

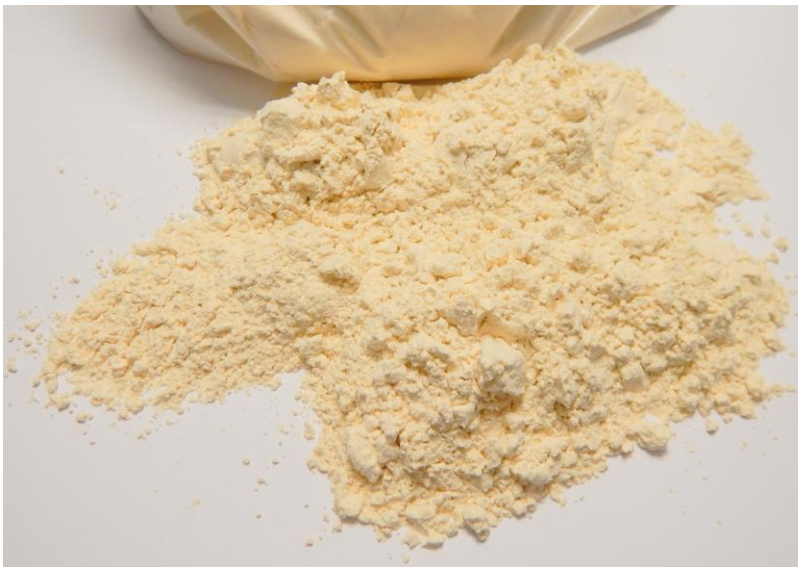


**LetCo**

LIQUID ENERGY TRADING COMPANY SWISS S.A.

***Soy Protein Concentrate***  
**- *Product code LQS-SBZ18SP500P* -**

Advantages of using LQS-SBZ18SP500P in piglet feed



***Key factors***

- ✓ *High protein content*
- ✓ *Low antigenic factors*
- ✓ *Low moisture content*
- ✓ *Produced using soy white flakes, rather than soybean meal*
- ✓ *Non-GMO*
- ✓ *GMP+ certified*

- ✓ *In comparison to many other known soybean protein concentrates (SPCs), the **LQS-SBZ18SP500P** product has an “as is” protein content of at least 62%. Typically, its “as is” protein content is as high as 63% and its “dry basis” protein content as high as 65%. Most other soybean protein concentrates offered on the market have an “as is” protein content of 60% or less.*

***LQS-SBZ18SP500P** can be used to replace dried skim milk, whey powder and fishmeal in animal feed. Its nutritional value is only slightly below that of dried skim milk. The negative influence of dietary soybean meal on the intestinal tract lining of pigs and on the serum antibody titer is not observed when SPC is used.*

- ✓ *Soy white flakes rather than soybean meal are used as the raw material basis for the production of **LQS-SBZ18SP500P**. Using soy white flakes turns the final SPC product into food grade quality.*

*In order to avoid browning reactions in the production of specialty soy proteins, the defatted flakes are not put through the usual desolventiser-toaster process. Instead, the hexane is removed via low heat vacuum drying, which does not alter the functional characteristics of the soybean proteins. This yields the so-called "white flakes". The soluble carbohydrates in the white flakes are then selectively removed using an aqueous alcohol leaching process, which results in the end product, SPC.*

*This processing step not only removes the oligosaccharides but also other anti-nutritional factors (ANFs), such as estrogens and antigenic factors. Oligosaccharides form the majority of the carbohydrate fraction in soybeans. Starch and cellulosic compounds only constitute about 2% and 6% of the carbohydrate fraction respectively. Non-starch oligosaccharides impair digestion (e.g. by causing intestinal cramps, diarrhoea, and flatulence) of the livestock which lacks the digestive enzymes needed to process them.*

*Antigenic factors (glycinin and beta-conglycinin) cause the formation of antibodies in the serum of piglets. These antibodies prevent the proliferation of certain beneficial bacteria in the animal’s gastro-intestinal tract. The use of soybean meal in animal feed therefore poses certain risks, particularly for young livestock.*

*Background: It is well known that raw soybeans contain high levels of anti-nutritional factors and therefore need to be properly processed before being used in animal feed. The manufacturing process for soybean meal can be considered the same across the globe and quality differences are only determined on the basis of protein content. However, in the case of highly processed soy protein (e.g. fermented soy protein and soy protein concentrates*

(SPC)), the picture is very different. Because different production processes are used, commercially available highly processed soy proteins differ not only in terms of protein content, but also in terms of carbohydrate content and the level and activity of heat-stable anti-nutritional factors (ANFs). Heat-stable ANFs, however, are not very well known. The most important heat-stable ANFs are antigens and oligosaccharides. Soy antigens are storage globulins, glycinin and beta-conglycinin. These proteins may escape digestion and are immunogenic in young calves, piglets and in fish. They are also suspected to interfere with intestinal function via immunological mechanisms. Piglets and young calves do not have the enzyme needed to digest soy oligosaccharides. The fermentation of soy oligosaccharides by intestinal bacteria can cause intestinal disorders and diarrhoea. These heat-stable anti-nutritional factors cannot be removed by heat treatment, but can be eliminated by ethanol/water extraction or enzyme treatment. (Source: Yueming Dersjant-Li and Manfred Peisker / Feed Magazine/Kraftfutter 9-10/08)

- ✓ The SPC **LQS-SBZ18SP500P** is characterized by low antigen levels, which is very important for young animal feed – the manufacturer guarantees less than 3 ppm of glycinin and beta-conglycinin. This compares very favourably with other SPC products, some of which have antigen levels in excess of 50 ppm. In some cases, this important parameter (glycinin) isn't even mentioned in the specifications. SPC is clearly different to soybean meal as it contains just traces of oligosaccharides and the antigenic substances glycinin and beta-conglycinin. Therefore it can generally be used in piglet pre-starter feed.
- ✓ Compared to some other SPCs that have a moisture level of 10%, the typical moisture level in **LQS-SBZ18SP500P** is approx. 5-6%.
- ✓ The manufacturer uses only NON-GMO soybeans from controlled cultivation, originated in one country without cross-border buying. The GMO level is therefore in line with EU regulations (<0.9%).
- ✓ Flexibility: the product can be delivered in bulk, big-bags or 25kg bags

**Conclusion:**

*There are various types of soy products. While their value is mainly dictated by their protein content, they can contain high amounts of heat stable anti-nutritional factors, which limits their use in young livestock feed.*

<i>Full fat soybean meal</i>	<i>36% crude protein</i>
<i>defatted soybean meal</i>	<i>44% crude protein</i>
<i>Hi-pro soybean meal</i>	<i>48% crude protein</i>

*Highly processed soy protein products can have low ANF levels if the right processing methods and treatment conditions are used. Classical soy protein concentrate, which is made by ethanol extraction of soy white flakes derived from a low temperature process, is superior to non-classical SPC produced by ethanol/water extraction of soybean meal because of its comparatively low indigestible carbohydrates content and high protein and lysine content.*

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