

AAK

NEWSLETTER

JUNE 2009



Fillings with the highest quality

AKOPOL™ NH 60

ILLEXAO™ for high functionality in
your chocolate and confectionery

An important challenge of the confectionery company's is to develop the most suitable products for the consumers. When this work includes filled confectionery applications, choosing the right filling fat is crucial to obtain the desired end product. This task requires skill and innovation by the product development department at the confectionery companies.

AAK helps to meet your requirements for confectionery fillings

The experts at the AAK chocolate laboratory and the Technical Service Managers can support your development department's challenges and assist you using our in-depth knowledge of filling fats.

When you produce a filling about 30% is fat. The filling fat influences the properties of the end product, related to melting, stability and overall impression. To be able to tailor the most suitable filling fat for a specific application, the following aspects must be considered: ingredients, processing parameters, labelling requirements and eating properties.

AAK offers a wide range of filling fats, tailored for specific applications. These fats are all of high and consistent quality with a neutral taste and smell in order to carry the flavours of the filling. To find the optimal fat for your application it is important to consider following questions:

- CHOCOFILL™ BR**
for significantly prolonged bloom stability
- CHOCOFILL™ TC**
for fillings with an excellent cooling sensation
- CHOCOFILL™ LS**
low in saturated fatty acids for a healthier profile
- CHOCOFILL™ NH**
for flexibility
- DELIAR™**
unique for premium light and fresh fillings

Sensory

Should the filling be hard and cool melting or would you prefer a soft filling?

Is clean melting and fast flavour release important or would a creamy filling be more suitable?

Perhaps you are looking for a chocolate mousse structure in the filling?

Processing

Is crystallisation speed an issue?

Is it possible to temper the filling?

Can you aerate the filling?

Are you planning to add rework to the filling?

What ingredients does this rework contain?

Are you planning to prepare a variety of fillings, and would you prefer to base these fillings on as few filling fats as possible?

Recipe

Should the chocolate flavour be dark and intense, or do you require a milky taste in the filling?

Would you like to add nuts to the filling?

Does your recipe contain water like a soft toffee?

Would the filling be covered with chocolate or a compound?

Health/image/labelling

Do you intend to reduce the amount of saturated fatty acids in your fillings?

Would you like to label only vegetable fat instead of hydrogenated vegetable fat?

Are you looking for a fat that can help you reduce fat content?

Stability

At which temperature will end products be stored?

Is there any risk of high temperatures?

How long a shelf life do you require?



AKOPOL™ NH 60

– Non-lauric and non-temper compound coatings without hydrogenation

Figure 1: Fatty acid composition of typical coating fats (%).

	AKOPOL™ NH 60	Standard CBR	Standard CBS
Saturates	65	33	100
Cis-mono unsat.	30	16	0
Cis-poly unsat.	5	0	0
Trans	<1	51	<1
Sat. + trans	65	84	100

Figure 2a: Sensory profile compared to a standard CBR. Stars indicate a significant difference.

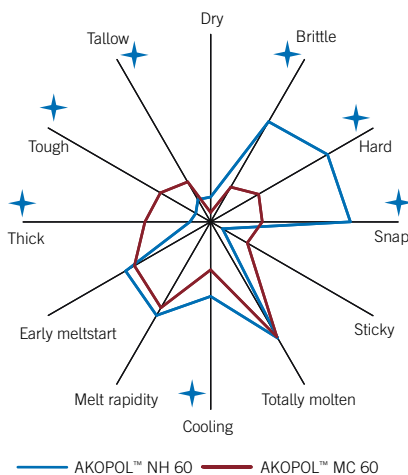
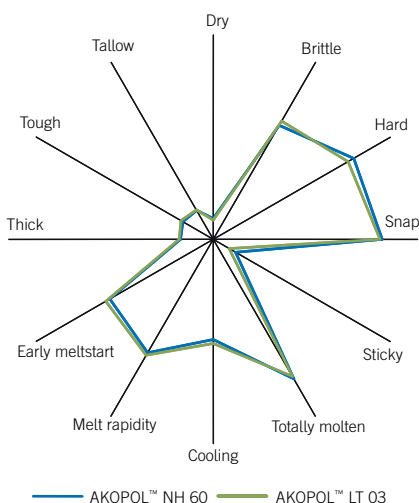


Figure 2b: Sensory profile compared to a low-trans CBR



AAK takes Cocoa Butter Replacers (CBR) to the next level by offering manufacturers a flexible solution to avoiding the “Hydrogenated vegetable fat” label issue.

Compound coating options

So far the options available have been either lauric Cocoa Butter Substitutes (CBS) with very limited tolerance for cocoa butter in the recipe or non-lauric - and somewhat cocoa butter tolerant – CBR but with a high contents of unhealthy trans fatty acids. Either option would typically include a hydrogenated fat and thus the labelling “Hydrogenated vegetable fat” would be mandatory in many markets. However, that labelling is becoming increasingly undesirable by many super market chains since more and more consumers – albeit on false grounds – tend to draw a parallel between “hydrogenated” and “trans fatty acids”.

The flexible approach to clean labelling

Until now any attempt of achieving a non-hydrogenated coating solution has only been possible by accepting high levels of saturated fatty acids and lauric fatty acids and thus the risk of soapy taste due to lipase activity. For a more detailed view of fatty acid compositions related to the different compound coating fat options please see figure 1. However, with AKOPOL™ NH 60 manufacturers now have the opportunity of producing a non-lauric compound coating with medium cocoa butter tolerance without using a hydrogenated fat. As a benefit some cocoa mass can be used in the recipe for a chocolate rich flavour and the fat can be labelled as “Vegetable fat” only. Further these benefits are achieved without compromise on sensory properties and overall appearance of the consumer product and thus the consumer will only benefit from a change to AKOPOL™ NH 60 based compound coatings – see figure 2.

Typical applications

AKOPOL™ NH 60 can be used in coating applications such as sponge cakes or countlines where you would normally consider using either a traditional CBS or CBR and where excellent snap and rapid meltdown are crucial to the overall perception of the product. Please see figure 3 for a recipe suggestion.

Figure 3: Dark compound recipe suggestion

	Contents (%)
Sugar	49
AKOPOL™ NH 60	29
Cocoa Powder (10-12%)	13
Skim milk powder	6
Cocoa mass	3
Lecithine	0.2-0.4



ILLEXAO™ for high functionality in your chocolate and confectionery

ILLEXAO™, Cocoa Butter Equivalents in general

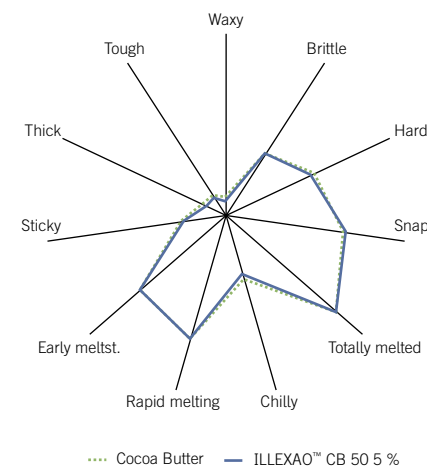
Cocoa butter has a unique composition and physical properties. Together with cocoa liquor, cocoa butter provides chocolate with its very characteristic flavour and eating qualities such as melt-down and flavour release. Cocoa Butter Equivalents (CBE) have the same physical properties and chemical composition as cocoa butter but iron out many of the difficulties inherent in chocolate production. Based on shea and/or illipe butter and palm oil, ILLEXAOs are as natural as cocoa butter. The main advantage with ILLEXAO™ is that AAK have the possibility to tailor-make the product for you in order to obtain the desired functionality, when it comes to for example heat stability, bloom stability and sensory properties.

ILLEXAO™ CB-for 5 % cocoa butter replacement in chocolate

The ILLEXAO™ CB range is designed to fulfil the EU directive for 5 % replacement of cocoa butter in chocolate.

As such it can replace up to 5 % of the cocoa butter in the formulation, obtaining a considerable cost saving, with no other effects on the sensory properties or the production parameters. For a sensory evaluation see attached figure 1.

Fig. 1 No change in sensory properties with 5 % ILLEXAO™ CB 50 in milk chocolate.



ILLEXAO™ SC-for cost efficient super compounds

Replace up to all the free cocoa butter in a chocolate recipe and you have a cost efficient super compound. The resulting taste will be very similar to chocolate. The remaining high content of cocoa mass ensures a rich chocolate flavour as a characteristic feature.

There are endless possibilities with ILLEXAO™ SC however below are mentioned three examples:

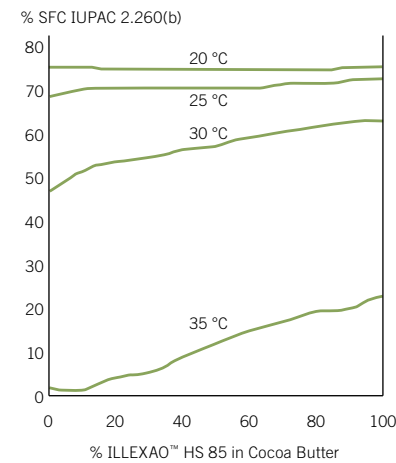
- ◆ In countries, where more than 5 % of the cocoa butter can be replaced and the product still can be called chocolate
- ◆ In branded count lines where the taste and sensory is perceived as chocolate
- ◆ As an inner layer of cost efficient and bloom stable chocolate like coating, surrounded by chocolate

Please discuss with your AAK contact and we will find your best alternatives.

ILLEXAO™ HS – for heat stability

For warm climates the ILLEXAO™ HS products raises the melting point of the chocolate, making it better able to withstand elevated temperatures. Countering softness and giving the final milk chocolate the right snap are the benefits of using the ILLEXAO™ HS brand.

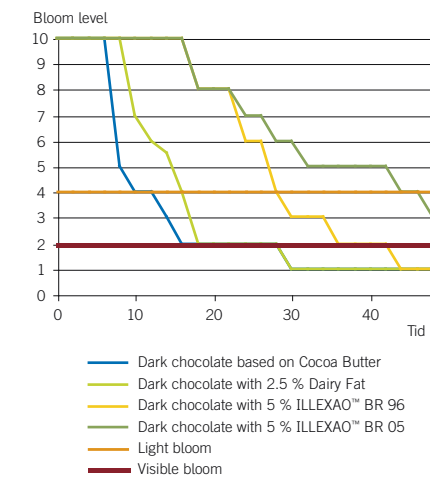
Figure 2. ILLEXAO™ HS – Increased heat stability



ILLEXAO™ BR – for bloom retardation

Significantly increased bloom stability is obtained by using 5-15 % ILLEXAO™ BR in the formulation. This can be achieved without changing either the process equipment or process conditions. Dairy Fat is often used in dark chocolate in order to prolong the shelf life. However using ILLEXAO™ BR instead of Dairy Fat in the formulation will increase the shelf life even more, see attached figure 3.

Figure 3. Bloom on chocolate tablets, cyclic storage at 21/31 °C



Customer requirements

To fully utilise the potential of chocolate fats, AAK's technical experts work together with customers to review their entire recipe. Within the ILLEXAO™ product family, a wide range of products is available to suit a variety of customer requirements.

Cost efficiency

Cocoa ingredients make up a significant part of the ingredient cost for the chocolate manufacturer. However, the versatile range of AAK's chocolate fats, marketed under the ILLEXAO™ brand, can make all the difference for cost-effective production of premium quality chocolate and chocolate-coated confectionery. Using chocolate fats from AAK means a significant reduction in raw material costs for the chocolate manufacturer. Exact savings depends on the actual cocoa price

and the type of chocolate fat used. This cost reduction is achieved with no additional variable cost in the production of chocolate

Quality benefits

Besides cost savings, cocoa butter equivalents can also be used to optimise processing and product properties.

ILLEXAO™ also ensures consistent products by adjusting for cocoa butter variations.





PHOENIX PISTACHIO

Filling Recipe%

CHOCOFILL™ LS 40	35,00
Sugar	35,00
Pistachio paste	10,00
Whole milk powder	10,00
Skim milk powder	5,00
Dextrose	5,00
Total	100,00

Lecithin	0,30
Vanillin	0,02
Salt	0,10

Coating

Milk chocolate with 5% ILLEXAO™ CB 50
 Dark chocolate with 5% ILLEXAO™ CB 50

Process guidelines

Make chocolate shells using tempered milk chocolate. It is important that CHOCOFILL™ LS 40 is completely melted at 60°C before use.

Mix the ingredients at a temperature between 50-60°C. Refine and conch in a normal way at 55°C.

The filling does not need tempering before use.

Cool down the filling to approx. 30°C. Fill the chocolate shells almost to the rim and allow to crystallise at 12°C for 15 min. After crystallisation, deposit a drop of tempered dark chocolate.

Cooling parameters:

- Temperature 12-10-14°C
- Direct air blowing 3 m/s
- Humidity <60%

The pralines benefit from being stabilised at approx. 18°C for min. 48 hours to obtain good stability and eating qualities in the product. In order to maintain the best properties in the pralines during the whole shelf life period, store the pralines in a cool, dry place away from direct sunlight at 15-18°C.

Fat ratio for the filling:

- CHOCOFILL™ LS 82.16%
- Pistachio nut fat 11.74%
- Milk fat 6.1%

CHOCOFILL™ LS 40

Low in saturated fatty acids for a healthier profile