

# Wood VS plastic

Sieves

Notes from the latest OcrimWebinar:



## 'What sieve suits you better?'

by Andrew Wilkinson, Milling and Grain magazine

**W**ith the aim of achieving effective management and proper operation of machines, the end of April 2022 sees Ocrim return to our screens with the latest in its series of webinars dedicated to maintenance and automation.

Presented by Sergio Manfredini, Milling Technologist at Ocrim, together with Nicola Riboldi, Mechanical Department Engineer at the company, 'Ocrim Tips - What sieve suits you better?' sought to help viewers to discover the company's range of sieves, as well as presenting the advantages of its antimicrobial model.

Although broadcast entirely in Italian, the webinar was simultaneously translated into English, Spanish and French, with viewers able to select their chosen language translation via a drop down menu. Having viewed the webinar myself, I can provide personal testimony that the translation kept pace and was clear, with very few gaps.

The first section of the webinar sees Nicola Riboldi analyse the differences and benefits of using Ocrim's plastic sieves compared to traditional wooden sieves coated with formica.

"This will help us to better understand the differences and the benefits from the technological point of view, and also for considering the field experience," he begins. "I will tell you about the aspects characterising the sieves from the technical and construction points of view."

### In favour of plastic

The subject of food sanitation continues to have a huge influence on the choice of materials deemed suitable for food contact. In fact, in the last few years Ocrim has invested

generously in research and development in order to identify the most appropriate materials in the market for food contact to use when designing its own machines.

In the case of this webinar, which focuses on what Mr Riboldi describes as being the "heart of a mill," Ocrim has decided to change from sieves made of wood coated with Formica to plastic alternatives. "When we talk about plastic nowadays, we refer to a broad world diversified world," states Mr Riboldi.

After research and development investments, Ocrim has decided to focus on two plastic types. The first of these options is a so-called 'green plastic' that is light brown in colour, whilst the other is a 'antimicrobial' plastic.

The key differences and benefits of using plastic sieves compared to previous models is often difficult to discern. This is because plan sifters were previously viewed as being very reliable as they would be worked for years and wouldn't leak. Although the Formica would eventually be broken or worn down under the stress of the operation.

This degradation leads to parts of the coating coming in contact with the flour, making contamination possible. With the new generation of plastics, the entire sieve is made from the same material, vastly reducing the risk of this occurring.

Therefore, even if the material is damaged during maintenance, the product remains the same. This is because with plastic, the flour will always be in contact with the same material, so there is a lower risk of contamination.

Wood is also a living and reactive medium, so it reacts with environmental conditions and on many occasions, we have hot and humid conditions in sifters. These factors can also cause the wood to deform and when this happens, we get cracks between the frame and the sieve. When these cracks open and fill with flour, this facilitates the contamination of flour.

Whereas, on plastic sieves, we have a much more stable material, which is not deformed by temperature or humidity,



whilst the welding on the sides makes this product non-deformable and the infiltration problem is also solved.

### Antimicrobial vs non-antimicrobial plastic

From a technical point of view, these plastics can be divided into two kinds of material. The first of these is a composite, which essentially means it consists of fibres and layers, combined together with binders like resins or glues.

Plastic is also a homogeneous material, meaning that it is characterised by the presence of a consistent molecular structure in all of its points. These physical and mechanical characteristics are also distributed throughout a plastic structure, which is the key difference between wood and plastic.

Unlike its wooden counterpart, once a plastic sieve is operating, it is not worn down through time. Therefore, the plastic sieve is not as affected by wear and it is not affected by products like flour. There is also a much lower risk of contamination to the food products flour.

The difference between non-antimicrobial plastic or green plastic and antimicrobial plastic, is much more subtle than wood and plastic. Firstly, the substantial difference is that in antimicrobial plastic, there is an addition of an antimicrobial substance ingredient, which is used to delay formation of mould, which is permeated into the plastic structure.

This essentially allows a number of advantages including the ease of repeatability in the manufacturing of plastic pieces and parts, so the efficiency of production increases. This also allows and increases the precision accuracy of a finished piece of plastic, which is made on one machine tool.

In the case of antimicrobial plastic, we can also reduce the required frequency that the sifters need to be cleaned. So, because of these new innovative materials, we can delay the formation of moulds and bacteria, reducing both the risk of contamination and labour lost to sieve frame cleaning.

### A noticeable increase in efficiency

Staying on the subject of frame cleaning, Sergio Manfredini takes over presenting duties from his colleague to tackle the subject. “Concerning the choice of injectors for cleaners on

the frame, in my opinion the choice is quite easy,” begins Mr Manfredini.

“As many of you have seen when you open a sifter, you’ll find a mash of flour products in there for weeks or months, or tip tops that are worn down, this is normal.”

Therefore, remedying this situation by cleaning it and changing the sieve cleaners becomes “quite a long complex operation.” According to Mr Manfredini, Ocrim has solved this problem.

This has been achieved by first limiting the places for the mash to accumulate, thus removing this source of contamination. The replacement of cleaners has become quite easy during any regular cleaning, with the operation required to complete this task made much simpler. The company has also established that for finer flour, cotton tip top cleaners were more effective than plastic tops.

Something else that Mr Manfredini describes as being important for the new substances is the chosen frame shape. In the case of wooden frames, the company was often working with what we couldn’t see as the frame was inside a sealed case.

This situation was especially problematic as deformation would occur and cracks would open. Although measures were put into place ensuring that the seal was preserved, after time they became less efficient and the flour could be contaminated more frequently.

Ocrim’s new L shaped frame, which sits between the seats and creates a labyrinth, the product cannot be contaminated. With a cleaner injector, the company has also been able to reduce the height of the seat by 10mm.

Thanks to this adjustment, in all of the 30 sieves in a typical plant sector, such a large space has been created that we can now add two or even three more sieves. This means that the operational surface increases without the need for more mesh, whilst efficiency is also noticeably increased.

Following a lengthy and conscientiously addressed question and answer session with Sergio Manfredini and Nicola Riboldi, the ‘Ocrim Tips - What sieve suits you better?’ webinar was brought to a close.

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