**INTRODUCTION:**

Today’s lecithin products are valuable processing aids in food preparation and a wide range of industrial applications. BEHPAK products, including standard, modified refined are derived by extracting and purifying phospholipids from crude soybean oil.

**Behpak Lecithin** is a food grade, bland, light amber, low viscosity, highly filtered, refined fluid. Its solubility in various oils makes it suitable for oil-based, aerosol spray release systems.

**Behpak Lecithin** is a surface-active agent with unique properties for both water- and oil-based application. These products exhibit the properties of being not only water dispersible, but also heat resistance (up to 350° F). Lecithin can modify the boundary layers between many types of substances. When used between solid phases Lecithin acts as a lubricant or release agent. In the presence of two immiscible liquid phases, Lecithin reduces the surface tension and acts as an emulsifier.

**Behpak Industrial Company** as an oil-mill & lecithin & textured soy protein (TSP) producer is located in the north of Iran (Behshahr).

**Behpak** is the sole manufacturer of food grade soy lecithin in Iran. **Behpak Soy Lecithin** is produced in hygienic conditions & follows the Iran & global standard specifications.

**SPECIFICATION:**

*Typical Behpak food Grade Soya Lecithin*

<table>
<thead>
<tr>
<th>Parameters</th>
<th>National Standard</th>
<th>Behpak Lecithin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetone Insoluble</td>
<td>60 Min.</td>
<td>60-65</td>
</tr>
<tr>
<td>Moisture</td>
<td>1.0 Max.</td>
<td>0.3-0.8</td>
</tr>
<tr>
<td>Color (Gardner Scale)</td>
<td>_</td>
<td>12 Max.</td>
</tr>
<tr>
<td>Toluene Insoluble %</td>
<td>0.3 Max.</td>
<td>0.1-0.3</td>
</tr>
</tbody>
</table>
**APPLICATIONS:**
Lecithin has been found useful in a wide variety of food processing and industrial applications. As a food emulsifier, lecithin is used in the manufacture of margarine, vegetable and dairy ones based milk replacers including infant formula, and ready to use frostings. Lecithin is the active ingredient in many food grade release agents such as pan oils, griddle greases, and aerosol coatings. Lecithin is also used to alter viscosity in chocolate products and compound coatings. In bread baking applications, lecithin acts to improve dough machinability, volume, symmetry and shelf life. In crackers, cookies, cakes and pies, lecithin improves shortening dispersion and acts as a release agent.

**Behpak Lecithin** is a natural Soybean Lecithin product suitable for use in foods as well as for industrial purposes. It has multi-functional properties.

Major Functionalities are:
1. Dispersing, Wetting, Emulsifying and Stabilizing Agent
2. Release and Lubricating Agent
3. Foam Suppressant
4. Solubilizing Agent
5. Emulsifier
6. Choline Source

**Behpak Lecithin** conforms to the Food Chemicals Codex.

<table>
<thead>
<tr>
<th><strong>Acid value (mg KOH/g)</strong></th>
<th>32 Max.</th>
<th>27-32</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Peroxide value (M.eq/Kg)</strong></td>
<td>5.0 Max.</td>
<td>0-5</td>
</tr>
<tr>
<td><strong>Viscosity (C.P. @ 25° C)</strong></td>
<td>_</td>
<td>3000-10000</td>
</tr>
<tr>
<td><strong>Total count (CFU)</strong></td>
<td>1000 max.</td>
<td>&lt;100</td>
</tr>
<tr>
<td><strong>Heavy Metals as Lead</strong></td>
<td>40 Max.</td>
<td>20-35</td>
</tr>
<tr>
<td><strong>Lead (ppm)</strong></td>
<td>10 Max.</td>
<td>4-8</td>
</tr>
<tr>
<td><strong>Arsenic (ppm)</strong></td>
<td>3 Max.</td>
<td>Neg.</td>
</tr>
<tr>
<td><strong>Enterobacteriaceae (CFU)</strong></td>
<td>Neg.</td>
<td>Neg.</td>
</tr>
<tr>
<td><strong>Escherichia coli (per 1.0 g.)</strong></td>
<td>Neg.</td>
<td>Neg.</td>
</tr>
<tr>
<td><strong>Salmonella (per 25 g.)</strong></td>
<td>Neg.</td>
<td>Neg.</td>
</tr>
<tr>
<td><strong>Mold (CFU)</strong></td>
<td>50 MAX.</td>
<td>&lt;10</td>
</tr>
<tr>
<td><strong>Yeast (CFU)</strong></td>
<td>50 MAX.</td>
<td>&lt;10</td>
</tr>
</tbody>
</table>

*Physical State: Fluid
* Net weight packing: 55 Kg in polyethylene gallons.
* Customized specification can also be achieved
About Soy Lecithin, can be said it is a Versatile, Functional Material that is derived from Soybean Oil.

Benefits in Uses:
Behpak Soya Lecithin is the phospholipids extracted from the seeds of Glycine max (L.) Meril (Family-Fabaceae) and its preparation in effective dosage. Most performance benefits of lecithin come from the unique surface-active properties of phospholipids. As molecules, phospholipids contain hydrophobic and hydrophilic elements. The hydrophobic portion has an affinity for fats and oils. The hydrophilic portion has an affinity for water. Soya lecithin contains phosphatidyl choline, phosphatidyl ethanolamine and phosphatidyle inositol.

Behpak Soya Lecithin is a clear viscous; pourable liquid with characteristics taste and odor.

Liquid Used As an Emulsifier, Wetting agent, Dispersing agent, Stabilizing agent, Viscosity Reducing agent, Antis pattering agent, Mixing & Blending agents, Release agent, Conditioning, Lipotropic Surface Active agent and as an Emollient and Antioxidant.

It also exerts some physiological effects on humans and animals health. Therefore, it has multiple uses, such as in food and beverages, animal feed, health and nutrition products, cosmetics, and industrial coating. For the majority of these uses, relatively small amount of the lecithin is needed, being often at a level of 0.1% to 2%. At such low levels, the color, flavor, and odor of the lecithin normally are not noticeable.

For edible applications, Behpak Soya Lecithin is normally added to such food products as shortening, margarines, baked goods, chocolate, confectionery coatings, peanut butter, powder mixes, Caramel Corn, Cheese Releases, Non Dairy Creams, Whole Milk Powders, Flavor / Color Incorporation, Meat Sauces and Gravies, Ice Creams, Biscuits, Candy Based Products, Macaroni, Noodles, Salad Oil, Edible Fat and Oils, Spice Oleoresins, Medical Foods.

Lecithin is added to the fat in manufacturing margarines as well as some shortening at levels of 0.1-0.5% in combination with other emulsifiers, usually mono- and diglycerides. In added to margarines, the lecithin prevents “sweeping” or “bleeding” of the moisture present, reduces
spattering during frying, increases the shortening effect for baking, and helps protect the vitamin A in fortified margarine from oxidation.

In baked goods, such as bread, biscuits, crackers, and cakes, shortenings are formulated with lecithin; they become emulsified and are widely used. In this product, lecithin functions as a useful emulsifier. It helps bring about rapid and intimate mixing of the shortening in the dough, improves the fermentation, water absorption, and handling of the dough, gives a more tender and richer product after baking, and prevents baked goods from staling.

In making chocolate, about 0.25-0.35% lecithin is added. It reduces viscosity of chocolate markedly, enables the manufacturer to apply a uniform coating and thus use lesser amounts of expensive cocoa butter, decreases the time for grinding and mixing the various ingredients, and produces a more stable chocolate. Use of lecithin in other fat-containing candies also prevents graining, streaking, and greasing.

In peanut butter, added lecithin, normally at 1-2% levels, gives a smoother, creamier spread that dose not separate under wide temperature variations.

To instant products such as dry milk powder, dry malted milk powder, cocoa mixes, and cake mixes, Lecithin is often added to improve their dispensability and wettability.

In dietetic food, lecithin is a source of choline, which has a physiological role of retarding the aging process of the nervous system.

In addition to edible applications, large amounts of soybean lecithin are used an animal feedstuff. In addition to helping stabilize the product and providing antioxidant properties, the lecithin promotes fat absorption in the digestive system and increases energy efficiency of feed.

Soy lecithin is also widely used in other industries. For example, it may be used as a release agent for the plastics industries, a dispersing agent in paint & inks, antisludge, Additive in motor lubricants an anti gumming agent in gasoline, or an emulsifier, spreading agent, and antioxidant in the textile and rubber industries.
LABELING: Lecithin is generally recognized as safe (GRAS) under 21 CFR 184.1400. Labeling should be "SOY LECITHIN". Behpak Soya Lecithin is Halal approved.

PACKAGING: Standard package size is in 55 gallon, steel, open head drums with a net 55 kilograms.

STORAGE: Storage temperature should be between 60º to 90º F (16º to 32º C). Typical shelf life is approximately 18 months in original unopened container.

NUTRITIONAL DATA FOR BEHPAK SOY LECITHIN

Nutrient Amount per 100 grams
Calories (kcal) 760
Calories from fat (kcal) 621
Total Fat (g) 1 68
Saturated (g) 13
Monounsaturated (g) 12
Polyunsaturated (g) 43
Cholesterol (mg) 0
Sodium (mg) 500
Total Carbohydrates (g) 6
Dietary Fiber (g) 0
Sugars (g) 3
Protein (g) trace
Choline (g) 1.7
Vitamin A (IU) *
Vitamin C (mg) *
Moisture (g) 1
Calcium (mg) 43
Iron (mg) 2
Potassium (mg) 1200
Phosphorus (mg) 2000
Zinc (mg) 1
Manganese (mg) 0
Thiamine (μg) 0.1
Riboflavin (mg) *
Niacin (mg) *
Folic Acid (μm) *
Vitamin E (IU) 14
Vitamin B12 (μg) 0.2
Inositol 2.0

1 Total Fatty Acids expressed as triglycerides.