

**APPENDIX: RISK ASSESSMENT CRITERIA TO EXPLAIN DUE DILIGENCE SAMPLING**

Multi-residue screen includes pre-harvest insecticides, banned pesticides, fungicides and herbicides see list									FIELD MYCOTOXINS		STORAGE
CONTAMINANT	INTAKE Post harvest Insecticides	PRE STEEP Post harvest Insecticides	Pre harvest insecticides	Banned Organochlorides	Ear fungicides	Herbicides	PGRs	Desiccants	Mycotoxins ZEA	Mycotoxins, Tricothecenes	Mycotoxins, OTA
<b>Rationale for testing</b>	Added post harvest by store keepers so large potential for variation. Most frequently detected residue but still < 25% of samples test positive	Added post harvest by store keepers so large potential for variation. Most frequently detected residue but still < 25% of samples test positive	Not widely used on barley in UK. Residues rarely detected in UK.	Prohibited in most countries, but persistent in the environment. Background level being tested so little variation. MRLs at LOD.	Use likely to increase due to new mycotoxin limits	Unlikely to leave residues	Widely used; residues frequently detected. Less use on winter barley	Residues frequently detected on non-malting cereals.		The 'field mycotoxins' controlled by growers good practice	The 'storage mycotoxin' controlled by good grain storage practice
<b>Sampling protocol</b>	Following the risk assessment made by Campden-BRI sampling is carried out at different times of the year for a range of different chemicals. The risk is determined for the whole country and sampling divided up between members of the Maltsters Association of Great Britain according to barley intake tonnage. Sampling is approximately 1 for every 40000 tonnes barley and samples are taken from different geographical locations where the maltings are located. Sampling is carried out at harvest to quickly establish the seasonal risk status and confirmed at intake for the following items: Pesticides, Field Mycotoxins, Heavy Metals (40 samples with 30 for multi-residue analysis). Samples are taken pre-steep for pesticide analysis in December. Further samples of barley and the malt made from that barley as a pair are taken later in the year to monitor storage mycotoxins – 20 pairs being analysed for Ochratoxin A, Tricothecenes (DON, T2, HT2) and Zearalenone.										
<b>Residues or contaminants suggested by risk model</b>  <i>N.B. not all these have to be tested, some from this list are simply used as marker chemicals</i>	bifenthrin, chlorpyrifos-methyl, deltamethrin, dichlorvos, fenitrothion, malathion, pirimiphos-methyl piperonyl butoxide may also be tested as it is a synergist for pyrethroids	bifenthrin, chlorpyrifos-methyl, deltamethrin, dichlorvos, fenitrothion, malathion, pirimiphos-methyl, piperonyl butoxide may also be tested as it is a synergist for pyrethroids	chlorpyrifos, cypermethrin, diazinon, fenvalerate, fluvalinate, pirimicarb piperonyl butoxide may also be tested as it is a synergist for pyrethroids	Most of these not normally tested in the diligence screen as exceptionally rare, so only annual result available except lindane: aldrin and dieldrin, bendiocarb,, bromophos-ethyl, chlordane, DDT, endosulfan, endrin, heptachlor, lindane (HCB), HCH	<i>A selection of some of the chemicals from the following list:</i> azoxystrobin, chorothalonil, cyproconazole, dithiocarbamates, epiconazole, fenpropimorph, fenpropidin, flusilazole, fluoxastrobin, kresoxim-methyl, propiconazole, prothioconazole, tebuconazole, trifloxystrobin,		chlormequat, mepiquat, ethephone	glyphosate,		DON, ZEA, HT2 & T2	OTA
<b>Actual Residues or contaminants which are normally analysed in routine screening</b>	All of the above + some fungicides (azoxystrobin, kresoxim-methyl, cyprodanil and trifloxystrobin) and some pyrethroids	All of the above + some fungicides (azoxystrobin, kresoxim-methyl, cyprodanil and trifloxystrobin) and some pyrethroids	residues specified above plus others if customers request e.g. etrimfos (banned)	residues specified above (except heptachlor,	residues listed above (except epiconazole, fenpropidin, fluoxastrobin, prothioconazole, trifloxystrobin) but includes other fungicides e.g. methacrifos (banned)	Screen includes 12 herbicides of which 2 are on BBPA list- see attached list	Chlormequat and mepiquat	glyphosate, also it's breakdown product amino-methylphosphonic acid (AMPA)	ZEA	DON, NIV, HT2, T2, T2-triol, DAS, FUS-X, NEO, 3 Ac-DON, 15 Ac-DON	

**Chemicals that are approved on the BBPA list have been shown to be food safe throughout the brewing process and by final detailed chemical analysis. For these trials the application of the chemicals is at TWICE the normal levels to increase the certainty of safety when testing for residues. These chemicals are also checked against international databases on food safety. Only chemicals passing both process trials and with no detrimental entries in the food safety databases and in process trials are authorised to be included on the BBPA accepted list**