystals are obtained when sylvite ore is dissolved in hot water, then vacuum-chilled. The crystals are purified through a process of filtering and recrystallization. Classified as an electrolyte, potassium helps maintain a normal balance and distribution of fluid throughout the body. It works with other electrolytes to regulate blood pressure and heart rate, and is necessary for muscle contraction and nerve transmission.

### **Potassium Citrate (natural, mineral salt)**

Potassium citrate is the potassium salt of citric acid (see **Citric Acid**). It is produced by neutralizing a water solution of citric acid using potassium carbonate or potassium bicarbonate, and then crystallizing the potassium citrate. Potassium citrate is used in CitriBoost® as a buffering and alkalizing agent that helps to reduce the acidity of orange juice or other acidic juices.

### **Potassium Iodide (natural, mineral salt)**

Potassium iodide is a bioavailable source of the essential mineral iodine and is prepared by combining hydriodic acid or hydrogen iodide with potassium bicarbonate. Iodine is an essential trace element that is a component of hormones produced by the thyroid gland. These hormones help regulate the rate of metabolism, growth, reproduction, nerve and muscle function, and the use of oxygen in the body.

### **Pro-Carbo Complex® Crispie (see **Exclusive Shaklee Ingredient Complexes**)**

### **Protease Enzymes (natural)**

Proteases are enzymes derived from a plant source (*Aspergillus oryzae*) by the natural process of fermentation. The enzymes are purified by filtration or centrifugation. They are then concentrated and dried under a vacuum and temperature-controlled to preserve their activity. Protease consists of three enzymes that are active at different pH ranges. The proteases help break long protein chains into smaller fragments and liberate amino acids that can be absorbed. Protease enzymes are an ingredient in EZ-Gest®.

### **Prune Powder (natural)**

Prune powder is made from the dried fruit of the plum tree (*Prunus domestica*). The prunes are specially prepared into a fine powder. Prune powder serves as a natural means of adding sweetness and enhancing flavor in Gentle Sleep Complex\*.

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### **Psyllium Husk (natural)**

The husk, or outer seed coat, of whole psyllium seeds (*Plantago ovata*) is ground and sifted to create a psyllium powder. Psyllium is a water-soluble dietary fiber that thickens when mixed with liquid. It is a key dietary fiber in the collection of Shaklee Fiber Plan® products.

### **Pumpkin Seed Extract (natural)**

Pumpkin plant (*Cucurbita moschata*) is native to North America, but it is cultivated worldwide. The commonly consumed seeds contain phytosterols, tocopherols (of the vitamin E family), and trace elements. It is an ingredient in the MACH® proprietary blend of interferon-boosting plant extracts in NutriFeron®.\*

### **Pumpkin Seed Oil (natural)**

Pumpkin seed oil is a dark, greenish-brown oil derived from pressing the seeds of the common pumpkin (*Cucurbita pepo*). The constituents of pumpkin seed oil include tocopherols (vitamin E), as well as phytosterols. It serves as an ingredient in Saw Palmetto Complex.

### **Purified Water (natural)**

Purified water is drinking water that has undergone a process such as reverse osmosis or ion-exchange treatment, in order to reach an acceptable standard of purity. Purified water serves as a liquid medium in Liqui-Lea®.

### **Purple Corn Extract (natural)**

Purple corn (*Zea mays*) is the same species as the white and yellow corn common to the U.S. It is a native crop in the Peruvian Andes, and it gains its deep purple color from its rich content of phenolic compounds, including the dark-red and purple-colored anthocyanins. The extract is made from the cob, which is boiled to extract the active components in liquid form. The liquid is then concentrated, dried, and standardized for anthocyanin content. Purple corn extract is a key ingredient in Cinch™ Boost Proprietary Thermogenic Blend, which is part of the Cinch™ 3-in-1 Boost™ Dietary Supplement.

### **Pyridoxine Hydrochloride (scientifically formulated)**

Pyridoxine hydrochloride is a bioavailable form of the water-soluble B vitamin pyridoxine, or vitamin B<sub>6</sub>. It is formulated from biochemical building blocks, including the amino acid, alanine. Vitamin B<sub>6</sub> is involved in the metabolism of carbohydrates, fats, and proteins. Also, vitamin B<sub>6</sub> is involved in the manufacture of most protein-related compounds, including enzymes, hormones, hemoglobin, and neurotransmitters.

## **Q**

### **Quercetin (natural)**

Quercetin is an important bioflavonoid that is widespread in the plant kingdom, especially in fruits and vegetables, and in beverages such as tea and wine. Quercetin is commercially extracted from several plants including the Brazilian Favieria tree (*Dimorphandra mollis*). The Favieria seed pods are extracted to produce rutin, another flavonoid, which is hydrolyzed to form raw quercetin. The material is then dissolved, filtered, crystallized, and dried to a pure, powdered form. Quercetin is an ingredient in FlavoMax®, and in Vitamin B+C Complex in Vitalizer™ Dietary Supplement.

## **R**

### **Red Cabbage Extract**

Red cabbage extract is derived from a species of cabbage (*Brassica oleracea*) primarily found in Japan and selected for its anthocyanin content, a group of natural blue, violet, and red plant pigments. The cabbage is cleaned and a thick liquid extract is prepared from the plant, which is spray-dried onto maltodextrin (see **Maltodextrin**) to form a powder. It serves as a natural vegetable coloring in Vita-Lea® Ocean Wonders® tablets.

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### **Red Clover Extract (natural)**

Red clover (*Trifolium pratense*) is a perennial herb, with triple leaflets and rose-purple flowers, native to the meadows of Europe and naturalized in North America. The extract is made from the dried flowers, stems, and leaves, which provide isoflavones (a class of phytoestrogens) such as biochanin and formononetin. The extract is filtered, concentrated, and spray-dried into a powdered form. Red clover extract is an important herbal ingredient in Menopause Balance Complex\*.

### **Reishi Mushroom Extract (natural)**

Reishi mushroom (*Ganoderma lucidum*) is a woody fungus that is widely cultivated in southern China and has thousands of years of historical use. Major components include triterpenes and ganoderic acid. The raw fungus is sorted by hand, then washed, sun-dried, and chopped. An extract is produced from the dried material in a process that removes essential oils. The essential oils are reintroduced, creating an herb paste that is then spray-dried. Reishi mushroom extract is an ingredient in Liver DTX® Complex.

### **Resveratrol (natural)**

Resveratrol is a compound with antioxidant properties, which is found in red and purple grapes and mulberries. It is also extracted from the root of an herb (*Polygonum cuspidatum*) traditionally used in Japan and China, and considered to be one of the richest sources of resveratrol. Resveratrol is an ingredient in CoQHeart, of which one serving provides the amount typically found in a glass of red wine.

### **Rhubarb Root Powder (natural)**

Rhubarb root (*Rheum palmatum* or *Rheum officinale*) is grown in China and Tibet. The roots are harvested, dried, and ground into a fine powder. Rhubarb root, traditionally valued for its use in herbal formulas, is an ingredient in Herb-Lax® tablets.

### **Riboflavin (naturally derived)**

Riboflavin is the scientific name for water-soluble vitamin B<sub>2</sub>. Riboflavin is made from the simple carbohydrate ribose, which is derived from the fermentation of starch from corn (*Zea mays*). Riboflavin is required for the metabolism of carbohydrates, amino acids, and fats. It also functions in the development and maintenance of nerves and red blood cells.

### **Riboflavin-Phosphate Sodium (naturally derived)**

Riboflavin is the scientific name for vitamin B<sub>2</sub>. Riboflavin-phosphate sodium is a more water-soluble form of riboflavin. It is prepared by combining riboflavin (see **Riboflavin**) with a phosphorus-containing compound. Riboflavin is required for the metabolism of carbohydrates, amino acids, and fats. It also functions in the proper development and maintenance of nerves and red blood cells. Riboflavin-phosphate sodium is the source of riboflavin in Liqui-Lea® and Vita-Lea® Infant Mix.

### **Rice Bran Powder (natural)**

Rice bran is the nutritious layer of the whole-grain brown rice (*Oryza sativa*) located between the hull and endosperm. It is obtained when whole brown rice is dehulled, and the bran layer is carefully removed. The rice bran is milled into a powder and provides a natural source of B vitamins.

### **Rice Protein Concentrate (natural)**

Rice protein concentrate is a natural nonallergenic protein derived from whole grain brown rice. It is produced from the entire kernel of brown rice, using natural enzymes that digest the carbohydrate portion and leave the protein intact. Rice protein concentrate is an ingredient used in Cinch™ Shake Mix.

### **Rooibos Red Tea Extract (natural)**

Rooibos (red) tea (*Aspalathus linearis*) is a native plant exclusive to the Cedarburg Mountain region of South Africa and has been used traditionally for over 300 years by the Khoikhoi natives. The name rooibos (pronounced “roy boss”) is a Dutch word meaning “red bush”. The name comes from the color of the leaves after fermenting. Commercially the leaves and stems are cleaned, extracted, and then concentrated and dried. Rooibos red tea has a mild, sweet fruity taste and is rich in polyphenolic antioxidants. Rooibos red tea extract is a key ingredient in Cinch™ Energy Tea Mix.

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### **Rose Hips Powder (natural)**

Rose hips powder is made from the select ripened and dehydrated rose hips fruit of *Rosa cania*, or related species. The dried rose hips are ground into a fine powder and sifted. Rose hips are among nature's most concentrated sources of natural vitamin C and include other constituents, such as carotenoids and flavonoids. Rose hips powder is an ingredient in Chewable Vita-C® vitamin C supplements, Sustained Release Vita-C® 500 mg tablets, and Vita-Lea® tablets.

### **Rosemary Extract (natural)**

Rosemary extract is obtained from rosemary leaves (*Rosmarinus officinalis*). The extract is concentrated by distillation and mixed with vegetable oil to form an oil extract. Also, it can be dispersed onto maltodextrin (see **Maltodextrin**) to form a powder. Rosemary extract, along with mixed tocopherols (see **Mixed Tocopherols**) and ascorbyl palmitate (see **Ascorbyl Palmitate**), are the components of ShakleeGuard®, a unique, patented, natural antioxidant system used in Menopause Balance Complex\*, GLA Complex, and Garlic Complex tablets. Powdered rosemary extract is an ingredient in Mental Acuity Plus®.\*

## **S**

### **Safflower Extract (natural)**

Safflower (*Carthamus tinctorius*) is a thistle-like flower in the sunflower family that is grown primarily for its seed and oil. It is one of the world's oldest crops. The extract is produced from the brilliant red flowers, which are cleaned, extracted with ethanol, and freeze dried to a powder. Safflower extract is a key patent-pending ingredient in Pain Relief Complex\*.

### **Safflower Flower Extract (natural)**

Safflower (*Carthamus tinctorius*) is native to southern Asia. The flowers contain components like carthamin and carthamone. It is an ingredient in the MACH® proprietary blend of interferon-boosting plant extracts in NutriFeron®.\*

### **Saw Palmetto Extract (natural)**

Saw palmetto (*Serenoa repens*) is a dwarf palm that grows over wide areas of the southeastern United States. It produces a green-yellow oblong berry, up to one inch long, which turns bluish to black when ripe. Shaklee saw palmetto extract is produced from dried saw palmetto berries, using a process known as supercritical fluid extraction. The highly concentrated extract is standardized to contain 85–95% fatty acids and phytosterols. Saw palmetto extract is a key ingredient in Saw Palmetto capsules.

### **Schizandra Extract (natural)**

Schizandra (*Schizandra chinensis*) is a climbing, aromatic tree with white or reddish flowers that is native to northern China and eastern Russia. The extract of the fruit, contains a number of lignans. Ripe schizandra berries are dried and the components are extracted from the dried fruit. The extract is concentrated and spray-dried. Schizandra extract is an important ingredient in Liver DTX® Complex.

### **Sea Kelp Powder (natural)**

Sea kelp powder is produced from kelp plants (*Ascophyllum nodosum* or *Macrocystis pyrifera* and related species) grown in the ocean. The kelp is harvested, dried, and ground into a powder. Sea kelp is a natural source of iodine and other trace minerals.

### **Selenium Protein Hydrolysate (see Trace Mineral Rice Protein Hydrolysate)**

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### **Selenium Yeast (natural, protein/amino acid bound)**

Selenium yeast is a natural source of organically bound selenium. It is prepared by growing nutritional yeast cells (*Saccharomyces cerevisiae*) in a selenium-rich medium. Selenium is incorporated into the protein structure of the yeast cells that are then harvested and dried. An essential trace mineral, selenium functions as a component of the antioxidant enzyme, glutathione peroxidase. This selenium-dependent enzyme helps neutralize free radicals.

*Note: The nutritional yeasts used in Shaklee products are not active and they cannot grow in the body. They serve solely as a source of natural nutrition.*

### **Senna Leaf Powder (natural)**

Senna leaf (*Cassia angustifolia*) is an herb that grows in India. Senna leaves are harvested, dried, and ground into a fine powder. The leaves have been valued for their natural laxative properties for more than 3,500 years. The phytochemicals natural to senna leaf, called sennosides, have stimulant laxative properties useful for the relief of occasional constipation. Sennosides act by stimulating peristalsis leading to elimination. Senna leaf powder is an ingredient in Herb-Lax® tablets.\*

### **Sesame Oil (natural)**

Sesame oil is a natural vegetable oil obtained from the seed of one or more varieties of *Sesamum indicum*. Sesame seeds are dried, cleaned, crushed, and the oil is extracted and purified. Sesame oil is a natural source of polyunsaturated fatty acids, including the essential fatty acid, linoleic acid. Sesame oil is used as a carrier for the fat-soluble vitamins in Shaklee Liqui-Lea®.

### **ShakleeGuard® (see Exclusive Shaklee Ingredient Complexes)**

### **Silicon Dioxide (natural mineral)**

Silicon is one of the most abundant mineral elements on the earth's surface. Silicon dioxide is prepared by combining silicon tetrachloride, hydrogen, and oxygen in a high-temperature flame. Silicon dioxide is widely distributed in foods such as whole grains, vegetables, and beans. Silicon is most concentrated in the body in actively growing portions of bone.

### **Sodium Alginate (natural)**

Sodium alginate is the sodium salt of alginic acid, which are forms of algin, a natural plant gum extracted from the cell walls of brown seaweed such as the giant kelp *Macrocystis pyrifera*. Sodium alginate is a component of the enteric coating system for the Caroto-E-Omega softgel in Vitalizer™ Dietary Supplement.

### **Sodium Chloride, Salt (natural, mineral salt)**

Sodium chloride (salt) occurs naturally, and when consumed in proper quantities, it is vital to good health. Sodium is important for regulating water volume of the body, maintaining body pH, and essential to muscle contraction and nerve transmission disease. This ingredient is also used to enhance the flavors of food. Sodium chloride is an ingredient used in Cinch™ Shake Mixes.

### **Sodium Citrate (naturally derived)**

Sodium citrate is the trisodium salt of citric acid (see **Citric Acid**). It is produced by neutralizing a water solution of citric acid using sodium hydroxide or sodium carbonate, and then crystallizing the trisodium citrate. Sodium citrate is used as a source of the essential mineral sodium in Shaklee Performance® Sports Drink Mix.

### **Sorbitol (naturally derived)**

Sorbitol is a naturally sweet compound present in a variety of plants, including fruits such as ripe berries, cherries, and apples. It is also found in seaweeds and algae. Sorbitol is commercially produced by the hydrogenation of dextrose syrup (see **Dextrose**). It can be concentrated into a liquid form or further concentrated and crystallized into a powder form. Sorbitol is used as a natural sweetener in Liqui-Lea® and some chewable tablets.

### **Soy Crisps (natural)**

Soy crisp is a crunchy form of isolated soy protein (see **Soy Protein Isolate**). It is made from high quality soy isolate and small amounts of tapioca starch and salt. This ingredient is used as a protein source that also provides a crunchy texture in Cinch™ Bars.

### **Soy Fiber (natural)**

Soy fiber is obtained from flakes of hulled and defatted soybeans (*Glycine max*). The insoluble carbohydrate and other components of soybean are separated from the protein portion of the legume and prepared into soy fiber. Soy fiber serves primarily as a source of water-insoluble dietary fiber in Shaklee Fiber Plan® Tablets and Shaklee Fiber Plan® Daily Crunch™.

### **Soy Isoflavone Concentrate (natural)**

Soy isoflavone concentrate is isolated from soybeans (*Glycine max*) that are rich in two major isoflavones, genistein and daidzein. The soybeans are hulled, flaked, defatted, and extracted to produce soy protein concentrate, plus soy molasses. The sugars are then removed from the molasses, leaving a concentrated isoflavone solution, which is spray-dried into a powder form. Soy isoflavone concentrate is a key ingredient in Menopause Balance Complex\*.

### **Soy Lecithin (natural)**

Soy lecithin is obtained from natural soybean oil. Soybeans (*Glycine max*) are hulled, crushed, and the soybean oil is extracted. Through centrifugation of the oil, lecithin is separated. The lecithin undergoes further modifications to produce a variety of liquid and granular forms. Soy lecithin is a natural source of the essential fatty acid, linoleic acid, and the nutrients, choline (see **Choline Bitartrate**) and inositol (see **Inositol**). As an emulsifier, lecithin helps to blend fat and water-based ingredients together. In powdered products, lecithin helps the powder disperse quickly when mixed with liquids.

### **Soy Protein Hydrolysate (naturally derived)**

Hydrolyzed soy protein is a food ingredient that is produced by binding naturally occurring soy protein, specially treated to produce smaller peptide fragments, with soy phospholipids to enhance the natural cholesterol lowering properties of soy. The protein is isolated from soybeans (*Glycine max*) and hydrolyzed, using a protease or protein-cleaving enzyme. The phospholipids are enzymatically isolated from soy lecithin and bound to the protein hydrolysate, which is then homogenized and spray-dried. It is the key ingredient in Cholesterol Regulation Complex\*.

### **Soy Protein Isolate (natural)**

Soy protein isolate is a highly concentrated and bioavailable protein obtained from soybeans (*Glycine max*). Soy protein is obtained from defatted soy flour, which is prepared by the removal of carbohydrate, fat, and fiber from soybeans. The soy protein is extracted, precipitated, washed, neutralized, and dried into a powder form. Soy protein isolate serves as a source of quality vegetable protein in a variety of Shaklee products containing soy protein, including Energizing Soy Protein, and Cinch™ Shake Mixes and Bars.

### **Soybean Oil (natural)**

Soybean oil is extracted from soybeans (*Glycine max*). It is a natural source of polyunsaturated fatty acids and the essential fatty acid, linoleic acid. Soybean oil serves as an ingredient in Shaklee Lecithin and Vita-E® 400 IU tablets.

### **Spearmint Oil (natural)**

Spearmint oil is steam-distilled from the leaves and stems of the spearmint plant (*Mentha spicata*). Shaklee uses spearmint grown in the northwestern region of the United States. Its minty aroma and taste make spearmint a popular natural flavor. Traditionally, spearmint and its oil have been valued for their use in herbal formulas. Spearmint oil is an ingredient in Shaklee Alfalfa Complex.

### **Spinach Powder (natural)**

Spinach powder is made from fresh spinach leaves (*Spinacia oleracea*). The leaves are washed, trimmed, diced, dried, and ground into a fine powder. Spinach powder is a natural ingredient used in the base of Shaklee Iron plus C Complex.

### **Spirulina Powder (natural)**

Spirulina powder is produced from the blue-green microalgae (*Spirulina pacifica*) grown in ocean water. The algae is cultivated, harvested, screened, washed, dried, and then prepared into a powder. Spirulina contains a number of nutrients and natural compounds such as carotenoids, protein, trace minerals, and chlorophyll. Spirulina is a key component in the Vita-Lea® tablet coating, providing its natural green color.

### **St. John's Wort Extract (natural)**

St. John's wort (*Hypericum perforatum*) is an aromatic perennial that is native to Europe and western Asia. St. John's wort extract is prepared from the aerial parts of the plant, which are gathered during the flowering season. A liquid extract of the herb is prepared by percolation of the ground, clean herb, which is concentrated and spray-dried into powder form. The powdered herbal extract must meet a guaranteed level of total hypericin, a group of phytochemical compounds that occur naturally in St. John's wort herb. St. John's wort extract is a key ingredient in MoodLift® Complex\*.

### **Stevia Leaf Powdered Extract (natural)**

Stevia (*Stevia rebaudiana*) is a perennial herb native to Brazil and Paraguay, and known for its sweet-tasting leaves. The extract is prepared from the leaves, which are rich in compounds called steviosides. It is then purified by filtration and crystallized. Stevia leaf powdered extract is an ingredient in Defend & Resist Complex and Vita-Lea® Ocean Wonders®.

### **Sunflower Lecithin (natural)**

Sunflower lecithin is obtained from natural sunflower oil. Seeds of the sunflower (*Helianthus annuus*) are hulled and crushed, and sunflower oil is extracted. Through centrifugation of the oil, sunflower lecithin is extracted. Lecithin is a natural source of the essential fatty acid, linoleic acid, and the nutrients, choline (see **Choline Bitartrate**) and inositol (see **Inositol**). As an emulsifier, lecithin helps to blend fat and water-based ingredients together. In powdered products, lecithin helps the powder disperse quickly when mixed with liquids. Sunflower lecithin is the source of lecithin used in the Cinch™ Whey Protein Blend Shake Mix.

### **Sunflower Oil (natural)**

Sunflower oil is a pale-yellow oil derived by milling the seeds of sunflowers (*Helianthus annuus*). Sunflower oil is a natural source of the essential fatty acid, linoleic acid. Sunflower oil is an ingredient in GLA Complex.

## **T**

### **Tapioca Starch (natural)**

Tapioca starch is a form of starch derived from the cassava plant (*Manihot esculenta*), a woody shrub extensively cultivated in South American countries for its starchy tuberous root, which is very rich in carbohydrates. The large roots are peeled and then ground into flour, soaked in water, and squeezed dry several times. Tapioca starch is made by purifying the starchy cassava root flour. Tapioca starch is used in Cinch™ Bars as a binder for the soy protein crisp.

### **L-Taurine (natural)**

Taurine is a bioavailable sulfur amino acid formulated from biochemical building blocks, including sodium sulfite. It is then purified and dried into a white powder. The main dietary sources of taurine are meats and fish. It is also produced in the body where it functions as an antioxidant, and in detoxification and cell membrane stabilization\*. Taurine is a component of Glucose Regulation Complex\* and a key component of the Cinch™ Energy Tea Mix.

### **L-Theanine** (scientifically formulated)

L-theanine is formulated from biochemical building blocks, including l-glutamine. It is an amino acid found naturally, and almost exclusively, in tea (*Camellia sinesis*), where it constitutes about 1–2% of the dried leaves. Green tea is second only to water as the most consumed beverage worldwide. L-theanine is a key component of Stress Relief Complex\*.

### **Thiamine Hydrochloride** (scientifically formulated)

Thiamin is the scientific name for water-soluble vitamin B<sub>1</sub>. Thiamine hydrochloride is the hydrochloride salt of thiamin and is a very water-soluble form. It is formulated by combining the biochemical building blocks, pyrimidine and thiazole. Thiamin is required for the metabolism of carbohydrates, proteins, fats, and nucleic acids; it is also required for the normal functioning of all cells in the body.

### **Thiamine Mononitrate** (scientifically formulated)

Thiamin is the scientific name for water-soluble vitamin B<sub>1</sub>. Thiamine mononitrate is the mononitrate salt of thiamin. This form of thiamin is produced by dissolving thiamin hydrochloride (see **Thiamine Hydrochloride**) in an alkaline solution and reconstituting it with nitric acid. Thiamin is required for the metabolism of carbohydrates, proteins, fats, and nucleic acids, and for the normal functioning of all cells in the body.

### **Tin** (see **Trace Mineral Rice Protein Hydrolysate**)

### **Titanium Dioxide** (natural mineral)

Titanium occurs naturally in iron-containing mineral ores. After the iron content is removed, the enriched mineral fraction is treated with acid and heated to form the pure oxide of titanium. Due to its opaque, intense white color, titanium dioxide is widely employed as a safe, nonirritating natural pigment or coloring compound. Titanium dioxide is used to imprint the product name on the outer shell of CorEnergy® capsules and as an opacifier in other Shaklee products..

### **Tocopherol** (see **d-Alpha Tocopherol** and **Mixed Tocopherols**)

### **Tocopherols and Tocotrienols, Mixed** (natural)

Mixed tocopherols and tocotrienols are mixtures containing all eight forms of vitamin E (alpha, beta, gamma, and delta tocopherols and alpha, beta, gamma, and delta tocotrienols) isolated and purified from vegetable oils such as soybean oil and rice bran oil. The mixtures provide the entire spectrum of tocopherols and tocotrienols as they exist in nature. Mixed tocopherols and tocotrienols not only help neutralize free radicals that can cause cell damage. Recent research has also shown that all of these compounds in the vitamin E family have important, yet distinct physiological roles.

### **Tocotrienols** (see **Tocopherols** and **Tocotrienols, Mixed**)

### **Torula Yeast** (natural)

Torula yeast is a nutritional yeast (*Candida utilis*) and a natural source of B vitamins. It is prepared by growing yeast cells in media containing simple carbohydrates, such as molasses and corn syrup. The yeast cells are harvested, cleaned, filtered, and dried. Torula yeast is an ingredient used in the base of B-Complex tablets.

*Note: The nutritional yeasts used in Shaklee products are not active and they cannot grow in the body. They serve solely as a source of natural nutrition.*

### **Trace Mineral Rice Protein Hydrolysate (natural, protein/amino acid bound)**

Trace mineral rice protein hydrolysate is a trace mineral-protein complex. It is produced by enzymatically hydrolyzing rice protein and then combining the resulting peptides (small protein fragments) with the following trace minerals: chromium, molybdenum, nickel, selenium, tin, and vanadium.

**Chromium** is an essential trace mineral that works with insulin to facilitate the uptake of blood glucose into cells.

**Molybdenum** is an essential trace mineral that is a component of several enzymes in the body, and necessary for normal growth and development.

**Nickel** is a trace mineral that is present in the genetic material, RNA, and DNA.

**Selenium** is an essential trace mineral that functions as a component of the antioxidant enzyme, glutathione peroxidase.

**Tin** is a trace mineral that is found naturally occurring in many foods of plant and animal origin, and scientists are still investigating its role in human nutrition.

**Vanadium** is a trace mineral found in food such as whole grains and believed to play a role in regulating normal insulin function.

### **Tricalcium Phosphate (natural, mineral salt)**

Tricalcium phosphate is a bioavailable form of the essential minerals, calcium, and phosphorus. It is produced by combining phosphoric acid (made from acidified phosphate rock) and calcium oxide (made from natural limestone). Calcium is necessary for the development and maintenance of healthy bones and teeth, blood clotting, muscle contraction, and conduction of nerve impulses. Phosphorus is second only to calcium as the most abundant mineral in the body. In fact, about 85% of it is found combined with calcium in bones and teeth. Phosphorus serves as a natural buffer in blood, a component of genetic material in cells, and it plays many key roles in cellular metabolism. In addition to its role as a source of calcium and phosphorous, tricalcium phosphate can also aid the flowability of powdered products.

### **Trisodium Phosphate (natural, mineral salt)**

Trisodium phosphate is a white crystalline powder prepared by combining phosphoric acid with sodium carbonate and sodium hydroxide. Commonly used in food systems as a buffering agent, it is used in Shaklee Fiber Plan® Daily Crunch™ to enhance flavor and texture.

### **Turmeric Extract and Oleoresin (natural)**

Turmeric (*Curcuma longa*) is an herb of the ginger family that is native to southern Asia and cultivated extensively in India, China, Indonesia, and other tropical countries. Turmeric contains a natural yellow-colored plant pigment called curcumin. Dried turmeric rhizomes are ground and made into a soluble powder. Turmeric serves as a natural vegetable color in select Shaklee products. Turmeric extract is an ingredient in Liver DTX® Complex.

### **L-Tyrosine (natural)**

L-tyrosine is an amino acid derived from sugar beets (*Beta vulgaris*) molasses. Sugar is extracted from the beet, and L-tyrosine is separated from the sugar mixture using ionic column separation. Produced in the body, L-tyrosine is needed for the manufacture of many important compounds, including the neurotransmitters norepinephrine and epinephrine. L-tyrosine is a component of Stress Relief Complex\*.

## **U**

No listing under "U".

## V

### **Vanadium Amino Acid “Chelate” (natural, protein/amino acid bound)**

Vanadium amino acid complex is prepared by reacting the trace element with amino acids and peptides (small protein fragments) derived from soy (*Glycine max*) and rice (*Oryza sativa*) under controlled temperatures. The mixture is then milled and dried. Found in foods such as whole grains, vanadium is a trace mineral that is believed to play a role in regulating normal insulin function. It is a component of Glucose Regulation Complex\*.

### **Valerian Root Extract (natural)**

Valerian root (*Valeriana officinalis*) is commercially grown in Holland and other European countries. Valerian root extract is prepared from dried valerian roots that have been coarsely ground and washed. A liquid extract of the herb is prepared by percolation, concentrated into a paste, and spray-dried. The spray-dried herbal extract must meet a guaranteed level of valerenic acid, a phytochemical compound that occurs naturally in valerian roots. Traditionally, valerian root has been valued for its use in herbal formulas, and the extract is a key ingredient in Gentle Sleep Complex\*.

### **Vinpocetine (naturally sourced)**

Vinpocetine is derived from the alkaloid compound vincamine, which can be extracted from the aerial parts of the lesser periwinkle plant (*Vinca minor L*) or derived from the seeds of the voacanga tree (*Voacanga Africana*) from the West African rainforests. Vinpocetine is a clinically supported memory-enhancing dietary ingredient that has been shown to have antioxidant, vasodilating and neuroprotective effects. The extracted vincamine is a precursor for the active compound vinpocetine, which is concentrated, purified, dried, and milled to a fine powder. Vinpocetine is a key ingredient in Memory Optimizer®\* capsules.

### **Vitamin A Acetate, Vitamin A Palmitate (scientifically formulated)**

Vitamin A acetate and vitamin A palmitate are two bioavailable forms of vitamin A that are formulated from biochemical building blocks. Vitamin A acetate is constructed from beta-ionone and the organic acid, acetic acid. Vitamin A palmitate is made by combining vitamin A acetate with the fatty acid, palmitic acid. Vitamin A is an essential fat-soluble vitamin required for healthy skin and skeletal development, and for normal vision.

### **Vitamin B<sub>6</sub> (see Pyridoxine Hydrochloride)**

### **Vitamin B<sub>12</sub> (naturally derived)**

Vitamin B<sub>12</sub> also known as cyanocobalamin, is one of the water-soluble B vitamins. It is produced naturally by yeast fermentation. Vitamin B<sub>12</sub> functions in the metabolism of carbohydrate, protein, and fat. It is also involved in the synthesis of genetic material within cells, and the maintenance of the protective sheath around nerve fibers.

### **Vitamin C (see Ascorbic Acid)**

### **Vitamin D<sub>3</sub> (naturally derived)**

Vitamin D<sub>3</sub>, also known as cholecalciferol, is a bioavailable form of vitamin D. Shaklee uses a vitamin D<sub>3</sub> source that is derived from cholesterol extracted from the natural fat found in lambs wool. It is the same form of vitamin D formed in human skin through exposure to natural sunlight. Vitamin D is an essential fat-soluble vitamin that promotes the absorption of calcium and phosphorous for proper formation of healthy bones and teeth.

### **Vitamin E (see d-Alpha Tocopherol and Mixed Tocopherol Concentrate)**

### **Vitamin K (scientifically formulated)**

Vitamin K, also known as phytonadione, is a bioavailable form of the fat-soluble nutrient, vitamin K. It is the same form of vitamin K (vitamin K<sub>1</sub>) found in green plants. Phytonadione is constructed from the biochemical building blocks of phytol, derived from chlorophyll and a naphthoquinone. Vitamin K is important to the clotting of blood and the synthesis of a bone-building protein called osteocalcin.

\*These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.

## W

**Water** (see **Purified Water**)

**Wheat Germ Flour** (natural)

Wheat germ flour is made from freshly milled wheat germ (*Triticum durum* or *Triticum aestivum*). It has a nut-like flavor and is recognized as a natural source of vitamin E. Wheat germ flour is a natural ingredient in the base of Shaklee Vita-E® 400 IU tablets.

**Whey Protein Concentrate** (natural)

Whey protein concentrate is a concentrated and bioavailable source of protein from milk. Whey protein is precipitated from milk to separate it from casein (another milk protein), milk fat, and lactose. Whey protein concentrate is used to improve the ability to blend and compress the beet, citrus, and soy fiber sources used in Shaklee Fiber Plan® tablets.

**Whey Protein Isolate** (natural)

Whey protein isolate is a concentrated and bioavailable source of protein from pasteurized milk. Whey protein is precipitated from milk to separate it from casein (another milk protein), milk fat, and lactose. As a result, whey protein isolate is 99% lactose free. Whey protein isolate imparts a mild flavor and smooth mouth feel, and aids in mixing of powdered drinks. Whey protein isolate is used in Shaklee Physique® Workout Maximizer Supplement, Cinch™ Whey Protein Blend Shake Mix, and the Cinch™ Chocolate Decadence Snack Bar.

**White Tea Extract** (natural)

White tea is made from the same species as green and black teas (*Camellia sinensis*), but the leaves are picked and harvested before they are fully open. When harvested, these buds are still covered by the fine white hair from which the tea derives its name. The young leaves are immediately steamed to prevent oxidation and then dried. White tea has a lighter and sweeter flavor than green tea, and it has the same healthful polyphenols but in greater amounts. White tea extract is a key ingredient in Cinch™ Energy Tea Mix.

## X

**Xanthan Gum** (naturally derived)

Xanthan gum is a natural gum obtained by microbial fermentation from the microorganism, *Xanthomonas campestris*. After fermentation, xanthan gum is precipitated, dried, and ground into a powder. Xanthan gum is a natural thickening and emulsifying agent in Shaklee Meal Shakes and Shaklee Physique® Workout Maximizer Supplement.

**Xylitol** (naturally derived)

Xylitol is a naturally occurring five-carbon sugar that belongs to the class of sugar alcohols. It is found in many fruits and vegetables and is even produced by the human body itself. It is as sweet as sucrose but with 40% fewer calories. Xylitol is derived from renewable sources such as birch wood. Numerous studies have shown that xylitol can help reduce the incidence of dental cavities. Xylitol is a key ingredient in Vita-Lea® Ocean Wonders® chewable multivitamin/multimineral supplement for children.

## Y

**Yellow Beeswax** (see **Beeswax**)

## Z

**Zeaxanthin** (see **Lutein**)

**Zeaxanthin Ester** (see **Lutein ester**)

**Zinc Gluconate** (natural, organic acid bound)

Zinc gluconate is prepared by combining a zinc compound with gluconic acid, an organic acid produced by the fermentation of glucose from corn (*Zea mays*). Zinc is an essential trace mineral that is a component of over 70 different enzymes in the human body, whose functions range from making the genetic materials, DNA and RNA, to helping with the metabolism of fatty acids, amino acids, and protein. It is part of one of the body's natural antioxidant enzymes, superoxide dismutase (SOD). Zinc is also involved in bone metabolism and normal immune function.

**Zinc Glycinate** (natural, protein/amino acid bound)

Zinc glycinate is a bioavailable source of the essential mineral zinc. It is made by binding zinc obtained from the mineral salt, zinc sulfate, with the amino acid, glycine. Zinc is an essential trace mineral that is a component of over 70 different enzymes in the human body, whose functions range from making the genetic materials, DNA and RNA, to helping with the metabolism of fatty acids, amino acids, and protein. It is part of one of the body's natural antioxidant enzymes, superoxide dismutase (SOD). Zinc is also involved in bone metabolism and normal immune function.

**Zinc Oxide** (natural, mineral salt)

Zinc oxide is prepared by boiling zinc that has been refined from zinc ore to form a zinc vapor. The vapor is oxidized, using a heated-air process, to create zinc oxide powder. Zinc is an essential trace mineral that is a component of over 70 different enzymes in the human body, whose functions range from making the genetic materials, DNA and RNA, to helping with the metabolism of fatty acids, amino acids, and protein. It is an essential part of one of the body's natural antioxidant enzymes, superoxide dismutase (SOD). Zinc is involved in bone metabolism and normal immune system functions.

# Exclusive Shaklee Ingredient Complexes

## Bio-Build®

Bio-Build® is a unique sports nutrition ingredient designed by Shaklee research scientists. It is made by blending dextrose (glucose), maltodextrin, milk protein isolate, and whey protein isolate (**see each ingredient in glossary**). Bio-Build's unique blend of carbohydrates and protein has been clinically proven to help athletes recover after exercise by triggering the secretion of insulin into the bloodstream. Insulin, the body's natural recovery hormone, promotes the uptake of carbohydrate and amino acids into muscle and other cells. Bio-Build is the key ingredient complex in Shaklee Physique® Workout Maximizer Supplement, formulated for strength and endurance athletes.

## OptiCarb®

OptiCarb® is a unique sports nutrition ingredient complex designed by Shaklee research scientists. It is made by blending maltodextrin, fructose, and glucose (**see each ingredient in glossary**). OptiCarb's unique blend of three carbohydrate sources is designed to provide immediate and sustained energy for endurance in an easy-to-absorb form. It is a key ingredient complex in Shaklee Performance® Maximum Endurance Sports Drink Mix.

## Peppermint-Ginger Herbal Blend (natural)

Peppermint-Ginger Herbal Blend is a unique blend of peppermint leaf (*Mentha piperita*), fennel seed (*Foeniculum vulgare*), anise seed (*Pimpinella anisum*), and ginger root (*Zingiber officinale*) powders (**see each ingredient in glossary**) developed by Shaklee research scientists. It is the key herbal ingredient in Stomach Soothing Complex\*.

## ShakleeGuard®

ShakleeGuard® is a unique antioxidant system developed and patented by Shaklee research scientists. It contains a synergistic blend of the antioxidant nutrients — ascorbyl palmitate (vitamin C), mixed tocopherol concentrate (vitamin E), and rosemary extract (**see each ingredient in glossary**). ShakleeGuard® is used as an ingredient in Menopause Balance Complex\* and GLA Complex to ensure full product potency by protecting its nutrients against oxidation.

# General Terms

In the preceding glossary, we've used some of the following general terms to describe specific ingredients in Shaklee nutritional and herbal products.

## Carotenoid

A group of yellow, orange, and red plant pigments present in a wide variety of fruits and vegetables.

## Casein

Principle protein of cow's milk.

## Cellulose

Constitutes the chief part of the cell walls of plants; occurs naturally in fibrous plants, e.g., cotton.

## Emulsifier

An agent used to create an emulsion (e.g., a stable mixture of oil and water).

## Free Radical

A highly reactive, unstable compound with at least one unpaired electron. Free radicals can attack cell membranes, enzymes, fats, proteins, and the genes within cells causing damage.

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### **Humectant**

A hygroscopic (see **Hygroscopic**) material that attracts and holds water. Humectants prevent food products from drying out. Glycerin is one of the best known humectants.

### **Hydrolysis**

A chemical reaction in which the breakdown of a substance into two new compounds is due to the addition of one or more molecules of water.

### **Hygroscopic**

Readily taking up and retaining moisture.

### **Lipoprotein**

A lipid (fat)-protein complex that is water soluble. As a result, lipoproteins are involved in the transport of lipids in the blood.

### **Oxidation**

The process of oxidizing. The combining of oxygen with another element to form one or more new substances.

### **Percolation**

The process of extracting soluble portions of a solid material (e.g., a dried herb) by passing a liquid through it.

### **Peristalsis**

Intestinal movement; contractions along the intestinal walls.

### **Phospholipid**

A complex lipid (fat) containing phosphorus. Lecithin is an example of a lipid classified as a phospholipid. Phospholipids are structural components of all living cells.

### **Phytochemical**

A natural chemical from plants (phyto is derived from the Greek word for plant). Relating to the chemistry of plants and plant products.

### **Trace Mineral**

Minerals that are required by the body in only small amounts. Examples of trace minerals include chromium, copper, iodine, iron, molybdenum, selenium, and zinc.