



BergaSom

*Purified phosphatidylcholine
from sunflower or soy*



Lecithins are phospholipids, a molecular group whose many functions in the human body make it indispensable. Lecithin's vital importance to the body and unique combination of biological, physiological and technological benefits make it an outstanding, near-natural raw material for the manufacture of high-quality cosmetic products.

Berg + Schmidt is a member of the Stern-Wywiol Gruppe, a company successful around the world in food ingredients and oleochemistry. Lecithins have been part of the company's focus right from the beginning; in fact, company founder Volkmar Wywiol was a world pioneer in the development and marketing of lecithin products.

In our Technology Center in Ahrensburg near Hamburg, Germany, experts from many disciplines work to develop the ideal lecithin for each application. Thanks to extensive research and development work, we have created two new product groups for the production of liposomes and nanoemulsions, for stabilizing emulsions and for skin protection – BergaSom Sun and BergaSom Soy.

Applications

- **Facial care**
- **Body care**
- **Baby care**
- **Hair care**

Phospholipids – natural skin protection

Phospholipids contain energy-rich phosphorous compounds. Phosphorous is essential for the human metabolism and for building biological membranes. This gives lecithin a key role in many biological processes, including the formation and stabilization of cells and mitochondria.

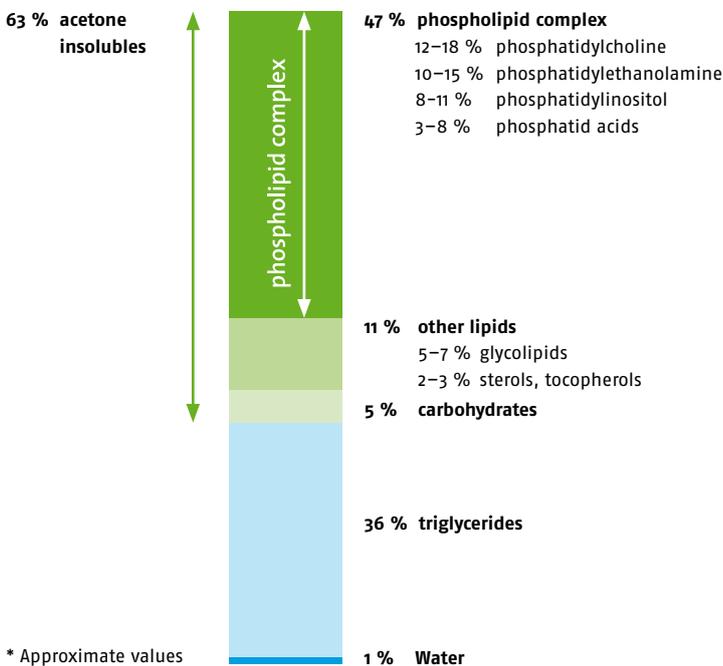
Phosphatidylcholine (PC) is a fraction of lecithin and consists of choline, phosphate, glycerol and two fatty acid chains. It is a natural and fundamental part of all cell membranes. The linoleic acid and choline it contains are important substances that the human body cannot synthesize on its own.

In cosmetics, phosphatidylcholine plays an important role in skin protection.

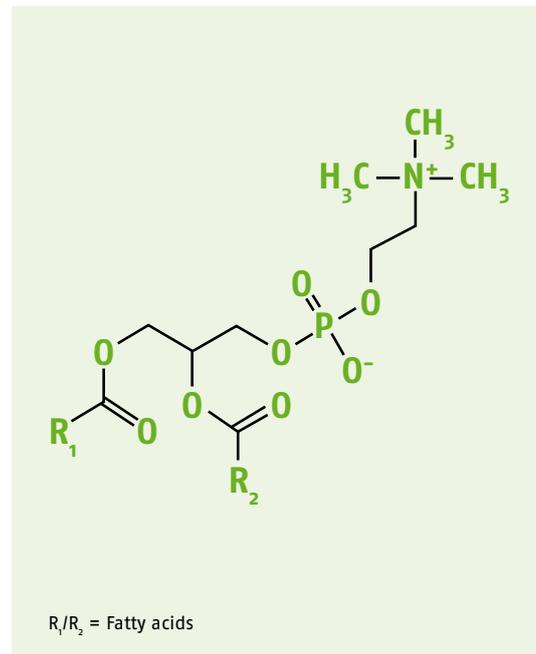
Lecithin's ability to form double layers around water droplets and monolayers around oil droplets allow it to be used in many different formulations, as well as for stabilization purposes.

In addition to soy-based phosphatidylcholine, Berg + Schmidt offers an innovative, highly pure fraction based on sunflower lecithin. The BergaSom product range also includes hydrogenated and non-hydrogenated fractions from both sources.

Composition of standard lecithins*



Typical chemical structure of phosphatidylcholine



BergaSom – phosphatidylcholine

INCI: Lecithin

Advantages of BergaSom

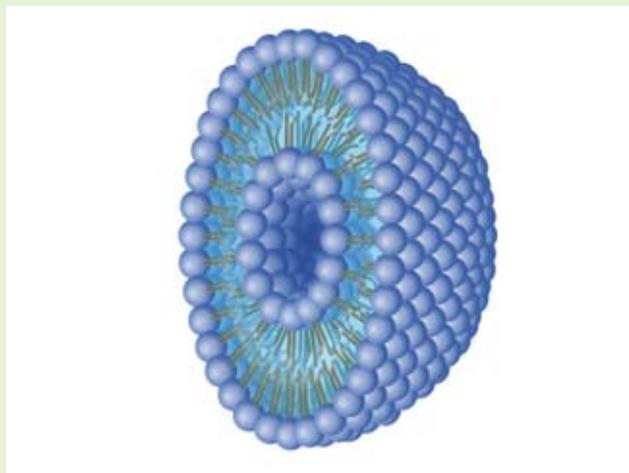
- Beneficial effects on damaged skin (e.g. acne) through high amounts of lineolic acid
- Promotes the formation of ceramides
- Non-comedogenic
- Facilitates absorption of ingredients by improving the skin penetration
- Optimizes the effectiveness of active ingredients (in some cases their amounts can even be reduced)



Applications of BergaSom and BergaSom H

Liposomes*

Liposomes are the most common “transportation system” for sophisticated, sensitive active ingredients used in the cosmetic and pharmaceutical industries. Phosphatidylcholines spontaneously form double membranes. When energy is introduced, spherical vesicles are formed which are then surrounded by the double membranes. This makes it possible to use water-soluble ingredients in the vesicles, or oil-soluble substances between the lipid layers. Thus, with the aid of the liposomes different substances can enter the skin more easily.



Example of liposome manufacturing

- Completely dissolve 10 g BergaSom in 16 g ethanol while agitating (Tip: Adding heat (40–50 °C) saves time)
- Add phosphate buffer (73.35 g water + 0.5 g KH₂PO₄ + 0.15 g NaOH 30%)
- To load liposomes, add the lipophile ingredients into the lipid phase and the hydrophilic ingredients into the water phase
- Stir to a homogeneous mass (e.g. with Ultra-Turrax)
- 3 x high-pressure homogenization at 800 bar

* We recommend BergaSom for the production of liposomes

BergaSom H – hydrogenated phosphatidylcholine

INCI: Hydrogenated Lecithin

To obtain BergaSom H, the double bonds of the fatty acids are hydrogenated. During hydrogenation the unsaturated linoleic acid is converted into saturated stearic acid. In general hydrogenated PC is less subject to oxidation.

Advantages of BergaSom H

- Skin protection (stabilizes the TEWL)
- Improves the stratum corneum
- Oxidation-stable

Nanoemulsions

In nanoemulsions, when the amount of oil is increased and high pressure is applied, the pure phosphatidylcholine forms a simple membrane around the oil droplets instead of a double membrane. These droplets are so small that they can reach the deepest layers of the epidermis. Nanoemulsions require high energy input but no further emulsifiers, so they can be designated “emulsifier-free” depending on regulations in the respective countries.

Oleogel/Lipogel

Oleogels, also called lipogels, are based primarily on water-free formulations and are especially beneficial for very dry problem skin. Due to their high oil content, oleogels need no further emulsifiers or preservatives that require declaration.

The phosphatidylcholine content of these systems improves their skin penetration.

Skin barrier**

High-pressure homogenization of hydrated PC causes the phospholipids to arrange as 2D lamella layers, known as lipid membrane structures. The chemical and physical structure of these layers is similar to that of the lipid membrane skin barrier, and so offers ideal protection.



** Only possible with BergaSom H



BergaSom Soy – Specifications

Hydrogenated
phosphatidylcholine

Product		BergaSom Soy 50	BergaSom Soy 75	BergaSom Soy 90	BergaSom Soy 75H	BergaSom Soy 90H
Parameter	Unit					
Appearance		Paste	Paste	Paste	Powder	Powder
Colour		Yellowish to brownish	Yellowish to brownish	Yellowish	White to yellowish	White to yellowish
Phosphatidylcholine	%	≥ 50	≥ 73	≥ 93	≥ 70	≥ 90
Lyso-phosphatidylcholine	%	≤ 6	≤ 6	≤ 3	≤ 6	≤ 3
Water	%	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2
Ethanol	%	≤ 0.8	≤ 0.8	≤ 0.8	≤ 0.5	≤ 0.5
Acid value	mg KOH/g	≤ 20	≤ 8	≤ 2		
Peroxide value	meq/kg	≤ 10	≤ 10	≤ 5		
Iodine value	gI ₂ /100 g				≤ 3.0	≤ 3.0

BergaSom Sun – Specifications

Hydrogenated
phosphatidylcholine

Product		BergaSom Sun 50	BergaSom Sun 75	BergaSom Sun 90	BergaSom Sun 75H	BergaSom Sun 90H
Parameter	Unit					
Appearance		Paste	Paste	Paste	Powder	Powder
Colour		Brownish	Brownish	Yellowish to brownish	White to yellowish	White to yellowish
Phosphatidylcholine	%	≥ 50	≥ 70	≥ 90	≥ 70	≥ 90
Lyso-phosphatidylcholine	%	≤ 6	≤ 6	≤ 5	≤ 6	≤ 4
Water	%	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2
Ethanol	%	≤ 0.8	≤ 0.8	≤ 0.8	≤ 0.5	≤ 0.5
Acid value	mg KOH/g	≤ 30	≤ 10	≤ 2		
Peroxide value	meq/kg	≤ 10	≤ 10	≤ 5		
Iodine value	gI ₂ /100 g				≤ 3.0	≤ 3.0



The Technology Centre in Ahrensburg near Hamburg

Our expertise, your advantage

BergaSom Soy and BergaSom Sun are high-quality lecithin fractions formulated specifically for cosmetics. They are used in the manufacture of liposomes, nanoemulsions, oleogels and formulations that are physiologically related to the skin, for cosmetic and dermatological products.

In addition to soy-based fractions, with our long experience with food lecithins we also have the expertise to create a wide product range of fractionated sunflower lecithins. With these, our customers can make high-quality formulations that do not contain soy.

We look forward to deploying our knowledge to help you develop new formulations.

Just ask us!

Our full product range and contact addresses in other countries can be found at www.berg-schmidt.de.