Let's spread the word about sweetness

The Co-Development Company





The new era of sweet spreads

Sweet spreads have long been enjoyed on bread, toast and pancakes. In that context, sweet spreads cover chocolate and nut-based spreads.. Originally promoted as sweet, chocolate-flavored pastes for kids, they have become an essential item at breakfast and in all-day snacks in many markets.

But times are changing. Today many brands are targeting a more adult audience and, in particular, evening snacking occasions. That means demand for sweet spreads is rising among consumers of all ages - bringing significant market growth and new opportunities for innovation.

Moreover, consumers are increasingly aware of the nutritional benefits of nuts. It is a significant factor supplementing the market growth of sweet spreads.

New flavors, textures and formats are taking spreads beyond the traditional chocolate and hazelnut.

Consumers are open to new ways and times to enjoy spreads, especially as snacks. They are looking for exciting, new experiences from high-quality products. To meet that demand, spreads must deliver a delicious taste and texture. High visual appeal is a must.



40% of consumers eat sweet spreads with a spoon. AAK consumer survey, 2019

Today's trends are your playground

Sweet spreads provide a perfect opportunity to target market trends. Flavors and textures are your innovation playground.



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ners seek dairy-free foods due to ronmental concerns. This points for dairy-free chocolate spreads ural, 'clean eating' trend.
y protein-rich foods target every consumer. spreads tap into the high-protein
e the protein content on-pack.
eloping innovative chocolate and that stand out from the crowd. eat opportunities to work with new and textures – and visual appeal.
balancing intake and choosing foods utritional need. Sweet spreads are ideal added-benefit' snacking market. Since s inherently healthy, they are a great the value to influence a purchase.
ncreasingly focused on the amount and le sweet spreads. It's important to them s simple and contains recognizable perceived as natural as possible.

Demand for healthy snacks is rising



51% of consumers eat sweet spreads as a snack during the day. AAK consumer survey, 2019

Make it nutritious with nuts and seeds

Seed butter and nut spreads are increasingly popular. High in protein and unsaturated fats, they satisfy consumer perceptions of a healthier snack. Nut spreads may often be based on hazelnuts, peanuts, almonds, cashews and walnuts - to name a few. Natural, nutritious and indulgent are the new words.

The nut challenge

A high content of nuts makes it even more difficult to produce sweet spreads that can withstand warm temperatures and remain stable during shelf life. Maintaining a glossy appearance and avoiding oil separation are top priorities.

Manufacturing of spreads

What is a spread?

Spreads are made by mixing basic ingredients such as sugar and fat with cocoa, milk components and/or nuts. After mixing, the refining process reduces the particle size, followed by conching to enable water and off-note evaporation. The spread is then filled into jars, packed and stored.



Appealing spreads from beginning to end

Protect your premium spread

The ideal spread should have a creamy and soft consistency at room temperature. When temperatures rise above 20°C, the texture and appearance are likely to change.

The liquid part of the fat phase may separate, forming an oily layer on the surface. Cocoa butter may start to recrystallize, giving the spread a sandy and waxy feel.

As a manufacturer, there are three challenges to overcome:



What you need

Oil separation is one of the main problems in chocolate spreads as it's a combination of fine solid particles distributed among the high amount of liquid oil. You need a specialty fat that prevents oil separation throughout the six to twelve-month shelf life of your spread. Consumers can then enjoy good spreadability, high visual appeal, oxidative stability, a melt-in-the-mouth texture and delicious flavor release - right to the bottom of the jar.



Choose a fat with ability to form a crystal network to prevent oil separation

Why AKOSPREAD[™] for creamy, nutty spread?

Choosing the right fat is a key consideration when producing high-quality spreads with an excellent shelf life. The fat influences the taste, consistency, structure and stability of the final product.



Tailored sensory properties

At AAK, we can help you create great sensory experiences with your sweet spread products. Our **AKOSPREAD[™]** range offers the following advantages:

- Excellent stability against oil separation
- A soft and creamy texture directly from the fridge
- Excellent stability in warm climates
- A range of nutritional profiles non-trans, non-hydrogenated and low in saturated fatty acids

Choose AKOSPREAD[™] for:



Euromonitor, 2019

The clean-label choice for tailored textures

AKOSPREAD[™] NH is a flexible, clean-label solution for many spread recipes. Non-hydrogenated, non-trans and low in saturated fats, it makes a good impression on product labels. It also provides excellent stability against oil separation while ensuring a soft and creamy texture.

Depending on the recipe, **AKOSPREAD[™] NH** can be used for spreads with a varying nut content. Some shea-based solutions are included in the range.

Choose AKOSPREAD[™] NH for:

- Tailormade textures
- Excellent stability
- Clean labels
- Shea-based solutions, suitable for palm-free solutions
- No oil separation

Great versatility – for every market need

AKOSPREAD™ GP is a general-purpose spread fat that delivers superior stability, even in warmer climates. The content includes a minimum of hydrogenated fat and less than 2% trans fatty acids.

Choose AKOSPREAD[™] GP for:

- Versatility in use
- Soft and creamy texture
- Excellent stability
- No oil separation

Excellent stability against oil migration

AKOSPREAD[™] HS range is the ideal choice for spreads with a high content of nuts and seeds. The highly stable performance continues right through shelf life, keeping the surface glossy and appealing. This is due to the content of hard-stock fat, which forms a three-dimensional crystal network - trapping liquid oil and preventing separation, especially in warmer climates.

Choose AKOSPREAD[™] HS for:

- Applications high in liquid oil, high in nut content
- Heat stability
- Maintaining product homogeneity during shelf life
- No oil separation





The right spreadability for the best consumer experience

Spreadability is a top-of-mind criteria for consumers. There are two important parameters to consider: the hardness and the filling temperature.

- Recipe and fat type have a strong influence on hardness. Another important factor is the crystal size and the amount of fat crystal that develops after filling.
- Filling temperature, when filling the jars, influences both the hardness of spreads and stability against oil separation.

The right filling temperature ensures optimum setting. If the temperature is too low, the spread will start crystallizing in the pipes and will be destroyed by mechanical handling, resulting in a soft product and oil separation. If the temperature is too high, on the other hand, the crystal network will take too long to set or may not develop in the right way - which could also result in a soft product and oil separation.

> AAK's **AKOSPREAD**[™] range can be filled at temperatures between 28°C and 36°C without the need for after-cooling. The result is pleasantly spreadable products with no oil separation.

dness at 20°C after 3 weeks - Hazelnut spread



Figure 2 shows the hardness of hazelnut spread made with a varying fat content and filling temperature after three weeks.

AKOSPREAD[™] NH 26 becomes harder after three weeks when filled at 28°C and 32°C. When filled at 36°C, no difference is seen. AKOSPREAD™ NH 30 maintains a stable hardness in all samples after 3 weeks. AKOSPREAD[™] GP 19 becomes harder after three weeks when filled at 28°C. When filled at 32°C and 36°C, no difference is seen. AKOSPREAD[™] NH 28 causes all samples to become harder after three weeks. AKOSPREAD[™] HS 96 maintains a stable hardness in all samples after 3 weeks.

Hardness development in milk spreads



Figure 3 shows the hardness of milk spread made with a varying fat content and filling temperature after one week. AKOSPREAD™ NH 26 produces the hardest spread of all, while AKOSPREAD[™] HS 96 gives the softest spread regardless of the filling temperature.

Figure 2

ardness at 20°C after 3 weeks - Milk spread

temperature after three weeks.

filled at 28°C, no difference is seen.



Figure 4 shows the hardness of milk spread made with a varying fat content and filling

is seen. AKOSPREAD[™] NH 28 causes all samples to become harder after three weeks.

AKOSPREAD[™] NH 26 becomes harder after three weeks when filled at 32°C. When filled at

28°C and 36°, no difference is seen. AKOSPREAD[™] NH 30 becomes harder after three weeks

AKOSPREAD[™] HS 96 becomes harder after three weeks when filled at 32°C and 36°C. When

when filled at 28°C and 32°C. When filled at 36°C, no difference is seen. AKOSPREAD™ GP 19

becomes harder after three weeks when filled at 28°C. When filled at 32°C and 36°C, no difference

AKOSPREAD[™] NH 28 + 20% liquid oil

Figure 3

The results of these trials show that spread hardness is not fully developed until after two to three weeks of storage. The hardness levels shown are guidelines. Changes in the recipe or process may also influence hardness.

▲ AKOSPREAD[™] NH 26 ▲ AKOSPREAD[™] NH 30 AKOSPREAD™ GP 19 AKOSPREAD™ NH 28 + 20% liquid oil

AKOSPREAD™ HS 96 + 80% liquid oil

Hardness (g,force) has been measured using a Texture analyser 5 mm penetration at 20°C

Standard recipes for all tests

Hazel spread with AKOSPREAD™ NH 26: 48.08% sugar, 22% AKOSPREAD™ NH 26, 13% hazelnut paste. 9% skimmed milk powder, 7.5% cocoa powder, 0.4% lecithin, 0.02% vanillin, total fat: 31.5% Hazel spread with AKOSPREAD™ NH 30: 48.08% sugar, 22% AKOSPREAD™ NH 30, 13% hazelnut paste. 9% skimmed milk powder. 7.5% cocoa powder. 0.4% lecithin. 0.02% vanillin. total fat: 31.5% Hazel spread with AKOSPREAD[™] GP 19: 48.08% sugar, 22% AKOSPREAD[™] GP 19, 13% hazelnut paste. 9% skimmed milk powder, 7.5% cocoa powder, 0.4% lecithin, 0.02% vanillin, total fat: 31.5% Hazel spread with AKOSPREAD™ NH 28 + 20 liquid oil: 48.08% sugar, 17.6% AKOSPREAD™ NH 28, 13% hazelnut paste, 9% skimmed milk powder, 7.5% cocoa powder, 4.4% rapeseed oil, 0.4% lecithin, 0.02% vanillin, total fat: 31.5% Hazel spread with AKOSPREAD[™] NH 96 + 80 liquid oil: 48.08% sugar, 17.6% rapeseed oil, 13% hazelnut paste, 9% skimmed milk powder, 7.5% cocoa powder, 4.4% AKOSPREAD[™] HS 96, 0.4% lecithin, 0.02% vanillin, total fat: 31.5%



Hardness development in hazelnut spread

lardness at 20°C after 1 week - Hazelnut spread AKOSPREAD™ NH 26 AKOSPREAD™ NH 30 AKOSPREAD™ GP 19 AKOSPREAD™ NH 28 + 20% liquid oil AKOSPREAD™ HS 96 + 80% liquid oil A 32°C 36°C Hardness (g force) has been measured using a Temperature Texture analyser 5 mm penetration at 20°C

Figure 1 shows the hardness of hazelnut spreads made with a varying fat content and filling temperature after one week.

AKOSPREAD[™] NH 26 results in the hardest spread of all when filled at 36°C, while AKOSPREAD[™] NH 30 gives the softest spread regardless of the filling temperature.

Standard recipes for all tests

Milk spread with AKOSPREAD™ NH 26: 50% sugar, 28% AKOSPREAD™ NH 26, 10% whole milk powder,

7% skimmed milk powder, 5% cocoa powder, 0.4% lecithin, 0.02% vanillin, total fat: 31.2%

Milk spread with AKOSPREAD™ NH 30: 50% sugar, 28% AKOSPREAD™ NH 30, 10% whole milk powder

7% skimmed milk powder, 5% cocoa powder, 0.4% lecithin, 0.02% vanillin, total fat: 31.2%

Milk spread with AKOSPREAD™ GP 19: 50% sugar, 28% AKOSPREAD™ GP 19, 10% whole milk powder, 7% skimmed milk powder, 5% cocoa powder, 0.4% lecithin, 0.02% vanillin, total fat: 31.2%

Milk spread with AKOSPREAD™ NH 28 + 20 liquid oil: 50% sugar, 22.4% AKOSPREAD™ NH 28, 10% whole milk powder,

7% skimmed milk powder, 5.6% rapeseed oil 5% cocoa powder, 0.4% lecithin, 0.02% vanillin, total fat: 31.2%

Milk spread with AKOSPREAD™ NH 96 + 80 liquid oil: 50% sugar, 22.4% rapeseed oil, 10% whole milk powder

7% skimmed milk powder, 5.6% AKOSPREAD™ HS 96, 5% cocoa powder, 0.4% lecithin, 0.02% vanillin, total fat: 31.2%

High stability up to one year

At AAK, we typically monitor spread samples for 12 weeks at 27°C. However, from experience, we know that spreads made with our fats are stable for up to one year.



All spread samples are stable and free of oil separation after 12 weeks in storage at 27°C. Weeks before oil separation at 27°C, Hazelnut spread



Figure 6

Figure 6 shows the number of weeks in storage before oil separation occurs in hazelnut spreads made with a varying fat solution and filling temperature, stored at 27°C. AKOSPREAD[™] NH 30 ensures a soft spread texture in combination with hazelnut paste.

All spread samples, except AKOSPREAD[™] NH 30, are stable and free of oil separation after 12 weeks in storage at 27°C.





Everything you expect for the consumer

The sweet spreads market is expected to continue its growth trend in the years ahead, with a CAGR of 3.7%. The sweet spread market is very well established in Europe and North America. With the variety of new spreads launches, the market is growing globally and Asia Pacific is likely to exhibit the highest growth.¹

Consumers seek exciting, new experiences and have a strong desire for high quality products. To meet that demand, spreads must deliver a shiny and appealing appearance with an exciting flavor or texture. Spreadability is a must.

Sweet spread: Spread it, Dip it, Spoon it

Spread the word

The broad AKOSPREAD[™] range accommodates a range of preferences for nut content, mouthfeel and texture. In all cases, manufacturers can count on strong resistance to oil separation. Even in warmer climates, AKOSPREAD[™] delivers a superior, stable performance and is available as non-hydrogenated or non-trans solutions.

With the AKOSPREAD[™] range you get:



1 (Euromonitor, 2019)

AKOSPREAD[™] range

Application guide

At AAK, we have translated market needs into technical solutions for your spreads. Our spreads solutions can be tailor-made to your products – so you can be sure that they will inspire and excite your customers.

	Nut content			Healthier lifestyle			Sensory			Shea based	Ready-to-us solution
	High amount of nuts >15%	Standard amount of nuts 10-15%	Low amount of nuts <10%	Non hydro	Non TFA	Low SAFA	Soft Texture	Medium texture	Hard Texture	Suitable for palm-free solutions	
AKOSPREAD™ GP 19		\checkmark	\checkmark			\checkmark		\checkmark			\checkmark
AKOSPREAD™ NH 30		\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark				\checkmark
AKOSPREAD™ NH 26		\checkmark	\checkmark	\checkmark	\checkmark	\checkmark		\checkmark	\checkmark	\checkmark	\checkmark
AKOSPREAD™ NH 28	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark		\checkmark	\checkmark	\checkmark	\checkmark
AKOSPREAD™ HS 96	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark			\checkmark	\checkmark		



Dedicated to delivering sustainable solutions



Sustainability & responsible growth

To ensure a sustainable business footprint, we have developed a model based on the UN Global Compact principles. This allows us to drive progress within our CSR activities and focus efforts within five key areas. We continuously achieve objectives within each area, thanks to internal and external performance benchmarks, sharing best-practice principles and our highly engaged global organization.

Responsible sourcing of raw materials

Palm

Sustainable sourcing of palm oil remains a crucial activity in our raw material responsible sourcing journey and our engagement with suppliers.

AAK has been a foudning member and board member of the Roundtable on Sustainable Palm Oil (RSPO) ever since.

With the new RSPO standards approved in November 2018, we move into a new phase. The bar has raised again to meet the needs of its members reflecting amongst others, the zero deforestation commitments.

AAK is able to offer RSPO certified sustainable palm oil solutions for all different applications from our different sites and able to provide you the assurance you are looking for.

Shea

Shea kernels come from the shea tree and are an important raw material for AAK. The shea tree is a wild tree growing in Africa, with most found in Mali, Burkina Faso, Ghana, Ivory Coast, Benin and Togo.

Through more than 60 years' experience working with the kernels, we have gained considerable knowledge about them, as well as the local communities in which AAK operates.

Local presence in West Africa ensures full control of our supply chain from working with the collecting women in the bush to final shipment to the AAK production site.

AAK continuously monitors compliance with the AAK Supplier Code of Conduct. We are also a founding member of the Global Shea Alliance. Our commitment is to continuously improve the sustainability of out supply chain.





We are AAK

AAK is a leading provider of value-adding vegetable oils & fats. Our expertise in lipid technology within foods and special nutrition applications, our wide range of raw materials and our broad process capabilities enable us to develop innovative and value-adding solutions across many industries – Chocolate & Confectionery, Bakery, Dairy, Special Nutrition, Foodservice, Personal Care, and more. AAK's proven expertise is based on more than 140 years of experience within oils & fats. Our unique co-development approach brings our customers' skills and know-how together with our own capabilities and mindset for lasting results. Listed on Nasdaq Stockholm and with our headquarters in Malmö, Sweden, AAK has 20 different production facilities, sales offices in more than 25 countries and more than 3,600 employees.

Explore more at www.aak.com or contact us at chocolate@aak.com

