



PETER GREVEN Your partner for food/feed, pharma & cosmetic additives (FPC)



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Your partner for oleochemicals

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Sustainability and the demand for renewable raw materials are becoming more and more important in many areas. Peter Greven GmbH & Co. KG as a middle-sized family owned company has always produced additives based on renewable raw materials and can look back to a long experience with these raw materials and associated production technologies. This is the basis for the continuous development of new products and customized solutions for various applications.

Our products for the food-, feed-, pharma- and cosmetic industry were produced at our production facility in Venlo, NL. Since many years this site is consequently in line with the requirements of the industries named above:

- Manufactured under GMP conditions
- Production in accordance to HACCP standards
- Kosher and Halal certified
- Meet all major pharmacopoeia (eg Ph.Eur, USP/NF, BP, JP, CP, DAB)
- Meet FDA guidelines for direct food contact (GRAS)
- Compliant with the latest FCC (Food Chemical Codex)
- FSSC 22000 (ISO 22000) certificate
- GMP+B2 certification
- **RSPO** certified

FOOD

Oleochemical additives are part of our daily lives – but we are often not aware that these additives are essential auxiliaries used in the Food and Nutraceutical industry. The food industry has special needs and requirements regarding the use of additives. Therefore our brand LIGAFOOD® offers products, which have been developed according to the food requirements.

Our **LIGAFOOD®** Products are

- manufactured according to HACCP food safety standards
- comply with the FDA regulations for direct food contact (GRAS)
- confirm within the latest Food Chemical Codex (FCC)
- produced with vegetable, renewable raw materials
- free from impurities (e.g., dioxins, pesticides and heavy metals)

Furthermore in 2010, Peter Greven became the first Stearate producer to implement a Food Safety Management System and be awarded **FSSC 22000 (ISO 22000)** at our plant in Venlo, Netherlands. Due to this outstanding production setup, our products are qualified for food industry applications according to the **98/86/EC EG directive of the European parliament** registered in the following section:

E 470a: sodium, potassium and calcium salts of fatty acids
E 470b: magnesium salts of fatty acids





LIGAFOOD® High Quality Additives for Food

New products based on Sustainable Palm Oil (RSPO certified)

For Peter Greven, the sustainability and responsible use of natural resources has always been a fundamental aspect and is firmly established in its corporate philosophy. Therefore, all products are based on natural, renewable raw materials. In addition, we support the sustainable production of palm oil and offer products that are based on sustainable, **RSPO** certified and palm oil based fatty acid.

Peter Greven became an official member of the **RSPO** in 2010. As soon as **RSPO** certified fatty acid (Mass Balance) became available on the market, Peter Greven started all the internal preparations and processes in order to conclude the **RSPO** certification in accordance with SCCS (Supply Chain Certification System) promptly.

In September 2013 Peter Greven became the first metal soap producer to receive the **RSPO** SCCS certificate which officially confirmed the production and distribution of plant-based stearates and dispersions with **RSPO** certified MB fatty acid. This **RSPO** certification is visible by the addition "MB" in the product name.



LIGAFOOD MF-2-V / LIGAFOOD MF-2-K

This precipitated Magnesium Stearate (E470b) is based on vegetable renewable raw materials and is very popular in the food industry due to its fine particles (average particle size D50: 7–11 µm) and its high specific surface area of 6–12 m²/g. It is used as a lubricant for tableting candies and dragees and as a foaming agent or emulsifier in rusks and baking powder. Furthermore LIGAFOOD MF-2-V improves the flowability and continuity with its anti-caking effect in certain hydrophobic powdered foods (e.g. spices and herbs) to extend the shelf life of these powders and mixtures. Due to the specific precipitated production process and the resulting high specific surface area, our LIGAFOOD MF-2-V is very efficient. LIGAFOOD MF-2-K is kosher and halal certified.

LIGAFOOD MF-2-K-MB

This precipitated Magnesium Stearate is based on **RSPO** certified fatty acid (MB). Furthermore this grade is characterised by the same unique properties as LIGAFOOD MF-2-V and is kosher and halal certified.



LIGAFOOD MGV

Our direct processed Magnesium Stearate is based on a vegetable fatty acid and can be used as a lubricant for tableting candies and dragees and as a foaming agent or emulsifier in rusks and baking powder. It improves the flowability and continuity with its anti-caking effect in certain hydrophobic powdered foods (e.g. spices and herbs) to extend the shelf life of these powders and mixtures. LIGAFOOD MGV is kosher and halal certified.



LIGAFOOD MF-3-V / LIGAFOOD MF-3-K

This special product is characterised by the same unique properties as LIGAFOOD MF-2-V and offers additionally a higher specific surface area of 8-12 m²/g and a smaller median particle size (median particle size D50: 5-9 µm). This product is preferred in applications where processing conditions are more critical and very fine excipients or formulations are used. LIGAFOOD MF-3-K is kosher and halal certified.

LIGAFOOD MF-3-K-MB

This precipitated Magnesium Stearate is based on **RSPO** certified fatty acid (MB). Furthermore this grade is characterised by the same unique properties as LIGAFOOD MF-3-V and is kosher and halal certified.



LIGAFOOD CPR-2-V / LIGAFOOD CPR-2-K

Due to its high specific surface area of 5–9 m²/g and its fine particles (average particle size D50: 5–9 µm) this precipitated Calcium Stearate (E 470a) offers excellent conditions as a lubricant for tableting hard candies and dragees. Furthermore, it is widely used as an anti-caking agent, carrier and hydrophobic agent due to its water-repellent characteristics. Same as our LIGAFOOD MF-2-V/K this product is produced by a specific precipitated production process resulting in a high specific surface area and is therefore very efficient. LIGAFOOD CPR-2-K is kosher and halal certified.

LIGAFOOD CPR-2-K-MB

This precipitated Calcium Stearate is based on **RSPO** certified fatty acid (MB). Furthermore this grade is characterised by the same unique properties as LIGAFOOD CPR-2-V and is Kosher and Halal certified.



LIGAFOOD CAV

LIGAFOOD CAV is based on vegetable fatty acids and can be used as lubricant for tableting candies and dragees. Furthermore, it is widely used as an anti-caking agent, carrier and hydrophobic agent due to its water-repellent characteristics. In addition, LIGAFOOD CAV is kosher and halal certified.

PALMSTAR NAV

Our Sodium Stearate is used as a coating agent, emulsifier, release and gelling agent and is indispensable in the food industry. It is used in chewing gum bases, in baker's shortening and as an aid in the preparation of fat free and starch free corn syrups with a low dextrose content.

PALMSTAR KAV

Our Potassium Stearate offers the same properties as our PALMSTAR NAV and is preferred as an alternative in formulations where a low sodium content is required.



LIGAFEED[®] Special Additives for Feed

FEED

Regulations in the feed industry are often as or more strict than that in the food industry. Additives that are used in the feed industry must not only meet the food regulations but also need to comply with the feed regulations. **Calcium, Magnesium, Sodium and Potassium Stearates can be used as feed materials according directive (EU) No. 68/2013.**

To come up to the high requirements in the feed industry we introduced a special product line with the brand name **LIGAFEED[®]**.

Our **LIGAFEED[®]** products:

- were developed especially for the use in feed industry,
- are produced on the basis of purely vegetable raw materials,
- are free from impurities (e.g. dioxins, pesticides and heavy metals),
- meet the requirements of the (animal) feed industry,
- are produced, analysed and stored according to GMP+B2 (2010),
- can be used as alternative for silicone bonded products,
- improve the shelf life of feed products.

In addition to our existing certifications (FSSC / ISO 22000, Kosher, Halal, **RSPO**), we successfully completed the GMP+ certification for the animal feed industry in 2013. GMP stands for Good Manufacturing Practice. In 1992 this was the origin of the GMP+ Feed Certification Scheme. Through integration of requirements regarding the quality management according ISO, HACCP and other parts it was developed to an adequate certification system. The + stands for the integration of HACCP: Hazard Analysis & Critical Control Points. In 1992 this was the origin of the GMP+ Feed Certification Scheme.



Calcium, Magnesium, Sodium and Potassium Stearates are registered as feed materials according directive (EU) No. 68/2013 and can be used as feed materials according directive (EC) No. 767/2009. Our Stearates were used in feed industry as:

- **Anti-caking agent**
- **Carrier**
- **Release agent**
- **Emulsifier**
- **Flowability agent**
- **Water-repellent**
- **Coating agent**
- **Gelling agent**

Fig. 1: Impact of Calcium Stearate on prevention of agglomeration

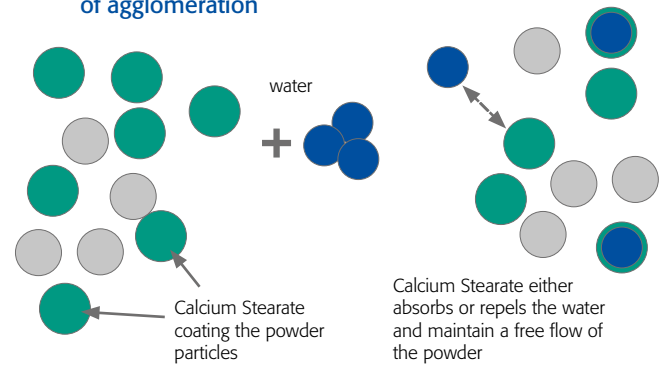


Fig. 2: Impact of Calcium Stearate regarding agglutination

Moisture, mainly in the form of humidity, can wet the surface of the particles in a dry mix or upon storage. Without anti-caking agents the particles will fuse in a hard mass. This has a negative impact on performance, stability and appearance as well as on processing.

Powder with additional anti-caking agent



Powder without additional anti-caking agent



caking



Following products are registered as feed materials according directive (EU) No. 68/2013 in section 13.6.4 as „Salts of fatty acids“:

LIGAFEED CAV

Our precipitated Calcium Stearate (E470a) is used as flowability agent and carrier. Its hydrophobic properties improve stability and flowability of animal feed.

LIGAFEED MGV

Our Magnesium Stearate is mainly used as carrier and flowability agent. Through its hydrophobic properties, stability and flowability of animal feed is improved. It is kosher and halal certified.

PALMSTAR NAV

Our PALMSTAR NAV is an important ingredient used in many feed premixes for its coating and anti-caking properties with powdered blends and as an emulsifier and gelling agent in liquid blends.

PALMSTAR KAV

Our Potassium Stearate offers the same properties as our PALMSTAR NAV and is preferred as an alternative in formulations where a low sodium content is required.

PHARMA

Oleochemical additives are among the most important and extensively used excipients in the pharmaceutical industry. Peter Greven began addressing these high quality requirements many years ago and dedicated one plant to the production of pharmaceutical Stearates with vegetable origin. Our brand name **LIGAMED®** is dedicated

to our high quality additives specifically developed for use in pharmaceutical applications. Information about our premium pharmaceutical stearate product portfolio is listed in our **LIGAMED®** brochure. Supplementary to our high quality pharmaceutical product line **LIGAMED®** we also offer a standard Magnesium Stearate:

PALMSTAR MF-1-V

Our direct processed Magnesium Stearate is manufactured from vegetable fatty acids and is used as a lubricant and flowability agent for manufacturing pharmaceutical, nutraceutical and dietary supplement tablets. PALMSTAR MF-1-V is manufactured in accordance to Ph.EUR and USP/NF grades.

PALMSTAR AL PHARMA

PALMSTAR AL PHARMA is a special Aluminium Stearate based on vegetable fatty acid. It is produced under ISO 9001 conditions, in accordance with the requirements of the Ph. Eur. 8.0 ed. and is excellently suitable for the production of pharmaceutical and cosmetic creams and ointments.



COSMETICS

Soaps are the oldest, historically documented cosmetic products, e.g. in the cuneiforms of the Ancient Babylonians are references to formulations for the manufacture of soaps for body cleansing. Today

surfactants have often taken over the function of soaps as a detergent. Nevertheless natural soaps and metallic soaps can be found in many cosmetic products.

The following products are manufactured using vegetable origin raw materials and are INCI listed and approved for the application in the cosmetic industry.

LIGA ZINKSTEARAT ZPR-2-V

Our Zinc Stearate is used in the cosmetic industry as a colorant and anti-caking agent. It is mainly used in creams and ointments and in make-up – powders, mascara, eye shadow – for its water repellent and protective agent characteristics. Furthermore zinc offers the advantage of exhibiting an antibacterial effect, especially in ointments.

LIGASTAR AL DT/C-V

This Aluminium Stearate grade is specifically developed for the production of creams and ointments. The product is characterised by its moderate gel strength at a relatively low gelling temperature of 80–120 °C. This results in very stable gels with good application properties. Typical usage depends on the base oil and varies between 1 % to 4 % of the formulation.

LIGASTAR ALG-V

LIGASTAR ALG-V is a Distearate produced with vegetable fatty acids and offering the best gelling properties in the range of all Aluminium Stearate grades. It is used in ointments as thixotropic agent and viscosity modifier. It improves the flowability and the adherence to cosmetic powders and exhibits a slight astringent effect.

PALMSTAR NAV

This Sodium Stearate grade is used as an emulsifier and opacifier in the cosmetic industry. However, the largest application is for the production of deodorant sticks: A solution of about 10 % of PALMSTAR NAV forms a hard, solid gel under cold conditions. Its performance characteristics are due to its particle structure and composition ideally suitable for this application. The crystallisation tendency of the gels can be prevented by the addition of Glycerine or Isopropylmyristate (IPM).

PALMSTAR KAV

Our vegetable origin Potassium Stearate is used in the cosmetic industry mainly as an emulsifier, surfactant and cleansing agent.





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