

## Pure Encapsulations White Paper: Definition of Hypoallergenic

According to a study published in the *Journal of the American College of Nutrition*, between 2007 and 2011, the percentage of adult respondents who had used supplements ranged from 64-69 percent. The proportion of regular users who said they take a variety of supplements rose from 28 to 36 percent over the five year period, while the proportion who said they took just a multivitamin fell from 24 to 17 percent (1). At the same time, food allergies and sensitivities are on the rise. According to *Food Allergy Research & Education*, as many as 15 million people have food allergies, including nearly 9 million adults (4 percent of the population) and 6 million children (8 percent of the population) (2). Additionally, in 1997, The United States Department of Agriculture estimated that some 15 percent of the population may be allergic to some food ingredients or ingredient and estimates that 34 million people in the United States have an ingredient sensitivity (3). Most challenging for clinicians, ingredient sensitivity can manifest in subtle ways from mild upset stomach, to a negative mental feeling, to a rash, to the protocol not being effective soon enough; all of which can lead to patient non-compliance.

Pure Encapsulations is a manufacturer of hypoallergenic dietary supplements. Hypoallergenic is classically defined as “having little likelihood of causing an allergic response.”(4) However, neither FDA nor any other regulatory agency has defined hypoallergenic in the context of dietary supplements or foods.

Based on the surrounding scientific context, and given how reasonable consumers are likely to interpret the term, Pure Encapsulations has defined “hypoallergenic” to mean the following:

- Avoiding allergens in the sourcing and manufacturing of dietary supplements
- Avoiding unnecessary binders or fillers in the manufacturing of dietary supplements, as well as other substances commonly avoided by sensitive consumers, such as coatings, shellacs, artificial flavors, artificial sweeteners, and artificial colors
- Screening for environmental contaminants

Pure Encapsulations products that meet the above criteria and do not contain any of the major food allergens are labeled with “hypoallergenic dietary supplement” as the statement of identity on the principal display panel.

### **Avoiding Allergens**

Section 201(qq) of the FD&C Act (21 U.S.C. 321(qq)) defines a major food allergen as “[m]ilk, egg, fish (e.g., bass, flounder, or cod), Crustacean shellfish (e.g., crab, lobster, or shrimp), tree nuts (e.g., almonds, pecans, or walnuts), wheat, peanuts, and soybeans” and also as a food ingredient that contains protein derived from these foods. The definition excludes any highly refined oil derived from a major food allergen and any ingredient derived from such highly refined oil (5).

Pure Encapsulations products do not contain wheat, gluten, nuts or egg. Each ingredient in the Pure Encapsulations inventory must have a documented allergen statement from the supplier detailing any potential allergen contamination. These allergen statements include not only the top 8 major allergens required by FDA to be on the product label, but also other potentially allergenic materials, including corn, sesame, monosodium glutamate (MSG), and others.

To ensure the accuracy of Pure Encapsulations labeling, and the health and safety of individuals with food allergy, sensitivity or intolerance, any ingredient derived from the major allergens milk, fish, shellfish or soy is listed on the label. If a major allergen is present, it is prominently identified on the product label and the term “hypoallergenic” is removed from the statement of identity on the product label.

Ingredients that could potentially come into contact with an allergen during the production process (for example, enzymes or probiotics that are grown on an allergen-containing medium) are submitted for ELISA testing of potential allergen exposure. An exception to this rule is vitamin E derived from highly refined soybean oil, which is not labeled as containing soy. The process of making vitamin E from highly refined soybean oil removes any residual proteins which could cause an allergic response (6). It is considered highly purified and therefore soy is not listed on the label in this case. Similarly, the medium chain triglycerides (MCTs) used in certain products are originally derived from coconut but are also considered highly purified and, therefore, coconut is exempted from labeling.

To ensure that ingredients containing the major food allergens do not contaminate other ingredients or finished products, a strict allergen SOP is in place. The SOP outlines procedures for flagging allergen-containing ingredients, separating these ingredients throughout storage and manufacturing, as well as thorough cleaning of all equipment after handling an allergen-containing material. Additionally, random testing of non-allergen containing products and equipment for the presence of allergens is undertaken monthly to determine no contamination has occurred. Any contamination that is identified is promptly investigated and addressed as a nonconformance. All production and quality employees are trained bi-annually on the safe handling of allergenic materials, products and finished products to avoid cross-contamination.

See:

SOP QAS-048 How to handle allergens at Pure Encapsulations

SOP QAS-046 Testing protocol for Ingredients and Finished products

SOP QAS-032 Qualification of Suppliers

SOP QAS-010 Investigation of NonConforming Product

### **Avoiding Unnecessary Binders, Fillers and Other Substances**

Sensitivities to ingredients in foods and dietary supplements can cause a myriad of reactions from mild upset stomach, to a negative mental feeling, to a rash, to the protocol not being effective soon enough; all of which can lead to patient non-compliance. At Pure Encapsulations, we avoid the use of many of the additives that are considered undesirable by allergy-sensitive individuals or cause sensitivities, such as magnesium stearate, hydrogenated oils, artificial colors and flavors.

Magnesium stearate and hydrogenated oils commonly act as lubricants in the manufacturing process to prevent the material from sticking to the machine, allowing for the machines to be run at higher speeds. At Pure Encapsulations, we design our products to be manufactured without the use of these typical lubricants and instead run our machines at a slower rate, generating less heat and friction so the materials do not stick to the equipment in the manufacturing process. In some cases, Pure Encapsulations uses ascorbyl palmitate, a fat-soluble version of vitamin C, as a hypoallergenic manufacturing process aide. The substitution of ascorbyl palmitate for common additives identified by some consumers as causing sensitivity reactions demonstrates a formulation and manufacturing step taken by Pure Encapsulations to reduce the allergenicity of our products.

Pure Encapsulations uses two-piece hard shell capsules derived from plant cellulose and therefore does not apply any coatings or shellacs as is commonly done with tablets. No artificial flavors are used in any of our flavored products nor are any artificial colors used in any of Pure Encapsulations products.

See:  
Pure Encapsulations Quality Statement

### Screening for Environmental Contaminants

Natural ingredients have the potential to be contaminated from the environment in which they are grown. Herbal products, for example, could be grown in soil that contains heavy metals, pesticide residues or residual solvents.

Pure Encapsulations tests every incoming lot of each raw material for identity to ensure the ingredient received is the one expected and is not adulterated. Pure Encapsulations also tests our raw materials for:

Test	Frequency
Identity	All incoming materials
Microbial contamination	All incoming materials
Pesticides residue from a panel of 70 pesticides	Herbal, marine and animal-derived materials, testing once per year
Solvent residue from a panel of 32 solvents	All ingredients
Heavy metals, including mercury, arsenic, lead and cadmium	All ingredients
GMO DNA	At-risk ingredients
17 dioxins, 12 dioxin-like PCBs and four oxidation markers	All fish oil
Gluten	At-risk ingredients

Pure Encapsulations uses reputable, independent, third-party laboratories to perform these tests. Each laboratory is a specialist in the areas in which they are used and provides the highest level of assurance of accuracy so that we can be confident the materials we utilize are of the highest purity and quality available.

See:  
SOP QAS-049 Identity testing  
SOP QAS-046 Testing protocol for Ingredients and Finished products  
SOP QAS-056 Testing protocol for High Risk Ingredients

Additionally, Pure Encapsulations conducts a monthly test of a finished encapsulated product for allergens to ensure that there has been no cross-contamination during the production process.

In conclusion, Pure Encapsulations defines “hypoallergenic” as avoiding allergens, avoiding unnecessary binders, fillers and other substances, and screening for environmental contaminants in the sourcing and manufacturing of dietary supplement ingredients and products.

References:

1. <http://www.tandfonline.com/doi/full/10.1080/07315724.2013.875423>
2. <http://www.foodallergy.org/document.doc?id=194>
3. <http://www.hi-tm.com/Documents/Allergy.html>
4. Merriam Webster's Dictionary online
5. <http://www.fda.gov/Food/GuidanceRegulation/GuidanceDocumentsRegulatoryInformation/ucm395494.htm>
6. <http://www.fda.gov/Food/GuidanceRegulation/GuidanceDocumentsRegulatoryInformation/Allergens/ucm106890.htm>