

Lecithin Information

Production

The first step in refining crude soybean oil is the removal of the phospholipids, or "degumming". Degumming is necessary in order to prevent the separation and settling of gums (sticky, viscous oil-water emulsions stabilized by the phospholipids) during transportation and storage of crude oil. It also reduces oil losses in subsequent phases of refining and helps to avoid excessive darkening of the oil in the course of high-temperature deodorization. Crude oil is mixed thoroughly with a small amount of water and an acid (usually phosphoric acid). "Gums" are formed and precipitated, carrying in the emulsion a certain amount of oil. They are separated by centrifugation, dried under vacuum and bleached. The resulting product consists approximately of 50% phospholipids and 50% oil and has the consistency of honey.

The phospholipid fraction may be separated from practically all the oil by a series of solvent extraction and precipitation processes. Oil free soybean phospholipids are solid. All these by-products of the degumming process are known as "soybean lecithin" and sold under different trade-names and in a variety of quality grades. The principal quality parameters for commercial lecithins are: phospholipid content (measured as percent acetone insolubles), free acidity, non-lipid impurities (measured as hexane insolubles), viscosity and colour. For certain applications requiring an extremely bland lecithin, the phospholipids are separated from the crude soybean oil fraction, purified and then redissolved in any desired type of refined oil.

Lecithins are mainly used in small quantities for their activity at the interface between fats and hydrophilic phases. They act as emulsifiers in sauces and salad dressings, as viscosity reducers and stabilizers in chocolate, as anti-spattering agents in margarine, as pan release agents in bakery and confectionery, as dough improvers and staling retardants in bread, as wetting agents in instant food powders etc. They also have some antioxidant property.

Degumming is usually carried out at the extraction plant, even if the subsequent steps of refining are performed elsewhere. Whenever further processing of the crude gums is not economically feasible, due to insufficient plant scale or insufficient market demand, the crude gums can be added-back to the meal, increasing the bulk and caloric value.

Markets

AAFC reports that lecithin, as a herbal product, had \$2 million worth of sales in Canada in 2003, one of the top 10 herbal product categories.

Naturally, lecithin is most abundant in legumes and animal organ tissues - with eggs yolks being the source of most dietary lecithin.

The US Census Bureau reports that in 2002, production of lecithin in the US was pegged at 106,700 tons (short). Previous year statistics report production at 106,900 in 2001, 102,000 in 2000, 100,000 in 1999 and, 95,000 in 1998. It seems to be somewhat correlated to overall soy oil yield, but does not trend exactly with bean or meal production.

Assuming most US production is utilized domestically, and using the 10% rule of thumb, Canadian usage could be estimated at, at least 9,600 tonnes in 2002.

Price

Estimated prices for soy lecithin, in 5 gallon units, is approximately \$1.60/kg. This product is priced based on demand as the market supply is controlled by the large players. Surplus supplies can easily be moved into feed markets by mixing it back in with meal at the crushing facility.

Nonetheless, the price of lecithin has been on the rise in recent months.

ST. LOUIS, Jan 27, 2005 (BUSINESS WIRE) -- The Solae Company, a leading provider of value-added soy lecithin products, today announced a price increase for its soy lecithin product portfolio ranging between 5 to 12 percent. The price increase is effective March 1, 2005.

Egg based lecithin is significantly more expensive, although also rare and used for specialty applications only.

NOTE:

This paper is for discussion purposes and feedback is welcome.

For additional information please contact Soy 20/20.