

## BRIEFING DOCUMENT

# Ochratoxin A (OTA)

Updated January 2023

### Summary

Ochratoxin A, often referred to as 'OTA', is a mycotoxin produced by species of the *Aspergillus* and *Penicillium* fungi as a result of poor storage in a range of foodstuffs. It is one of the most abundant food-contaminating mycotoxins in the world and owing to a damaging effect on the kidneys, legal limits are in place for both grain and grain-based products.

UK Flour Millers members contribute to a monitoring project which tests OTA levels in wheat twice a year and testing has shown that although OTA continues to pose a risk and requires vigilance, the levels in wheat used by UK millers do not pose a significant food safety issue.

### Ochratoxin A

OTA is one of the most commonly occurring food-contaminating mycotoxins in the world. Human exposure can occur through the consumption of a range of foods product including grains, pork products, coffee and grapes. If consumed in large enough quantities, OTA can have a damaging effect on the liver.

OTA is a storage mycotoxin and levels of infestation relate to poor storage conditions where grain is either inadequately dried prior to storage or where moisture is allowed to ingress and 'hot spots' of fungal infection are allowed to develop.

### Legislation

The principal piece of legislation regarding mycotoxins is retained Commission Regulation (EC) No. 1881/2006, as amended. This Regulation sets out specific rules in relation to mycotoxins and other contaminants and includes specific maximum levels (MLs) for certain mycotoxins in individual foodstuffs. The EU maximum levels were retained in UK law as part of the EU-UK Withdrawal Agreement and apply to wheat, flour and flour-based products, among other cereals.

The EU undertook a review of OTA limits in some food products and agreed a reduction in the limit affecting bakery wares and breakfast cereals (not containing oilseeds, nuts or dried fruits), applying from 01 January 2023. As these changes have begun after the UK's exit from the EU, they apply to products sold in NI and EU member states, but not to those sold in GB. It is not expected the UK food safety regulators will review the GB OTA limits within the near future.

Product type	OTA maximum limits (µg/kg)	
	GB	NI/EU from 01.01.23
Unprocessed cereals	5.0	5.0
Products derived from unprocessed cereals (including flour)	3.0	3.0
Bakery wares, cereal snacks and breakfast cereals	<b>3.0</b>	<b>2.0</b>
Bakery wares containing oilseeds, nuts or dried fruits	3.0	3.0
Processed cereal based foods and other baby foods for infants and young children	0.5	0.5
Foods for special medical purposes intended specifically for infants	0.5	0.5

### Monitoring data

UK Flour Millers members work with AHDB on the Contaminants Monitoring Project, which aims to monitor levels of contaminants and identify any potential food safety issues. Each year, as part of the project, milling

wheat samples are analysed for potential contaminants, including OTA in both the January & March tranche of samples. Results are then sent to UK Flour Millers members.

Milling wheat samples			OTA (µg/kg)			
Year	(n)	%<LOD	Mean*	Median	Min	Max
2021	50	98%	0.2	<0.2	<0.2	2.0
2020	51	88%	0.4	<0.2	<0.2	9.9
2019	51	84%	0.4	<0.2	<0.2	4.1
2018	50	92%	0.2	<0.2	<0.2	2.8
2017	50	84%	0.3	<0.2	<0.2	4.4
2016	60	97%	0.3	<0.2	<0.2	1.0
2015	100	93%	0.1	<0.1	<0.1	4.6
2014	100	87%	0.3	<0.1	<0.1	9.9
2013	99	84%	0.6	<0.1	<0.1	41.7
2012	100	88%	0.2	<0.1	<0.1	9.1
2011	96	94%	0.1	<0.1	<0.1	3.6
2010	60	85%	0.4	<0.1	<0.1	11.7
2009	50	92%	0.2	<0.1	<0.1	4.8
2008	100	93%	0.3	<0.1	<0.1	10.4
2007	103	93%	0.1	<0.1	<0.1	1.8
<b>TOTAL</b>	<b>1,120</b>	<b>90%</b>	<b>0.3</b>	<b>&lt;0.1</b>	<b>&lt;0.1</b>	<b>41.7</b>

\*mean results are calculated by assuming results <LOD are equal to LOD\*0.5

### UK Flour Millers Strategy

OTA is a storage mycotoxin and as such the control strategy is to assist in educating those storing grain in order to prevent infestations developing. UK Flour Millers and their members contribute to this in two ways. The first is through involvement with the AHDB Grain Storage Guide which provides farmers with best practice guidance for storage, minimising risk throughout the supply chain and safeguarding food safety for consumers. The second is through the Red Tractor Assurance Scheme, under which UK millers purchase their homegrown grain. The standards for combinable crops now require farmers to follow the AHDB Grain Storage Guide, and they are audited on this requirement every year.

Moisture levels are also measured at intake to the mill and if moisture levels are too high, the load will be rejected. All UK flour millers will also have their own 'due diligence' procedures to monitor potential OTA infection in wheat at intake.

Farmers have been successful in improving storage and preventing the development of OTA and this is reflected in the monitoring data, which show that the average level of OTA measured in wheat used by UK millers is very low and significantly below the maximum limit.

### Future work

UK Flour Millers will continue to monitor and report on the levels of OTA in wheat. Dialogue is maintained with the National Farmers Union, AHDB, the UK Assurance schemes, Agricultural Industries Confederation, the Maltsters Association of Great Britain, the Association of Cereal Food Manufacturers, and others in the grain supply chain. A Mycotoxin Stakeholder Group made up of representatives from these organisations meets at appropriate times to share data and discuss levels and future control strategies and will continue to do so into the future.