



Fera NRL Annual Report 2015 to 2016

Report to the Food Standards Agency
July 2016



Annual Report

Annual Report on Operation of National Reference Laboratory (Chemical Safety in Food and Feed) by Fera Science Ltd.

April 2015 – March 2016

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1. Introduction

1.1. Scope

Fera was appointed as NRL for the food and feed areas set out below for the four year period 2013 to 2017 under a tender exercise. Feed was added to the heavy metals and mycotoxins NRLs where previously only food was covered. Dioxins and PCBs NRL also covers food and feed.

Fera acts as the UK NRL for the following groups of chemicals:

- mycotoxins in food and feed
- heavy metals in food and feed
- dioxins (PCDD/Fs) and polychlorinated biphenyls (PCBs) in food and feed
- polycyclic aromatic hydrocarbons (PAHs) in food
- materials and articles in contact with food

Fera was relaunched as Fera Science Ltd. on 1st April 2015 as the result of a joint venture between Defra and Capita PLC. The NRL contract transferred to Fera Science Ltd. on this date.

Some background information is provided below on the establishment of European Union and National Reference Laboratories along with the legislative, administrative and scientific framework within which they work, since it is within this frame that this Annual Report of activities should be viewed.

1.2. Legislative Framework

1.2.1. Regulation (EC) No 882/2004

Regulation (EC) No 882/2004 of The European Parliament and of the Council of 29th April 2004 on official controls performed to ensure the verification of compliance with feed and food law, animal health and animal welfare rules provides legislation to ensure feed and food is safe and wholesome. The Regulation establishes a harmonised framework of rules for Member States to adhere to at a Community level. It also provides the legal basis for the European Commission to assess the effectiveness of national arrangements for official controls.

Regulation (EC) No 882/2004 can be found at:

<http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1399359846222&uri=CELEX:02004R0882-20130701>

1.2.2. Competent Authorities

The UK competent authorities responsible for official controls in respect of feed and food law are designated formally in domestic legislation that gives effect to Regulation (EC) No 882/2004 at a national level. In the UK, responsibility for official feed and food controls is held centrally. The Food Standards Agency (FSA) has responsibility at central Government level for the main body of feed and food law in the UK (both domestic and EU).

Regulation (EC) No 882/2004 stipulates that each Member State should establish and implement a Multi-Annual National Control Plan (MANCP). The MANCP for the United Kingdom (April 2013 to March 2018) was updated and extended in 2016 and is available from the Food Standards Agency:

www.food.gov.uk/enforcement/regulation/europeleg/feedandfood/ncpuk

1.2.3. Official Controls

These are checks carried out by the competent authorities in the Member States to monitor compliance by feed and food businesses with the requirements set out in 'feed law' and 'food law'. These checks might include inspections, audits, sampling and analysis.

Official controls also relate to the checks carried out by the European Commission's Inspection Services (e.g. DG Health and Food Safety Audits and Analysis) to assess the performance of national control authorities and national control systems.

1.2.4. The Rapid Alert System for Food and Feed (RASFF)

The Rapid Alert System for Food and Feed (RASFF) was put in place by the European Union to provide food and feed control authorities with an effective tool to exchange information about measures taken responding to serious risks detected in relation to food or feed. This exchange of information helps Member States to act more rapidly and in a coordinated manner in response to a health threat caused by food or feed. The FSA is a member of the RASFF network and is the UK contact point for RASFF notifications. The RASFF Portal website and its online searchable database of RASFF notifications provide users with a multitude of search and selection criteria.

1.2.5. Official Control Laboratories (OCLs)

Central competent authorities designate official laboratories for the purposes of chemical analysis or microbiological examination of feed or food samples taken by enforcement practitioners. Control bodies are independent third party organisations to which specific control tasks have been delegated by the competent authority. Delegated tasks might include chemical analysis, inspection, or sampling. The competent authority retains the responsibility for the work and for taking any formal enforcement action should non-compliance be found. Control bodies are subject to audit or inspection by the competent authorities in respect of the control tasks delegated to them.

In the UK, accreditation is undertaken by the United Kingdom Accreditation Service (UKAS). A list of official feed and food laboratories that undertake chemical analysis or microbiological examination of samples on behalf of local authorities and district councils is published on the Food Standards Agency website. The Association of Public Analysts (APA) website also gives contact details for official control laboratories:

<http://www.publicanalyst.com/>

1.2.6. European Union Reference Laboratories (EURLs)

EURLs are appointed by the Commission through Regulation (EC) No 776/2006 that amends Regulation (EC) No 882/2004.

EURLs assist the harmonisation process by increasing the current analytical scope throughout the EU in quantity and quality of the results. Summarising Article 32 of Regulation (EC) No 882/2004, EURLs for feed and food are responsible for:

- a) Providing NRLs with details of analytical methods, including reference methods;
- b) Coordinating application by the NRLs of the methods referred to in (a), in particular by organising comparative testing and by ensuring an appropriate follow-up of such comparative testing in accordance with internationally accepted protocols, when available;
- c) Coordinating, within their area of competence, practical arrangements needed to apply new analytical methods and informing NRLs of advances in this field;
- d) Conducting initial and further training courses for the benefit of staff from NRLs and of experts from developing countries;
- e) Providing scientific and technical assistance to the Commission, especially in cases where Member States contest the results of analyses.

Details of the EURLs relevant to this report are given in Appendix 1.

1.2.7. National Reference Laboratories (NRLs)

The European Commission has created a network of NRLs coordinated by the EURLs. This network of laboratories is responsible for setting up EU-wide standards for routine procedures and reliable testing methods in the areas of feed and food and animal health. Each Member State must designate an NRL to correspond to each EURL, although the NRL does not have to be located in the designating Member State.

The NRL role:

It is a requirement of Regulation (EC) No 882/2004 that NRLs:

- a) Collaborate with the EURL in their area of competence;
- b) Coordinate, for their area of competence, the activities of official laboratories responsible for the analysis of samples;
- c) Organise comparative tests between the official national laboratories and ensure an appropriate follow-up of such comparative testing;
- d) Ensure the dissemination to the competent authority and official national laboratories of information that the EURL supplies;
- e) Provide scientific and technical assistance to the competent authority for the implementation of coordinated control plans adopted in accordance with Article 53 (coordinated control plans).

EURLs establish a network between EURLs, NRLs and OCLs. The overall objective of the EURLs and NRLs is to improve the quality, accuracy and comparability of the results at OCLs. Full details of UK NRLs can be found in the Appendices of the UK Multi-Annual National Control Plan (see 1.2.2). Contact information for the individual UK NRLs operated by Fera are given in Appendix 2.

2. Fera National Reference Laboratory (NRL)

2.1. General and Contract Activities

There is an open and standing invitation from Fera to OCLs inviting them to participate in Fera NRL visits to them or for them to visit the Fera site for bespoke individual training. This is communicated to OCLs at the Steering Group Meetings. All Fera NRL contact information is available on the NRL area of the Fera website:

<http://fera.co.uk/about-us/national-reference-laboratory/contactusnrl.cfm>

2.2. Contact with the FSA

2.2.1. Changes at Fera

Fera was The Food and Environment Research Agency (an Executive Agency of Defra) until 31st March 2015 and became Fera Science Ltd. from 1st April 2015; a Joint Venture between Defra and Capita PLC.

2.2.2. NRL Project Management Meeting

Chelvi Leonard from the FSA visited Fera on 18th June 2015 and held a series of meetings with each of the NRL heads to discuss the work programmes for each area and planned future work. Also discussed were issues around sub-contracting of work by OCLs to laboratories in other Member States. A training event for metals was discussed and a full Steering Group meeting of all OCLs was planned for November 2015.

2.3. Steering Group Committee

The Steering Group Committee exists to maintain an overview of the NRL activities and ensure good communication with the OCLs. The Committee comprises Public Analysts, and staff from the FSA and Fera. The Public Analysts are seen as key members of the Steering Group Committee as end users of the results of much of the work of the NRL.

2.3.1. Ninth Steering Group Committee Meeting

This was held at the FSA on 30th November 2015. The meeting was attended by Martin Rose, Emma Bradley and Irene Leon all from Fera. Christina Baskaran, Mark Bond, Richard Burden, Chelvi Leonard, Bhavna Parmar and Gavin Shears attended from the FSA; William Munro (Food Standards Scotland) participated remotely via telephone. All OCLs were invited to send a representative. The following OCL representatives were present:

Duncan Arthur, Public Analyst Scientific Services

Susanne Brookes, Minton, Treharne and Davies Ltd

Shayne Dyer, Hampshire Scientific Services

Michelle Evans, Staffordshire Scientific Services

Jane White, Glasgow Scientific Services (remotely via teleconference).

An update on each area was given including EURL activities, legislation, methodology, training and the NRL website. Future training needs of the OCLs and possible activities the NRL could undertake to meet these were also discussed. Fera has checked OCL accreditation status using UKAS schedules. OCLs were informed that work was planned

for a check on OCL PT participation and results check. As previously outlined, a stronger emphasis on a more structured and formalised collation of OCL PT participation and performance is required by DG SANTE and the EURLs. This means that OCLs will be asked to provide this information by the NRL. It was re-iterated that the NRL is happy to do visits or set up training for OCLs. This can be individually or via the APA Training Committee. The possibility of horizontal training that cuts across all NRL areas such as Measurement Uncertainty, LOD, or sampling was also raised and it was agreed this could be useful.

2.4. Contact with Official Control Laboratories (OCLs)

2.4.1. OCL Contact Details Check

All OCLs were contacted and asked to confirm or amend their contact details. The contact list held by the NRL was updated accordingly.

2.4.2. OCL Accreditation Check

The accreditation status of OCLs was checked in February 2015. This was done by checking UKAS Testing Laboratories Schedules for each laboratory. Information was collected and tabulated for the five areas covered under the Fera NRL contract (food and feed). This exercise will be conducted approximately annually.

2.5. Training Activities

2.5.1. Arsenic and Other Metals in Rice Proficiency Test (PT) and Training Workshop

The PT was followed up by a workshop held at Fera in November 2015.

2.5.2. Mycotoxins

Fera held a one week training course on mycotoxins in July 2015 as part of an EU project (PLANTFOODSEC). Three OCLs attended.

2.5.3. Future Activities

Further activities and training identified are:

- LOD/LOQ based on new guidance document
- Measurement Uncertainty
- More semi-reference materials and associated semi-formal PTs similar to those previously provided by the NRL for OCLs.

2.6. Website

The Fera NRL website is seen as a key part of the NRL function, in terms of dissemination, as a source of resources and also as a means of communication and building a network of official control laboratories within the UK.

This is the Fera NRL website:

<http://fera.co.uk/about-us/national-reference-laboratory/index.cfm>

The content associated with each function is reviewed and updated as necessary in the interest of continual improvement. The website was reviewed at the Steering Group Meeting, including the additional alert notification information that is available on the mycotoxins page. This was thought to be useful, and may be considered for other areas.

2.7. Support/ Contact with Other NRLs

There has been regular contact with a number of NRLs across the year. Advice has particularly been provided for mycotoxins and materials and articles in contact with food covering a variety of topics.

2.7.1. Proficiency Tests

Fera were invited and participated in a Proficiency Test (PT) being organised by RIKILT for ochratoxin A in pig kidney. Fera was invited to participate in several PT studies run by other NRLs (The Netherlands and Belgium).

2.7.2. Workshops and Working Groups

Seven EURL Workshops were held in this period; mycotoxins, metals, PAHs, Food Contact Materials (2) and dioxins and PCBs (2). More information is given in each of the sections. The Food Contact Materials EURL held a workshop on ceramics that Fera participated in.

Fera is a member of a working group on criteria for Liquid Chromatography-Mass Spectrometry LC-MS methods for mycotoxin analysis, as well as working groups for dioxins and PCBs and Food Contact Materials.

2.7.3. CEN Working Groups

There was contact with a number of NRLs at several CEN Working Groups. Fera is a member of CEN TC327 WG5, CEN TC275 WG5, WG10 and WG13.

2.8. Future Activities

The following are planned as general activities for 2016-17:

- Participation in EURL PTs and circulation of information to OCLs when appropriate
- Visits to OCLs will be planned as requested
- Steering Group Committee Meeting
- Training Workshop Food Contact Materials (BPA).

3. Mycotoxins NRL

Susan MacDonald

3.1. Introduction

Mycotoxins are secondary metabolites produced by some moulds. They can occur in a wide range of foods, often with no visible signs of mould spoilage to the food. They have a wide range of chemical properties and toxicities to humans and food-producing animals. Exposure to some mycotoxins is controlled through European and National Legislation. The Contaminants in Food (England) Regulations 2013 provide for the enforcement of European Commission Regulation (EC) No 1881/2006, setting maximum levels for certain contaminants in foodstuffs. There are similar domestic Regulations for Scotland, Wales and Northern Ireland. Methods to be used for sampling and analysis for enforcement purposes are prescribed in Commission Regulation (EC) No 401/2006 and its subsequent amendments Commission Regulation (EU) No 178/2010 and Commission Regulation (EU) No 519/2014.

There have been a number of changes in European legislation relating to mycotoxins in the past year.

3.2. Activities of the EURL-NRL Network on Mycotoxins

The Joint Research Centre (JRC) Institute for Reference Materials and Measurements (IRMM) is the EURL for mycotoxins and is located in Geel, Belgium. It works together with appointed NRLs of the EU Member States. The EURL for mycotoxins aims to facilitate the implementation of European legislation related to monitoring of mycotoxins in food of plant origin and animal feed. The remit of the EURL was extended by the European Commission to also cover plant toxins such as pyrrolizidine alkaloids and tropane alkaloids.

The EURL website can be found at:

http://irmm.jrc.ec.europa.eu/EURLs/eurl_mycotoxins/Pages/index.aspx

3.2.1. Contact with the EURL

Contact with the EURL in this period has been extensive. Samples for 2015 PT were received and reported, there was communication about the OCL participation in the PT. The date for the next Workshop was received. Results for two method validation studies pre-trials were reported to the EURL, and there was correspondence about the methods. Fera registered to participate in the full method validation study for *Alternaria* toxins and results for the method validation study for a multimycotoxin method in feed were reported to the EURL. We also received an invitation to participate in the method validation study being run by the EURL for ochratoxin A in cocoa and spices, Fera did not participate but did forward the invitation to the UK OCLs.

3.2.2. EURL Workshop

The annual EURL-NRL Workshop was held in Brussels in October 2015. A meeting note was prepared and circulated. The work programme for the coming year was presented.

The work items proposed for 2016 are summarised below:

Objective 1: Two PTs for 2016 (multitoxin (including beauvericin and enniatins) and aflatoxin B₁), two PTs for 2017 (DON, possibly also multi toxin and also ergot alkaloids).

Objective 2: New scope for EURL– plant alkaloids –there will be a PT for tropane alkaloids in cereals in 2016. PT 2016 (atropine & scopolamine) at 1µg/kg each in infant food (and herbal teas) project to end before 1st April 2016. There will be one PT in 2017 for pyrrolizidine alkaloids (unless DG SANTE ask for something different).

Objectives 3 & 4: Follow up on PTs. These will be mandatory for mycotoxins but will not be mandatory to follow up for alkaloids but the EURL will offer follow up to support laboratories if needed.

Objective 5: Electronic working groups – documents will be produced. Money will be available for members of the groups to meet to work on these. The groups do not need to meet at the EURL, they can meet elsewhere.

Objective 6: Training on LC-MS will continue over the next 2 years, the EURL will also provide support to laboratories with methods, trouble shooting etc. The EURL can also offer other training at the request of the NRLs.

The meeting lasted one and a half days and many presentations were given. Preliminary results were presented for the EURL/NRL PT for citrinin and for some method validation studies. More information is given about these below. A presentation on the electronic working group on criteria for methods of analysis was given by Hans Mol from RIKILT. There was consensus that the criteria that have been established should be given a more formal basis, but the format was not agreed. Proposals included writing a Guidance Document, or preparing a document for the Working Group on Contaminants at the European Commission. This will need to be agreed.

3.2.3. CEN Committee TC275 WG5 – Analytical Methods for Natural Toxins in Food

A meeting was held on 21st to 22nd April 2015. The meeting discussed the status of the 11 projects currently underway as a result of Mandate M520. The projects were at different stages of progress. Some methods had been validated by interlaboratory study (ZON in maize oil, T-2 and HT-2 toxin), for some the pre-trial was underway and for others the pre-trials were planned for later in the year. A meeting note with more detail was produced by Fera and sent to the FSA.

A large number of method validation studies (MVS) will be carried out for this Mandate. Fera has been invited to participate in:

- Alternaria toxins in Food by LC-MS run by JRC (EURL)
- Fusarium toxins in cereals by LC-MS run by ISPA
- Phomopsins in lupins by LC-MS run by RIKILT
- Multitoxin screening method by LC-MS run by RIKILT/Eurofins
- Ochratoxin A in cocoa and spices run by JRC (EURL).

Fera agreed to participate in all except the ochratoxin spice MVS.

3.2.4. CEN TC327 WG5 – Analytical Methods for Natural Toxins in Animal Feed

This working group also has active Mandates (M521 and M522), with several active projects running. The fourth meeting of the WG was held on 6th May 2015; but the UK NRL was not represented. One of the main items discussed was a 'Criteria document' for mycotoxins analysis in feed. A meeting of TC327WG5 took place in October 2015. A note of the meeting was prepared and sent separately. Fera participated in the method validation study for a multi-toxin method for feed organised by the EURL under the Mandate, more information is given below.

3.3. Contact with Other NRLs

3.3.1. Method Validation Studies and Proficiency Tests

Fera has been in contact with RIKILT regularly for the method validation studies and the PT for tropane alkaloids. We are also partners with RIKILT in an EFSA project and so have regular contact for that. We have been in contact with BfR in Germany for the PAs in tea PT. There was also a lot of contact with the other NRLs at the EURL/NRL Workshop and the CEN meetings held in this period. Several of the Method Validation Studies that Fera is collaborating with were run by other NRLs, so there was contact about these. As Fera is project leader for two projects under Mandate M520 we have also been in contact with the NRLs about these. In addition, Fera will participate in the MVS run by RIKILT for ergot, pyrrolizidine and tropane alkaloids in feed.

3.3.2. Advice

Advice was provided to a laboratory in Estonia that carries out national testing for animal feed (specifically gave advice on extraction of silage). Provided advice to the Dutch NRL (RIKILT) about UK regulations for comfrey.

3.3.3. Training

We received a request to consider providing training to the NRL from Macedonia as a result of information being circulated about another training course that Fera ran through an EU project. This will be followed up and possibly an exchange or visit to Fera will take place.

3.4. Contact with the Competent Authority

3.4.1. EURL Work Programme and CEN activities

A copy of the EURL work programme was sent to the FSA. In addition, a list of all the method validation studies being conducted under the Mandates from CEN TC275 WG5 and TC327 WG5 was also provided, with an update of the status and information about our participation / invitation to participate.

3.4.2. General Advice

Fera gave advice and background information about a method for analysis of aflatoxin in vegetable oils that was being proposed for adoption as an ISO standard.

There was contact and discussion at the Steering Group meeting.

A request for information about analysis of pyrrolizidine alkaloids was received. A telecon took place where methods of analysis and measurement uncertainty were discussed. Information on methods, availability, source and prices of analytical standards was put together and supplied to the FSA to be used at the EU Working Group where the topic of PAs and possible regulation is under discussion.

3.5. Interlaboratory Comparisons

3.5.1. EURL PT 2015 Citrinin in Red Yeast Rice

The EURL/NRL proficiency test for 2015 was for citrinin in red yeast rice, following the introduction of a regulatory limit for citrinin in this dietary supplement in 2014. It was mandatory for NRLs to participate but the EURL also invited OCLs to participate via the NRLs. UK OCLs were contacted and invited to take part, Ad Hoc funds will be used to pay their registration fees. Six UK OCLs indicated they were interested but only two registered to participate. The laboratories were provided with analytical method advice, both a method provided by the EURL that had been developed by the Belgian NRL (as part of Mandate M520), as well as information about an immunoaffinity column method. A UK immunoaffinity column manufacturer offered to supply columns free of charge to the UK laboratories that wanted them, a few of the laboratories took up this offer. PT samples were received in July 2015 with a reporting deadline of September 2015. There were 2 test samples, one was mandatory as it was at a level relevant to the Regulatory limit, and the second sample was a low level sample that was optional, the results of which were used to assess the reporting limit capability of the participating laboratories. A report on performance had not been received by the end of the reporting period.

The results that Fera reported were very close to the assigned values presented at the EURL workshop and Z-scores were satisfactory.

3.5.2. EURL PT – Tropane Alkaloids in Cereals

The EURL planned to run one PT for tropane alkaloids in cereals in early 2016. The PT was offered to all interested laboratories free of charge as the European Commission wanted to know the capacity and performance of laboratories carrying out this analysis. Fera forwarded the invitation to all UK OCLs. Several UK OCLs registered to take part. Test samples (cereals) were received and analysed in this period. Results were submitted via the on-line portal. No feedback had been received at the end of the reporting period.

3.5.3. EURL PT – Tropane Alkaloids in Herbal Teas and Infusions

Due to the high number of laboratories that wanted to participate in the PT for tropane alkaloids an additional test for analysis of tropane alkaloids in herbal teas and infusions was also started. Test samples were received and analysed in this period. Results were submitted but no feedback had been received at the end the reporting period.

3.5.4. RIKILT PT – Tropane Alkaloids in Cereals

Cereal samples were analysed for atropine and scopolamine. The report of the study was received. Fera had satisfactory z-scores for scopolamine, but questionable results for atropine. An investigation to determine the cause revealed that the isotopically labelled internal standard (IS) for atropine was not available when the analysis was carried out and the results were corrected using the scopolamine internal standard. The test samples will

be re-analysed using the atropine internal standard and the results compared to the assigned values in the PT report.

3.5.5. BfR PT – Pyrrolizidine Alkaloids in Tea

Test samples were received and analysed for this PT. However, at data review it became apparent that there were issues, and the data did not pass internal quality control assessment. Therefore, the results were not reported. The PT organiser was informed and a copy of the final report was requested and will be provided so the data obtained can be compared to the other laboratories that participated.

3.6. Method Validation Studies

3.6.1. Multitoxin in Animal Feed Method by LC-MS/MS

This method validation study was run by the EURL as part of Mandate M521 for CEN TC 327/WG5. Results of the pre-trial were submitted in May 2015. Feedback was received that our results had been satisfactory and Fera was invited to take part in the full method validation study. Samples were received in early July 2015. A modified version of the SOP as well as instructions for the conduct of the study were received.

The test samples were animal feed that contained a range of incurred mycotoxins at different levels. Due to the different limits of the mycotoxins the samples had to be analysed undiluted in order to determine the lower level mycotoxins (e.g. aflatoxins, ochratoxin A, zearalenone, T-2 and HT-2 toxin), the extracts also had to be diluted by different factors and then analysed for the higher level mycotoxins (deoxynivalenol and fumonisins). Spiked samples were also analysed. An intermediate overview of the results received was circulated. Thirty one laboratories took part in the method validation study, 28 submitted results, 1 set were rejected so 27 data sets were included in the data analysis. Overall the method performance was very good with HorRat values of 2.0 or below found for all analytes in all test materials. The exception to this was for fumonisin B₁ where a HorRat value of 2.2 was found for one material. It was also observed that some laboratories (not Fera) reported high values for fumonisins B₁ and B₂ in the incurred test materials, while the spiked samples gave more consistent results. A questionnaire was sent to all laboratories after the study to try to establish the cause of this and this is still undergoing investigation. However overall it appears the method is fit for purpose and will be submitted to CENTC327WG5 for consideration.

3.6.2. Alternaria Toxins in Food by LC-MS/MS

Under CEN Mandate 520 the EURL will develop and validate a method for alternaria toxins. Results of the pre-trial were submitted in May 2015. Fera was invited to register and participate in the full validation study based on these results.

The test materials, consumables, standards and documents were received in September 2015. A revised SOP was received. The pre-trial only included test samples of tomato juice. For the full trial, three sets of samples have been supplied, these are; cereals, sunflower seeds and tomato juice samples. In total there were approximately 30 test samples, and additional spiking and blank samples. Results were submitted to the co-ordinator (the JRC/EURL) in November 2015. The final report of the study had not been received

3.6.3. Phomopsins in Lupins by LC-MS/MS

The project leader (RIKILT) was contacted to ask if the UK OCLs could be invited to take part but the limit for the number of participants had already been reached. The test samples for the pretrial were received from RIKILT in early July 2015. Results were reported to the co-ordinator at the end of July. Fera was invited to participate in the full method validation study later this year. The pre-trial was successful; the main trial was planned for late 2015 but was delayed until early 2016.

3.6.4. Multi-toxin Screening in Food by LC-MS/MS

The test samples for the pretrial were received from RIKILT in July 2015 and results were submitted in August. This was quite a large study as a large number of analytes were included in the method. Reporting was also quite complex as information about signal to noise for all analytes and their C13 labelled internal standards was requested. Fera achieved good results in the pretrial and was invited to participate in the full method validation study that took place. To date no feedback has been received on the overall results of the study.

3.6.5. Multi-toxin Method for Fusarium Toxins in Food by LC-MS/MS

Under CEN Mandate M520 ISPA/CNR in Italy will develop and validate a method for Fusarium toxins in food by LC-MS/MS. The test materials for the pre-trial for this study were received in this period and analysis started. The full MVS will take place in late 2016.

3.6.6. LC-MS/MS Method for Tropane Alkaloids and Ergot Alkaloids in Feed

Under Mandate M521 from CEN TC327 WG5, RIKILT are project leaders to develop and validate a method for ergot and tropane alkaloids in feed. Pre-trial test samples were received for this study and the analysis started in this period. The full MVS is due to be completed by October 2016.

3.6.7. Ochratoxin A in Meat Products by HPLC-FLD

The Italian NRL is project leader to develop and validate a method for ochratoxin A in meat products under Mandate M520. An invitation to participate in the method validation study was received; this open invitation was circulated to UK OCLs by Fera. Fera registered to participate in the MVS with Ad Hoc funding. Test samples were not received in this period.

3.6.8. Ochratoxin A in Spices and Cocoa by HPLC-FLD

Fera was invited to participate in this method validation study but declined as the methodology is very similar to other methods we use and it would not have any benefit to broaden our scope or capability. The OCLs were invited as the method is intended for the control of ochratoxin A in spices and may be more relevant to the laboratories that carry out those controls. Several OCLs participated in the study.

3.7. Supporting the UK Official Control Laboratories

3.7.1. Advice

Advice was given to OCLs on the following topics:

- Method advice about citrinin analysis (both LC-MS and LC-FLD) was provided after the OCLs were invited to take part in the EURL PT.
- Fera arranged supply of citrinin immunoaffinity columns for free to the OCLs taking part in the PT.

- The invitation to participate in the EURL PT for tropane alkaloids was forwarded to all UK OCLs.
- Method information and advice about ochratoxin A analysis in pepper was provided to an OCL.
- Information about tropane alkaloid analysis was provided to one OCL.
- An invitation to participate in a method validation study for ochratoxin A in meat products was circulated to all OCLs.

3.7.2. Training

A one week training course on Fusarium moulds and their mycotoxins was given in July 2015. It was organised under the framework of the EU funded project PLANTFOODSEC, but was offered to UK OCLs. Three OCLs attended.

4. NRL Heavy Metals

Malcolm Baxter

4.1. Introduction

Contaminants such as heavy metals are substances that have not been intentionally added to food. These substances may be present in food as a result of the various stages of its production, packaging, transport or holding. They also might result from environmental contamination. Since contamination generally has a negative impact on the quality of food and may imply a risk to human health, European legislation lays down maximum allowed limits in foodstuffs. EU regulations cover the following heavy metals: cadmium, lead, mercury and inorganic tin. Legislation can be found in European Commission Regulation (EC) No 1881/2006, amended by Commission Regulation (EU) No 420/2011.

Sampling methods and the methods of analysis for the official control of the levels of cadmium, lead, mercury and inorganic tin are given in Commission Regulation (EC) No 333/2007.

The EURL website can be found at:

<https://ec.europa.eu/jrc/eurl/heavy-metals>

4.2. Activities of the EURL/NRL Network

4.2.1. EURL Workshop

The 10th EURL-HM Workshop was held 28th to 29th Sept 2015 in Brussels. The meeting covered the following topics:

4.2.1.1. 2015 Activities & WP 2016

A general overview of EURL activities for 2015 was presented. Matrices selected for 2016 PT will be river caught fish and a palm kernel expeller feed. Speciation analysis is becoming more prominent in these PTs. Methyl mercury will be one of the analytes requested in the fish matrix and inorganic arsenic will be requested in both matrices. Suggestions were requested from NRL's for proficiency testing in 2017.

4.2.1.2. Proficiency Tests Held in 2015

EURL-HM-20 Chocolate

The material was a South-American (64% cocoa) chocolate purchased at a local market. Screening indicated elevated cadmium content and lower levels of lead and arsenic. The material was processed and packaged by IRMM. The test material was analysed by six expert laboratories to obtain assigned values. Of interest, only one expert laboratory reported results for inorganic arsenic and mercury was below the detection limit for all of them.

Cadmium posed no problem for the participants but lead and arsenic proved more difficult, probably due to the low levels present. A surprising number of participants returned a

result for mercury when the element was not detected by the expert laboratories. The sample size was an issue for some laboratories who required a second set to complete their tests.

EURL-HM-21 Kaolinitic clay

This was a commercially available feed additive and just required sieving prior to bottling. Homogeneity tests indicated that arsenic, mercury and extractable lead were homogenous but cadmium was not.

This matrix caused more analytical problems than the food, especially for inorganic arsenic. Based on the type of material, a mineral matrix, inorganic arsenic should be the predominant species present. However, arsenic was well bound into the clay structure and methods of extraction using a “soft” approach invariably returned low values. No participant’s inorganic arsenic result was equal to the total arsenic content, although extractions employing concentrated hydrochloric acid to solubilise/leach the sample proved the most effective.

4.2.1.3. EURL Workshop Presentations

(1) Significant digits and rounding.

A brief guide on this subject based on ISO GUM § 7.2.6 / QUAM 2012 guidelines. Some useful examples were given.

(2) Determination of chromium in food of vegetable origin

Low recoveries associated with high silicate levels. Chromium is bound strongly to silicates (just like aluminium). Use of excess hydrofluoric acid (HF) (1 ml in a digest) did not solve the problem as CrF precipitated. Reducing the HF level to 0.1 ml achieved far better results. Unfortunately, HF requires special handling procedures and is often barred from laboratory use.

(3) Three short talks on inorganic arsenic (iAs)

- a) prEN 16802 iAs by HPLC-ICP-MS
- b) Follow-up study on iAs in canned peas (IMEP-118)
- c) Validation of iAs in food and feed with HPLC-ICP-MS.

(4) DG SANTE requested the EURLs on food contaminants (heavy metals, PAHs, mycotoxins and dioxins) to set up a guidance document on how to assess LoD and LoQ. LoQ is a simple multiple of LoD (now set at 10 times LoD).

There are three main approaches to determining LoD:

- Estimation via blanks • Paired observations (when suitable blanks are not available)
- Estimation via calibration (good for assessing linearity at/near LoD)

A date for the next EURL-HM Workshop has been set for 5th to 7th October 2016 in Geel, Belgium. This will be organised together with the sister EURLs as a special event to celebrate their 10th anniversary.

4.3. Interlaboratory Comparisons

4.3.1. EURL-HM-20: Determination of Total As, Cd, Pb and Inorganic As in Chocolate

A dark chocolate (64% cocoa) was analysed for total arsenic, cadmium, lead, mercury and inorganic arsenic. Fera achieved good z-scores for all measurements.

4.3.2. EURL-HM-21: Determination of Total As, Cd, Hg, Extractable Pb and Inorganic As in Kaolinitic Clay

The sample supplied was a commercially available feed additive. No issues were encountered when analysing this material. Our results were acceptable. No z-scores were issued for cadmium as the material was deemed inhomogeneous for this element. Participants' results for inorganic arsenic were too varied to obtain a consensus value.

4.3.3. Proficiency Testing for the Determination of Total As, Cd, Hg, iAs and Pb in Powdered Rice (FAPAS® 07230, NRL04)

This proficiency test was instigated in response to forthcoming regulations concerning inorganic arsenic in rice. The exercise was sponsored by the FSA and run by the NRL in conjunction with FAPAS®. Ten OCLs registered with eight submitting results. The FAPAS® and NRL reports have been issued and in general the OCL performance has been satisfactory. Questionable results have been investigated, along with those laboratories that did not submit any results. The NRL04 material has been circulated.

4.4. Method Validation Studies

4.4.1. CEN Method Trial for Aluminium

The CEN_BVL Collaborative Trial "Aluminium in Food" report was received. This was a method trial where participating laboratories were given guidelines on the digestion of foodstuffs and measurement. Participating laboratories were requested to use their routine equipment. An initial scan of the draft report indicates Fera results look acceptable.

4.5. Contact with other NRLs

4.5.1. Request for Inorganic Arsenic Methodology

Jens Sloth (Denmark NRL), project leader for the CEN project: "Determination of inorganic arsenic in foodstuffs of marine and plant origin by anion-exchange HPLC-ICP-MS after waterbath extraction" was contacted. His laboratory had also developed methods involving less sophisticated technology and was happy to supply details of these for use in the OCL training day run by Fera. This gave the attendees a wider range of options to suit their individual needs.

4.5.2. CEN Meeting

The 25th meeting of CEN TC275/WG10 - Trace Elements 7th- 8th May 2015, DIN, Berlin was attended. The main topics discussed were as follows:

(1) The main discussions were around finalising the two standardised methods on the mandate:

- EN16802 inorganic arsenic in foods of marine and plant origin
- EN16801 methyl mercury in foodstuffs

Comments received from the CEN Enquiry were discussed and proposed changes agreed with the project leaders. Both projects have now been prepared as final draft standards pending addition of minor revisions from project leaders (see below for more details). Other discussions focussed around new working item on the determination of minerals by ICP-OES and the aluminium interlaboratory study. EURL in heavy metals gave two presentations on methylmercury and inorganic arsenic in foods.

(2) EN 16801 Determination of methylmercury by isotope dilution GC-ICPMS in foodstuffs of marine origin (N 356)

- Technical discussions included detection limits for freeze-dried vs fresh foods, definition of rotational mixing, removal of reference material table due to constant changing of RMs etc.
- As results are on the lower limits of concentration then WG agreed that the Thompson modification should be used when predicting the relative standard deviation of reproducibility (RSD_R)
- The method will be published on NIFES website but will cite the CEN standardisation work

(3) EN 16802 Determination of inorganic arsenic in foodstuffs of marine and plant origin by anion exchange HPLC-ICP-MS following waterbath extraction (N 358)

- WG agreed to keep the technical specification CEN/TS 16731:2004 on determining hydride-reactive arsenic in rice using HG-AAS despite the new mandated standard EN16802 on iAs as it was felt that the TS was a cheaper more accessible method which could be used for screening purposes by laboratories that do not have access to HPLC-ICP-MS instrumentation.
- Various technical recommendations were made including listing organic arsenic standards, alternative suitable columns, dilution of matrix due to shift of retention time
- Method was found to be applicable for meat but has not been validated within this interlaboratory trial so there is an option for other laboratories to validate the method on foods of animal origin.
- Maximum levels to be adopted in legislation this year for iAs in rice – currently Codex recommends that the level of arsenic in rice does not exceed 0.2 mg/kg.

Both EN standards will be updated and sent to WG10 for final comments before sending to TC275 for formal vote.

(4) Determination of minerals by ICP-OES (N360)

This method was proposed by the German delegates (Dr Habernegg LGL and Dr Timo Kapp BVL) at the last meeting and sent for CEN Enquiry. Extensive comments received following the enquiry especially from the French were discussed at lengths during this meeting. Main comments were on the type of foodstuffs included within the study in particular the milk and how this overlaps the various ISO/IDF Milk standards. Horrat values for Ca and P in milk were high (>2) however, it was realised that the IDF/ISO method is based on powdered milk which is more homogenous in nature than liquid milk

which was the matrix used in this study. Other issues with the method were that the digestion step for Fe is not well described and for certain matrixes there were issues with the determination of Mn and Cu. Germany has agreed to make changes to the method but have requested WG10 to send in their own comments by July directly to Dr Habernegg who will revise the standard.

(5) Future Projects

(5.1) Aluminium by ICP-OES – Interlaboratory study

This method was proposed by the German delegates with the intention for WG10 take it up as a new working item (NWI). An interlaboratory study has been completed and the method report will be published in Jan 2016. This proposed method intends to cover more parameters e.g. wetting phase, acids used, digestion temp etc. than is currently covered under existing Al standard EN13805. The method has been trialled on 8 matrices (cocoa, wheat noodles, cheese, infant formula, liver, Polish herbs* and beetroot). *Polish herb was a reference material. 14 laboratories from 4 different countries took part (including Fera, UK) using both ICP-MS and ICP-OES and no apparent difference was found between the methods. Limitations included low values for infant formulae and bimodal distribution from herbs study due to low digestion temp used by some laboratories. Fera is waiting for the English translation of the report which seems to be slow coming.

(5.2) Update of EN13806 (Determination of mercury using CV-AFS)

It is understood this standard is being revised by the German delegates. A further trial is planned using cold vapour AFS. 10-12 experienced laboratories are required to participate in the interlaboratory trial. Dr Warren Corns has volunteered to locate laboratories in UK to undertake the study.

(6) Any other business

Future project EURL proposal “Seafood – Determination of methylmercury in seafood by elemental mercury analysis”.

EURL (Beatrix de la Calle) introduced this item and confirmed that this extraction method does not overlap with the current mandated method for MeHg and covers all organo-mercury compounds. 5 countries voted favourably for the method to be developed. UK abstained from the vote due to unknown number of laboratories that would use elemental analysis. This method will be proposed at the next TC275 meeting as a preliminary work item under WG10.

EURL presentation on the determination of inorganic arsenic in food using hydride generation.

EURL, Beatrix de la Calle, introduced a new method to determine iAs in food using hydride-generation atomic absorption spectroscopy (HG-AAS) and was proposed as an alternative method to the mandated one which uses ICPMS as not all laboratories have ICPMS. The method, which has been validated with 5 expert laboratories that used both the ICPMS and HG-AAS and 12 EU laboratories, showed that it can be used for complex samples and gives good HorRat values. Limitation to this method is the use of chloroform, which may have an impact on environmental aspects. The method is currently on the EURL website and can be downloaded.

(7) Next Meeting

The next meeting will take place in May 2016 in the Netherlands. It is proposed that this will be a two day meeting starting at 1pm on a Thursday and all day Friday.

4.6. Supporting the UK Official Control Laboratories (OCLs)

4.6.1. NRL04 Reference Material

The report for OCL participation in the NRL04 reference material exercise was completed. The NRL04 exercise was run in conjunction with FAPAS® 07230 PT (rice powder). The NRL04 report and free samples were distributed to OCLs that took part in this PT.

4.6.2. OCL Training Workshop: Inorganic Arsenic Speciation

The Workshop was held in November 2015 and ten delegates attended. Presentations were given covering legislation and methodology. The overall feedback from OCLs about this event was very encouraging.

4.6.3. Advice

Provision of advice to OCL on methods for new equipment (microwave and ICP-OES).

An OCL was supplied with a method based on SPE as presented at our last Workshop.

4.6.4. Invite to Proficiency

Circulated a registration email to OCLs of a forthcoming IRMM-PT-43 on "As & iAs in Rice".

5. NRL Dioxins and PCBs

Martin Rose

5.1. Introduction

Polychlorinated dibenzo-p-dioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs), collectively referred to as dioxins (PCDD/Fs), along with polychlorinated biphenyls (PCBs) are a group of toxic and persistent chemicals. Their effects on human health and on the environment include dermal toxicity, immunotoxicity, reproductive effects and teratogenicity, endocrine disrupting effects and carcinogenicity. There is considerable public, scientific and regulatory concern over the negative effects on human health and on the environment of long-term exposure to even the smallest amounts of dioxins and PCBs. Over the past two decades the European Commission has proposed wide ranging legislation aimed at directly or indirectly reducing the release of these compounds into the environment, with the objective of reducing human exposure and protecting human health and the environment.

The EURL website can be found at:

<http://www.crl-freiburg.eu/dioxin/index.html>

5.2. Activities of the EURL-NRL Network on Dioxins and PCBs

5.2.1. EURL Workshops

There were two workshops that took place during the year. The first was hosted by the Portuguese NRL in Lisbon (workshop held in May 2015) and the second workshop was hosted by the Dutch NRL at RIKILT in Wageningen in December 2015. These meetings covered the topics outlined below and other items of general interest for the network.

5.3. Interlaboratory Comparisons

5.3.1. EU-RL Proficiency Test on the Determination of PCDD/Fs, Dioxin-like PCBs and Indicator PCBs in Animal Feed 2015: Sugar Beet Pulp

The preliminary results and evaluations for PCDD/Fs and PCBs were circulated prior to the Lisbon workshop, and the final report for this exercise was received and distributed afterwards. Despite the concentrations for WHO-PCDD/F-PCB-TEQ and WHO-PCDD/F-TEQ for the test sample 'sugar beet pulp' (1501-AFB) being in the range of EU maximum levels and action thresholds, assigned values could not be calculated for these sum parameters and the relevant individual PCDD/F congeners due to the high variation of participants' results. Therefore, the EURL conducted a general follow-up exercise on the results for the test sample 'sugar beet pulp' (1501-AFB).

5.3.2. EU-RL Proficiency Test on the Determination of PCDD/Fs and PCBs in Vegetable Oil

For the first time there were UK OCLs that participated in this scheme. This includes OCLs who undertake dioxin analysis for official control themselves (albeit analysis done outside the UK within part of the same company) and by sub-contract laboratories. The

test sample was shipped during September 2015 and the deadline for the reporting of results was 1st November 2015. The final report was issued in March 2016 and the UK NRL had good performance.

5.3.3. EU-RL Proficiency Test on the Determination of PCDD/Fs and PCBs in Halibut Filet and Fish Oil 2016

The EURL PT exercise for Halibut Filet and Fish Oil was organised for the first half of 2016, and UK OCLs were invited to participate. The results of the exercise should be available during summer 2016.

5.4. Working Group Activities

5.4.1. Measurement Uncertainty Core Working Group

The main objective of the working group was to provide the EURL/NRL network with the tools for a harmonised approach to estimating measurement uncertainty (MU) i.e. a working document with guidelines, including practical examples. An initial meeting was held in Freiburg on the 19th November 2015, followed by the meeting in Wageningen on the 3rd December 2015 and in Rome during March 2016.

5.4.2. Guidance Document on Measurement Uncertainty

A final draft guidance document will be presented to the network for agreement in May 2016, with publication of the final document due later in 2016 or early 2017.

5.4.3. Guidance Document on the Estimation of LOD and LOQ

A document, 'Guidance Document on the Estimation of LOD and LOQ for Measurements in the Field of Contaminants in Feed and Food' has been prepared in conjunction the EU Reference Laboratory for Polycyclic Aromatic Hydrocarbons, the EU Reference Laboratory for Dioxins and PCBs in Feed and Food, the EU Reference Laboratory for Heavy Metals in Feed and Food, and the EU Reference Laboratory for Mycotoxins. The document includes a significant contribution from the Dioxins and PCBs network, titled 'Limit of Quantification for the Analysis of Contaminants using Isotope Dilution Mass Spectrometry, in particular PCDD/F and PCB Analysis'.

5.4.4. Working Group on Congener Patterns and Congener Profiles Database

There was a meeting of the congener patterns working group held at the Federal Environment Agency, Berlin, Germany. The reason for the location was because of the work they are already doing to build a database for congener pattern recognition. The WG was able to give input and direction to help make certain that the work would be suitable also for the needs of the NRL network. Following this workshop, the working group started work on drafting a paper to supplement these efforts. The paper will give profiles associated with specific incidents to help identify sources should future contamination events occur.

6. NRL PAHs in Food

Joe Holland

6.1. Introduction

Polycyclic aromatic hydrocarbons (PAHs) constitute a large class of organic compounds containing two or more fused aromatic rings made up of carbon and hydrogen atoms. Hundreds of individual PAHs may be formed and released during incomplete combustion or pyrolysis of organic matter, during industrial processes and other human activities. PAHs are also formed in natural processes, such as carbonisation.

In food, PAHs may be formed during processing and domestic food preparation, such as smoking, drying, roasting, baking, frying or grilling. Vegetables may be contaminated by the deposition of airborne particles or by growth in contaminated soil. Meat, milk, poultry and eggs will normally not contain high levels of PAHs due to rapid metabolism of these compounds in the species of origin. However, some marine organisms, such as mussels and lobsters are known to adsorb and accumulate PAHs from water, which may be contaminated, for example by oil spills. Of the many hundreds of PAHs, the most studied is benzo(a)pyrene and exposure to this was controlled by European Commission Regulation (EC) No. 1881/2006, setting maximum levels for certain contaminants in food stuffs.

The EURL website can be found at:

<https://ec.europa.eu/jrc/eurl/pahs>

6.2. Contact with the EURL

6.2.1. EURL Scope

DG SANTE informed the EU Member States about the changed scope of the EURL PAH. DG SANTE requested the EURL PAH to extend the scope to other process contaminants than PAHs. The EURL PAH took account of this request in the 2016 work programme and sent a letter with a survey to NRLs to help organise activities in the 2016. Consequently, a proficiency test (PT) on the determination on MCPD esters and glycidyl esters in food was proposed for the year 2016, as well as the PT on the determination of the four EU marker PAHs in food. NRLs were also invited to present methodology and experience of MCPD analysis.

6.2.2. EURL Workshop

The 10th EURL-PAH Workshop was held on 19th and 20th October 2015 at IRMM, Brussels.

The first day of the 10th EURL Workshop concentrated predominantly on PAHs. There was an introduction explaining the extension of scope to some of the EURLs, an update on the situation of NRLs, an update on the standardisation of PAH methods by CEN and an update on certified reference materials. This talk also covered the relevance of PAH analysis in food with recent RASFF entries and a brief look at the changes in legislation. The 2015 PTs were then discussed and then there were presentations on PAH screening methods followed by presentations on current work conducted by NRLs. The first day

concluded with a talk from Thomas Wenzl about the LOD/LOQ guidance document and group discussion.

The second day began with a presentation given by Frans Verstraete from DG SANTE on PAHs and other processing contaminants. The rest of the meeting was devoted to the extension to scope, MCPD methods and analysis for which Warwick Anderson from Fera gave a presentation on our experience.

6.2.3. CEN Method

CEN food analysis methods for determination of benzo(a)pyrene, benz(a)anthracene, chrysene and benzo(b)fluoranthene (PAH4):

- 4 PAHs by GC-MS: Thomas Wenzl - Standard EN 16619:2015 published 30 April 2015
- 4 PAHs by HPLC-FD: Pedro Burdaspal - CEN/TS 16621 (PAHs in foodstuffs by HPLC-FD).

6.3. Interlaboratory Comparisons

6.3.1. EURL PAH 2015 PT Smoked Fish

We participated in the 16th inter-laboratory comparison organised by the European Union Reference Laboratory for Polycyclic Aromatic Hydrocarbons – Four marker PAHs in smoked fish. Fera achieved excellent z-scores in this exercise.

Two OCLs, registered for this PT; although one OCL did not submit results.

6.3.2. EURL PAH 2015 PT Cocoa Products

We participated in the 16th inter-laboratory comparison organised by the European Union Reference Laboratory for Polycyclic Aromatic Hydrocarbons – Four marker PAHs in cocoa products. Fera also achieved excellent z-scores in this exercise.

Two OCLs, registered for this PT. Both laboratories achieved satisfactory results for the milk chocolate on both whole product and fat weight basis. One OCL had a questionable result for chrysene for the cocoa powder on both product and fat basis. The other OCL had a questionable result for benzo(b)fluoranthene for the cocoa powder on a whole product but achieved a satisfactory z-score on a fat weight basis.

6.4. Supporting the UK Official Control Laboratories (OCLs)

6.4.1. Advice

The EURL contacted Fera regarding OCL PT data submission. There were issues with submitting data for the interlaboratory comparison study on the determination of the 4 marker PAHs in cocoa products for one OCL. As NRL, Fera clarified what was required with both the EURL and OCL, then collated and submitted results on their behalf.

7. NRL Materials and Articles in Contact with Foods Emma Bradley

7.1. Introduction

The term materials and articles in contact with food describes any material that may come into contact with a foodstuff, either directly or indirectly. The most obvious example is food packaging but the term also encompasses materials (and articles) used in food processing, transport, preparation and consumption. Any chemical constituents present have the potential to transfer to the foods with which they come into contact. This transfer is known as chemical migration. The migration of chemicals from food contact materials and articles is controlled by EU legislation which has been implemented in the United Kingdom.

7.2. Activities of the EURL/NRL Network on Food Contact Materials

Regulation (EC) No. 882/2004 on Feed and Food Controls establishes the European Commission Joint Research Centre as the European Union Reference Laboratory for Food Contact Materials (EURL-FCM). The EURL-FCM website can be found at:

<https://ec.europa.eu/jrc/en/eurl/food-contact-materials>

7.2.1. Contact with the EURL

The excellent working relationship with the EURL was maintained. Fera staff participated in a workshop on ceramics hosted by the EURL and DG SANTE. The EURL-NRL network is working together to establish a mechanism by which information, methodologies, etc. can be shared, i.e. working together to achieve efficiencies in enforcement.

7.2.2. EURL Workshop

The EURL organised one Stakeholder Workshops on Ceramics in October 2015.

7.2.3. EURL Meeting

Two EURL-NRL network plenary meetings were held, one in June and one in September 2015. Discussions covered the work on ceramics, the inter-laboratory comparison exercises which are both described elsewhere in this report as well as an update on the EURL activities on the databank of substances and methods.

Information on the databank of substances can be found at:

<https://ec.europa.eu/jrc/en/eurl/food-contact-materials/substance-database>

Information on the test methods can be found at:

<https://ec.europa.eu/jrc/en/eurl/food-contact-materials/test-methods>

7.3. Interlaboratory Comparisons

7.3.1. ILC01_2015. Temperature Control (Article Filling)

ILC01_2015 was carried out in October. This was an exercise on temperature control during migration tests by article filling. This ILC was designed following work done by

NRL-Italy and presented to the EURL-NRL network in 2014 in which the laboratories were reporting different results for the same samples tested by article filling. The cause of the differences was explained by the length of time taken to reach the exposure temperature. In this exercise NRLs were asked to monitor the temperature during the exposure phase of a migration test defined as 2 hours at 70°C and to report the temperature profile as well as a description of the process followed. The aim of the ILC was to identify best practice for pre-heating, filling and exposing articles to food simulant to ensure that the required exposure temperature is observed. The report will be made available through the EURL website (<https://ec.europa.eu/jrc/en/eurl/food-contact-materials>) once finalised.

7.3.2. ILC02_2015. Specific Migration in Simulant A

The aim of this ILC was to test the NRLs' capability to perform the migration test and subsequent quantification of selected migrating substances. As a Proficiency Testing exercise laboratories were free to use any method of analysis. A multi-layer plastic film test material was received and exposed to Simulant A for 10 days at 60°C in accordance with EN standards. The migration of caprolactam and 2,4-di-tert-butyl-phenol from the film into the simulant was determined. The report will be made available through the EURL website (<https://ec.europa.eu/jrc/en/eurl/food-contact-materials>) once finalised.

7.4. Contact with other NRLs

7.4.1. Advice

The following advice/support was provided:

- Provision of advice to NRL-Germany regarding testing for and analysis of coating migrants.
- Presented at a European Parliament Workshop – Food contact materials: how to ensure food safety and technological innovation in the future? - Supporting NRL Denmark. More information can be found at:
<https://polcms.secure.europarl.europa.eu/cmsdata/upload/7cbbf255-a595-4cfe-bd65-49353b41c8f9/Press%20release%20food%20contact%20materials%20workshop.pdf>

7.5. Contact with the Competent Authority

7.5.1. Advice

The following advice/support was provided:

- Hosted a visit of the FSA lead on food contact materials to demonstrate migration methodology as well as to discuss the current topics from the Member States meetings. Through telecons, face to face meetings and email exchange discussions were held on EURL-NRL activities on ceramics, proposed changes to Regulation 10/2011, the outputs of the EFSA FIP network, mineral hydrocarbon testing, specific substances approved for use in food contact plastics.
- NRL Steering Committee attendance.

7.6. Supporting the UK Official Control Laboratories (OCLs)

7.6.1. Advice

The following advice/support was provided:

- Provision of advice to OCL on testing PTFE frying baskets.
- Provision of advice to OCL on PAA testing and rules for repeat use.

Appendix 1: EURL Contact Information

Contaminant	EURL
Mycotoxins	<p>European Union Reference Laboratory for Mycotoxins JRC-IRMM Joint Research Centre Institute for Reference Materials and Measurements Retieseweg 111 B-2440 Geel, Belgium</p> <p>Tel.: +32 (0)14 571 229 Fax: +32 (0)14 571 783</p> <p>E-mail: jrc-irmm-info@ec.europa.eu</p> <p>Operating Manager: Jörg Stroka</p>
Heavy Metals in Feed and Food	<p>European Union Reference Laboratory for Heavy Metals in Feed and Food JRC-IRMM Joint Research Centre Institute for Reference Materials and Measurements Retieseweg 111 B-2440 Geel, Belgium</p> <p>Tel.: +32 (0)14 571 252 Fax: +32 (0)14 571 865</p> <p>Operating Manager: Piotr Robouch</p> <p>E-mail: JRC-IRMM-EURL-HEAVY-METALS@ec.europa.eu</p>
Dioxins and PCBs in Feed and Food	<p>European Union Reference Laboratory for Dioxins and PCBs in Feed and Food c/o State Institute for Chemical and Veterinary Analysis of Food Bissierstrasse 5 D-79114 Freiburg - Germany</p> <p>Tel.: +49 761 8855 500 Fax: +49 761 8855 100</p> <p>Dr. Rainer Malisch Dr. Johannes Haedrich Dr. Alexander Kotz</p> <p>E-mail: info@crl-freiburg.eu</p>

Contaminant	EURL
Polycyclic Aromatic Hydrocarbons - PAHs	<p>European Union Reference Laboratory for Polycyclic Aromatic Hydrocarbons European Commission Joint Research Centre Institute for Reference Materials and Measurements Retieseweg 111 B-2440 Geel, Belgium</p> <p>Tel.: +32 (0)14 571 320 Fax: +32 (0)14 571 783</p> <p>Operating Manager: Thomas Wenzl</p> <p>E-mail: JRC-IRMM-EURL-PAH@ec.europa.eu</p>
Materials and Articles in Contact with Food	<p>European Union Reference Laboratory for Food Contact Materials European Commission Joint Research Centre Institute for Health and Consumer Protection Food Contact Materials Group TP 260 Via E. Fermi 2749 I-21027 Ispra (VA) Italy</p> <p>Tel.: +39 0332 785889 Fax: +39 0332 785707</p> <p>Operating Manager: Dr Catherine Simoneau</p> <p>E-mail: JRC-IHCP-EURL-FCM@jrc.ec.europa.eu</p>

Appendix 2: Fera NRL Contact Information

Area	Name and Contact Details
<p>General enquiries and information</p>	<p>Food and Environment Research Agency Sand Hutton York YO41 1LZ</p> <p>Tel: +44 (0)1904 462000 Fax: +44 (0)1904 462111</p> <p>Website: http://fera.co.uk/about-us/national-reference-laboratory/index.cfm E-mail: nrl@fera.co.uk</p>
<p>Head NRL Chemical Safety in Food and Feed</p>	<p>Susan MacDonald</p> <p>Tel: +44 (0)1904 462558 E-mail: susan.macdonald@fera.co.uk</p>
<p>Mycotoxins in Food and Feed NRL</p>	<p>Susan MacDonald (as above)</p>
<p>Heavy Metals in Food and Feed NRL</p>	<p>Malcolm Baxter</p> <p>Tel: +44 (0)1904 462667 E-mail: malcolm.baxter@fera.co.uk</p>
<p>Dioxins and PCBs in Feed and Food NRL</p>	<p>Martin Rose</p> <p>Tel: +44 (0)1904 462655 E-mail: martin.rose@fera.co.uk</p>
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