

A more efficient business!

Ingredients to optimise
deep-frying fats and oils



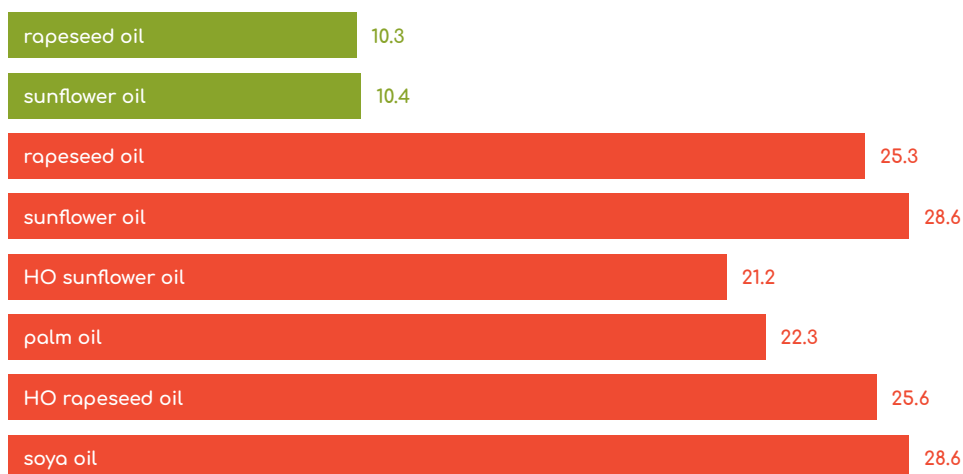


Ingredients
for your success

Family-owned and managed, Maxfry® is an established manufacturer and distributor of additives for vegetable oils and fats. These ingredients not only ensure that the raw materials in industrial frying processes are used more efficiently in the long term, but they also reliably improve the quality of the fried product. For instance, these additives lead to the formation of an optimal crust with an even texture and colour on the deep-fried product. Deep-fat frying systems

with Maxfry® also avoid the use of oils and fats with a high content of saturated fatty acids or hydrogenated fats. And even so, our systems still far surpass others in terms of heat and oxidation stability. Benefits of using Maxfry®: You increase the efficiency of your production and achieve a consistently high, sustainable quality in line with the constantly growing demands of health-conscious consumers.

Quality through stability



Significant stabilisation of different oils

● Polar compounds in % with Maxfry® Classic nat. ● Polar compounds in % without Maxfry® Classic nat.

Oil stability comparison: Formation of polar compounds after 16 hours of intermittent deep-frying (180 °C)

Optimised for
greater performance

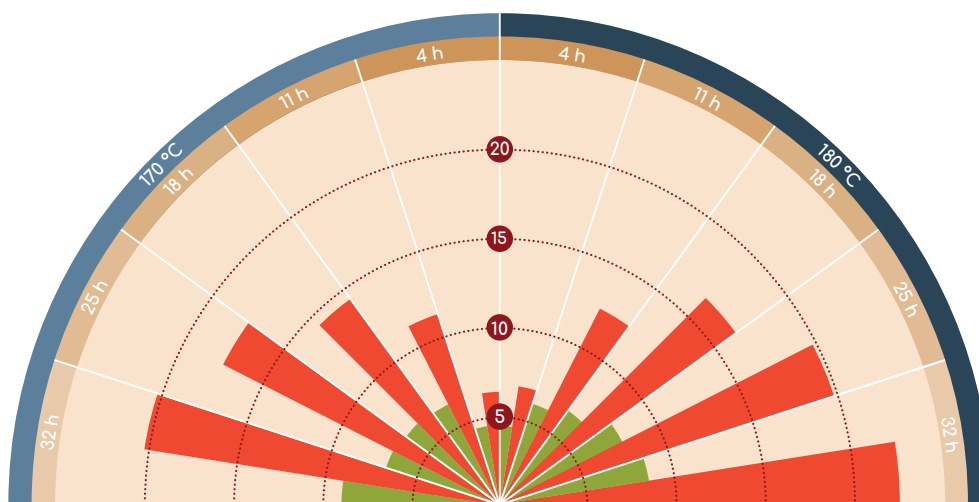


Two mechanisms are responsible for the chemical and physical changes that occur in deep-frying oil: oxidation and polymerisation. The further these reactions are allowed to progress, the more the performance and quality of the oil deteriorates. These two mechanisms must be controlled for the optimal fulfilment of the stringent demands placed on standardised convenience-food production. Maxfry® oil ingredients are complex compounds which counteract both deterioration mechanisms holistically and highly efficiently. Thanks to synergy, the components used in the Maxfry® compound

system develop a much higher degree of efficiency compared to the conventional, isolated use of the components. Maxfry® also contain additional components which completely eliminate the performance deficiencies of fresh virgin oil and thus ensure excellent results right from the start.

A good choice

Fewer polar components throughout the oil's entire life in the fryer



● with Maxfry® Classic nat.

● without Maxfry® Classic nat.

Development of polar compounds (in %) in rapeseed oil with and without Maxfry® after 4, 11, 18, 25 and 32 operating hours at a frying temperature of 170 °C/180 °C



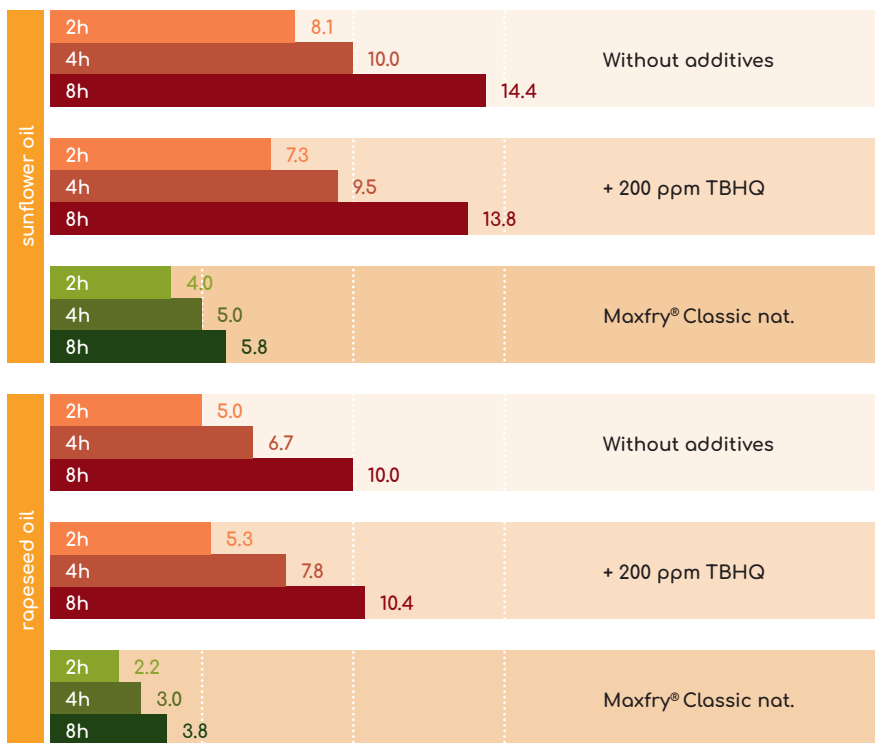
Many advantages as an additive

The thermal-oxidative stabilisation of frying oil with Maxfry® ingredients offers many advantages. On the one hand, the selection of possible oil products is significantly expanded. On the other hand, nutritionally and physiologically valuable but less stable oil products can be used without difficulty and subsequently stabilised with Maxfry® ingredients. This often results in great economic advantages in the purchase of raw materials, especially since any oil not absorbed by the product can remain in the production process for longer – without

adversely affecting product quality. Another advantage is that it also reduces the risk of off-flavour batches and improves storage stability. The product quality is more stable and easier to manage. Lastly, your equip-

ment will remain cleaner with significantly less residue as such residues are largely composed of polymerised frying oil. Necessary cleaning efforts are thus reduced.

Effectively more performance



Greater protection function when frying: than conventional antioxidants

As a pure antioxidant, TBHQ achieves almost no protective effect under real deep-frying conditions. The reason: Oxidation plays virtually no role in the chemical and physical changes that occur at high temperatures.

Formation of polar compounds in % for TBHQ and Maxfry® heated to 180 °C.
200 ppm TBHQ: maximum legal quantity

Maxfry® performance

- ◆ Extended service life
- ◆ Better results
- ◆ Higher quality
- ◆ Improved storage stability
- ◆ Greater product safety

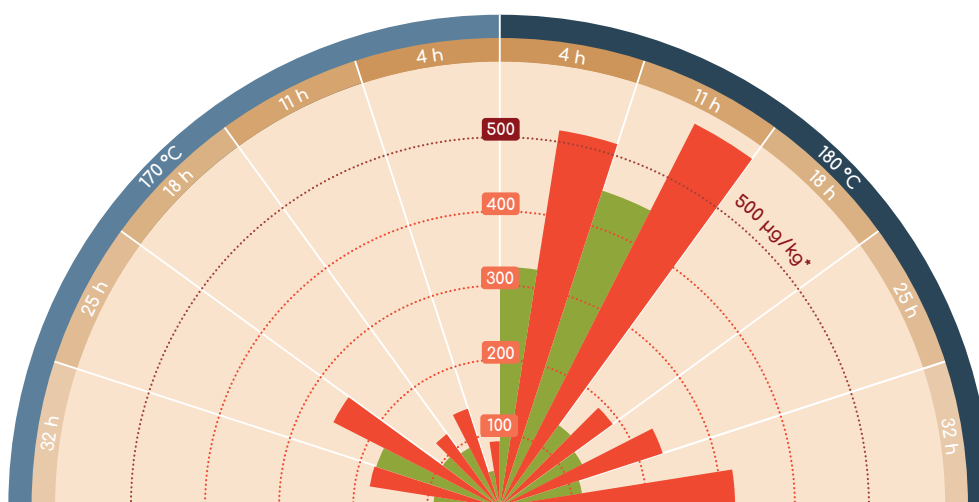
Markedly less
acrylamide



Monitoring and minimising acrylamide formation continues to be a major part of product safety when it comes to fried foods that contain starch. The compound, which is classified as a carcinogen, cannot be entirely avoided. However, the acrylamide level can be significantly reduced by adjusting the process parameters of frying temperature and duration. Another key way of reducing acrylamide is by using Maxfry®. A current

study by the ZHAW Zurich evidences that up to 30-50 % less acrylamide is formed than in a direct comparison with products fried without Maxfry® ingredients.

Stress reduced



Simply improves product safety

● with Maxfry® Classic nat.

● without Maxfry® Classic nat.

Acrylamide development (µg/kg) in French fries fried in rapeseed oil with and without Maxfry® at 170 °C/180 °C
 * 500 µg/kg is the EU guideline for acrylamide levels in French fries



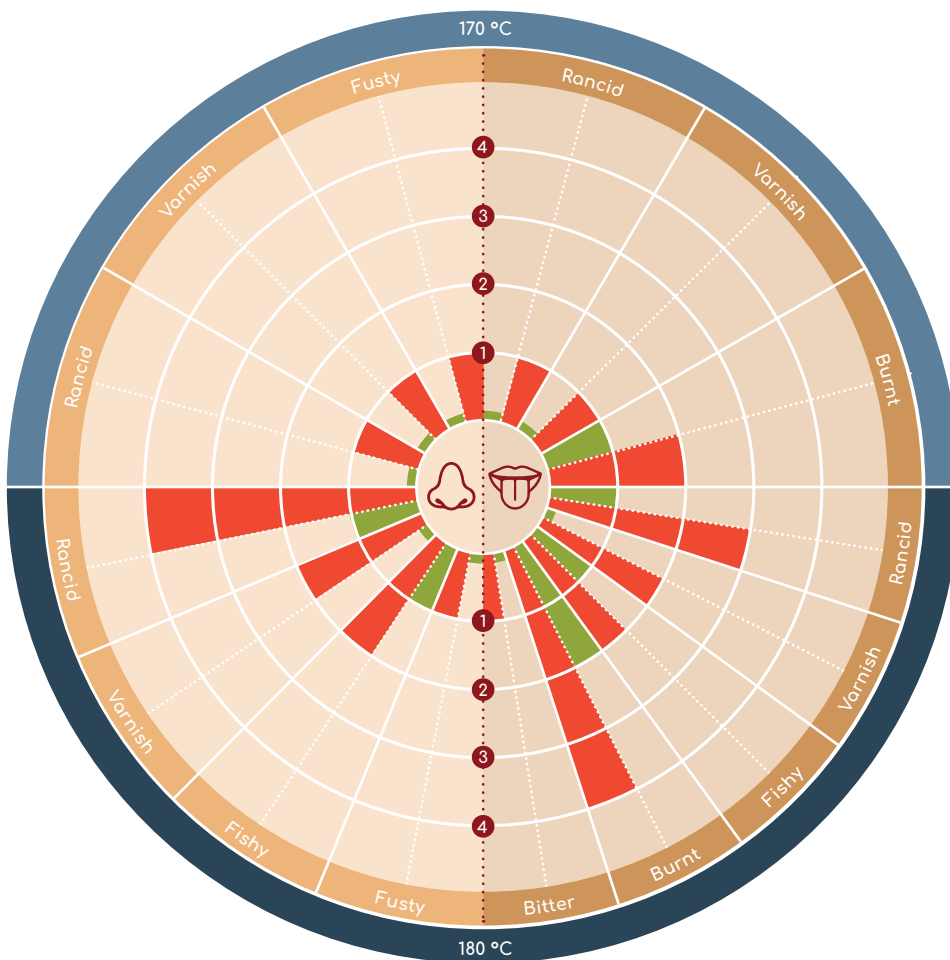
Simply tastes better

In addition to acrylamide stress, the ZHAW study also looked at sensory quality. A trained panel of four sensory experts tasted and evaluated the sensory properties of the fried French fries. Attributes were selected using other studies and applicable literature (Jans, 2017; Matthäus & Fiebig, 2013; Raoux, Morin, & Mordret, 1996). Consensus profiling according to

DIN EN ISO 13299 was used to evaluate the French fries. The study concluded that the sensory quality of the French fries fried with Maxfry® is objectively better both at a tem-

perature of 170 °C and at 180 °C. Negative sensory attributes/off-flavours are significantly less or even indiscernible.

Just the way you like it



Intensity of negative sensory attributes minimised

● with Maxfry® Classic nat.

● without Maxfry® Classic nat.

Intensity of negative sensory attributes (intensity scale 1- 5) in the odour/flavour of the French fries after 32 operating hours at a frying temperature of 170 °C/180 °C



We'll be
happy to advise you!



Comprehensive consulting and services complete the Maxfry® portfolio, always with the aim of ensuring a smooth operation, high product quality and economically efficient results. We also advise you on how to improve your production processes and to ensure quality control. NIR screening, for example, is a fast, inexpensive and reliable method to examine the qualitative condition of vegetable frying oil samples. It is a secondary measuring method in which a frying oil sample is transilluminated with a light spectrum in the near-infrared range. In doing so, the most important parameters are determined: acid value, anisidine value, polymeric triglycerides, polar fractions, trans-fatty acids and colour index. Upon conclusion of the screening you receive an extensive evaluation of the analysis with any necessary comments.

Quality under control



Olive oil is an expensive food product with a steadily growing market. Unfortunately, adulterations and fraudulent labelling are common practice. Therefore, the assessment of the quality and authenticity of olive oils plays a vital part for producers, oil suppliers and consumers. Maxfry® NIR-based olive oil screening is the only analytical technique in the world that authenticates and characterises olive oils – quickly, reliably and efficiently. For a small cost, you will receive a detailed, written evaluation of your sample, which includes the following criteria:

- ◆ Aroma
- ◆ Sensory defects
- ◆ Adulterations
- ◆ Quality (classification)
- ◆ Identity
- ◆ Origin and provenance
- ◆ Age
- ◆ Remaining shelf life

We will send you an evaluation in the form of a standardised protocol normally within 48 hours after we have received the sample in its sealed, original packaging (or other suitable sample container with a minimum content of 50 ml).

Your advantage

- + Fast, low-cost quality control
- + Comprehensive assessment of numerous analytical parameters
- + Analytical results with a statistical probability of more than 90%
- + Globally unique proof of adulterations, misuse and irregularities in the supply chain (examination of lot identity)

More knowledge means added value!

Sounds interesting? Please contact us! We would be happy to provide you with a consultation or product proposal tailored to your requirements. info@maxfry.de. We look forward to receiving your enquiry!

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