ACRYLAMIDE - EU Summary of Activities

STUDY AREA 9 - METHODS OF ANALYSIS

NEW/UPDATE since January 2005

Entry No.	STUDY TITLE	SOURCE (Member State/ Organisation)	STATUS C (completed) O (ongoing) P (proposed)	COMPLETION DATE (anticipated date if not yet completed)	SUMMARY OF AIMS OF STUDY Max 50 words	SUMMARY OF MAIN CONCLUSIONS Max 50 words	COMMENTS	REFERENCES/ INTERNET LINKS	CONTACTS
9.1	Determination of acrylamid in starch containing food	Austria / Graz University of Technology, Institute of Food Chemistry and Technology	C	December 2002	Market study in Austria to determine the acrylamide content in different foodstuffs	Information on the acrylamide content in different food groups such as chips, snacks, crackers and bread.		www.bmsg.gv.at/bmgs/relaunch/gesundheit/welcome.html	Univ. Prof. Dr. Werner Pfannhauser, University of Technology, Petersg. 12/2, 8010 Graz, Austria; Tel: +43/316/873-6471; Fax: +43/316/873-6971; e-mail: werner.pfannhauser@tugraz.at
9.2	HPLC-MS/MS-Method for the Determination of Acrylamide in Food	Austria / Austrian Agency for Health and Food Safety; LMT Vienna	C	October 2002	Adoption of a routine method			www.ages.at	Dr. Friedrich Sövegjarto, e-mail: friedrich.soevegjarto@luvie.ages.at, Tel.:+43/1/4049027850, Fax: +43/1/404909278; AGES-Austrian Agency for Health and Food Safety, Food Control and Research Kinderspitalgasse 15, A-1090 Wien
9.3	GC-MS-Method for the Determination of Acrylamide in Food	Austria / Austrian Agency for Health and Food Safety; LMT Vienna	O	February 2003	Adoption of a routine method			www.ages.at	Dr. Friedrich Sövegjarto, e-mail: friedrich.soevegjarto@luvie.ages.at, Tel.:+43/1/4049027850, Fax: +43/1/404909278; AGES-Austrian Agency for Health and Food Safety, Food Control and Research, Kinderspitalgasse 15, A-1090 Wien

ACRYLAMIDE - EU Summary of Activities

STUDY AREA 9 - METHODS OF ANALYSIS

NEW/UPDATE since January 2005

Entry No.	STUDY TITLE	SOURCE (Member State/ Organisation)	STATUS C (completed) O (ongoing) P (proposed)	COMPLETION DATE (anticipated date if not yet completed)	SUMMARY OF AIMS OF STUDY Max 50 words	SUMMARY OF MAIN CONCLUSIONS Max 50 words	COMMENTS	REFERENCES/ INTERNET LINKS	CONTACTS
9.4	LC-MS/MS method for determination of acrylamide in food	Belgium / IPH	O	Dec-03	In-house development and validation of a LC-MS/MS method for determination of acrylamide in food based on existing procedures	Method for sample treatment suggested by FDA is more efficient than the Swedish procedure, To decresase limits of detection and quantitation, apply a final concentation step		www.fda.gov - www.waters.com and Rosen,Analyst,2002, 127,880-882	yasmine.govaert@iph.fgov.be tel.:0032/2.642.50.54
9.5	Validation of an LC-MS/MS method for the determination of acrylamide in different food products.	Denmark / Danish Veterinary and Food Administration	O	Accreditation in October 2002	To validate and improve the acrylamide analytical method, e.g. by intercomparisons, validation of different food groups	LC-MS/MS method accredited consists of an extraction with water, cleanup by isolute multimode columns and detection of 72>55;72>54 (internal standard d3-acrylamide).	The analytical method is similar as the method proposed by Rosen & Hellenäs (2002)	J Rosén and K-E Hellenäs, 2002, Analyst,**127**, 880-882.	Mrs. Kit Granby, E-mail kgr@fdir.dk Phone +45 33 95 64 74, Institute of Food Safety and Nutrition
9.6	Development and validation of an LC-MS/MS method for acrylamide analysis in various foods	Finland /	C	July 2002	To develop and validate an analytical method for acrylamide in foods.	The method was reliable (within and between day variation RSD% < 15%) and suitable for acrylamide analysis in various foods. The confirmatory method developed was suitable for high levels (> 800 ug/kg) of acrylamide		National Veterinary and Food Research Institute EELA	Susanna Eerola, Department of Chemistry, PO.Box 45, FIN-00581 Helsinki, Finland, phone: +358 9 393 1917, fax: +358 9 393 1920, susanna.eerola@eela.fi
9.7	To establish analytical method	Finland	C	July 2002	To establish and to validate LC-MS/MS method for acrylamide analysis in various foods	The method was reliable (within and between day variation RSD% < 15%) and suitable for acrylamide analysis in various foods. The confirmatory method developed was suitable for high levels (> 800 ug/kg) of acrylamide		National Veterinary and Food Research Institute EELA	Susanna Eerola, Department of Chemistry, PO.Box 45, FIN-00581 Helsinki, Finland, phone: +358 9 393 1917, fax: +358 9 393 1920, susanna.eerola@eela.fi

ACRYLAMIDE - EU Summary of Activities

STUDY AREA 9 - METHODS OF ANALYSIS

NEW/UPDATE since January 2005

Entry No.	STUDY TITLE	SOURCE (Member State/ Organisation)	STATUS C (completed) O (ongoing) P (proposed)	COMPLETION DATE (anticipated date if not yet completed)	SUMMARY OF AIMS OF STUDY Max 50 words	SUMMARY OF MAIN CONCLUSIONS Max 50 words	COMMENTS	REFERENCES/ INTERNET LINKS	CONTACTS
9.8	Analysis of acrylamide on crisp bread by LC/MS/MS	France / French Food Safety Agency (AFSSA)	C	January 2003	LOQ = 10 µg/kg; LOD = 3 µg/kg; extraction recovery = 87 %				s.dragna@afssa.fr ; d.inthavong@afssa.fr; f.bordet@afssa.fr
9.9	Quantifiaction of acrylamide levels in plasma (see study area 5)	France / French Food Safety Agency (AFSSA)	O	June 2003	Analytical method to be able to quantify at low levels, concentration of acrylamide in pig plasma				Michel Laurentie, Afssa fougeres, LERMVD, BP90203, 35302 Fougeres Cedex m.laurentie@fougeres.afssa.fr
9.10	Adaptation of the FDA method of acrylamide analysis using LC/MS/MS and in-house validation	France / French Food Safety Agency (AFSSA)	O	2003	This method will be used to quantify acrylamide in different categories of foods (potatoes chips, crispbread, cereals, coffee …). We also work on the validation aspect including the in house validation and the organisation of proficiency tests along this year.	Limits of detection (3µg/kg) and of quantification (10µg/kg) on LC/MS/MS have been determined.	The LC/MS/MS method, has been chosen instead of the GC/MS, because of it simplicity, specificity and sensitivity.		Serge DRAGNA (s.dragna@afssa.fr) - Dary INTHAVONG (d.inthavong@afssa.fr), François BORDET (f.bordet@afssa.fr) - address AFSSA LERHQA 10 rue Pierre Ccurie 94704 MAISONS ALFORT CEDEX
9.11	Analysis of acrylamide on potatoes crisp by LC/MS/MS	France / French Food Safety Agency (AFSSA)	O		LOQ = 10 µg/kg; LOD = 3 µg/kg				s.dragna@afssa.fr ; d.inthavong@afssa.fr; f.bordet@afssa.fr
9.12	Analysis of acrylamide on chocolate, cafe and other complex matrix by LC/MS/MS	France / French Food Safety Agency (AFSSA)	O						s.dragna@afssa.fr; d.inthavong@afssa.fr; f.bordet@afssa.fr

ACRYLAMIDE - EU Summary of Activities

STUDY AREA 9 - METHODS OF ANALYSIS

NEW/UPDATE since January 2005

Entry No.	STUDY TITLE	SOURCE (Member State/ Organisation)	STATUS C (completed) O (ongoing) P (proposed)	COMPLETION DATE (anticipated date if not yet completed)	SUMMARY OF AIMS OF STUDY Max 50 words	SUMMARY OF MAIN CONCLUSIONS Max 50 words	COMMENTS	REFERENCES/ INTERNET LINKS	CONTACTS
9.13	Quantification of acrylamide levels in plasma (see study area 5)	France / French Food Safety Agency (AFSSA)	P	End of 2003	Analytical method to be able to quantify at low levels, concentration of acrylamide in rat plasma				Michel Laurentie, Afssa fougeres, LERMVD, BP90203, 35302 Fougeres Cedex m.laurentie@fougeres.afssa.fr
9.14	Proficiency test for acrylamide in food - first round	Germany / Federal Institute for Risk Assessment (BfR)	C	Dec-02	In order to make acrylamide assessments more valid a proficiency testing round was undertaken with 6 different food samples analysed by 34 labs mainly from Germany.	The results of this round can be regarded as satisfying for mashed potatoes, crisp bread and biscuits made with butter. For cocoa the results need to be improved. Most of the labs used GC/MS (17) or LC/MS/MS (14) techniques. Depending on the samples 1-6 labs exhibited z-scores > 2. More details are given on the website of the BfR.	In view of the lack of externally validated methods for acrylamide proficiency tests are the most important steps at the moment to verify the tests performed by different laboratories.	Federal Institute for Risk Assessment www.bfr.bund.de	w.mathar@bfr.bund.de; h.klaffke@bfr.bund.de
9.15	Optimizing and validation of methods for isolation and determination of acrylamide in food; (pre Project"Acrylamide“)	Germany / Bund für Lebensmittelrecht und Lebensmittelkunde e.V. (BLL)	C	May 2003	Development of a quick, inexpensive but reliable analytical method for determination of acrylamide in food	New LC/MS –method for the quantitation of acrylamide based on a stable isotope dulition assay and derivatization with 2-Mercaptobenzoic acid. Comparisation with two GC/MS methods; Jezussek, M; Schieberle, P. Garching J.Agric.Food Chem. (2003) , 51 (27) 7866-7871 and Lebensmittelchemie (2004) 58, 5-6		http://www.bll-online.de Jezussek, M; Schieberle, P. Garching J.Agric.Food Chem. (2003) , 51 (27) 7866-7871 and Lebensmittelchemie (2004) 58, 5-6	jgelbert@bll-online.de peter.schieberle@lrz.tum.de

ACRYLAMIDE - EU Summary of Activities

STUDY AREA 9 - METHODS OF ANALYSIS

NEW/UPDATE since January 2005

Entry No.	STUDY TITLE	SOURCE (Member State/ Organisation)	STATUS C (completed) O (ongoing) P (proposed)	COMPLETION DATE (anticipated date if not yet completed)	SUMMARY OF AIMS OF STUDY Max 50 words	SUMMARY OF MAIN CONCLUSIONS Max 50 words	COMMENTS	REFERENCES/ INTERNET LINKS	CONTACTS
9.16	Proficiency test for acrylamide - second round	Germany / Federal Institute for Risk Assessment (BfR)	O	May 2005	Extension of the first round with cocoa and other food samples, which are difficult to be analysed (co-operation with EU-MS is planned)			Institute for Reference Materials and Measurements, Belgium, www.irmm.jrc.be; Federal Institute for Risk Assessment www.bfr.bund.de	Thomas.Wenzl@irmm.jrc.be; w.mathar@bfr.bund.de; h.klaffke@bfr.bund.de
9.17	Proficiency testing system for acrylamide in food	Germany / Federal Institute for Risk Assessment (BfR)	P	-	Proficiency Testing of acrylamide in different food matrices; Validation study, Reference materials for acrylamide determinations.			Federal Institute for Risk Assessment www.bfr.bund.de	h.klaffke@bfr.bund.de; w.mathar@bfr.bund.de
9.18	Acrylamide levels in food (see also study area 1)	Ireland / Public Analysts Laboratory, Dublin and Galway	O	Ongoing surveillance of foods during 2003	To validate analytical methods for the determination of acrylamide in Irish food.		See also study area 1.	-	Dr Michael O'Sullivan, Public Analysts Laboratory, Dublin, michael.osullivan@ehra.ie, and Dr Padraig Burke, Padraig.Burke@whb.ie

ACRYLAMIDE - EU Summary of Activities

STUDY AREA 9 - METHODS OF ANALYSIS

NEW/UPDATE since January 2005

Entry No.	STUDY TITLE	SOURCE (Member State/ Organisation)	STATUS C (completed) O (ongoing) P (proposed)	COMPLETION DATE (anticipated date if not yet completed)	SUMMARY OF AIMS OF STUDY Max 50 words	SUMMARY OF MAIN CONCLUSIONS Max 50 words	COMMENTS	REFERENCES/ INTERNET LINKS	CONTACTS
9.19	Developing techniques to measure acrylamide in cooked foods and globin adducts in humans (see also study area 7)	Ireland / Queen's University, Belfast, Northern Ireland	O	2004	To develop new methods of analysis for acrylamide in food and in blood, using immunoassay techniques	Project is in initial stage of development although research has been previously involved with Swedish researchers on analysis of acrylamide in food	Project funded by the Food Safety Promotion Board of Ireland (FSPB) under the North:South Agreement and is one of a number of initiatives on food safety at the level of the whole island of Ireland. NOTE: also included under study area 7.	?	Dr Chris Elliott, Queen's University, Belfast Dr Thomas Quigley, FSPB
9.20	Method for determination of acrylamide in food (GC-MS methode).	Norway / Norwegian Food Control Authority	C	December 2002	Improvement of existing methodology for the determination of acrylamide in food. Aims: Particle-free extracts, possibility of low detection limits, high reproducibility and accuracy and implementation of recovery adjustment in the method.	Low detection limit and particle-free extracts were achieved by using methanol as extraction solvent, followed by evaporation and sample clean-up before derivatization. Standard addition (acrylamide) and also d3-acrylamide as internal standard gave high reproducibility and accuracy.			Cato Brede, cato.brede@nmt-mrog.rl.no, fax:+47-51816850, tel:+47-51816832, Address: NMT for Midt-Rogaland, Forusbeen 3, N-4033 Stavanger, Norway

ACRYLAMIDE - EU Summary of Activities

STUDY AREA 9 - METHODS OF ANALYSIS

NEW/UPDATE since January 2005

Entry No.	STUDY TITLE	SOURCE (Member State/ Organisation)	STATUS C (completed) O (ongoing) P (proposed)	COMPLETION DATE (anticipated date if not yet completed)	SUMMARY OF AIMS OF STUDY Max 50 words	SUMMARY OF MAIN CONCLUSIONS Max 50 words	COMMENTS	REFERENCES/ INTERNET LINKS	CONTACTS
9.21	Chemical analysis of acrylamide in food stuff	Norway / Norwegian Institute for Air Research	C	September 2002	Development of a method for the determination of acrylamide in foodstuffs.	The sample is added internal standard (deuterated acrylamide) and extracted in water. The work up procedure comprises centrifugation, solid-phase-extraction and ultra filtration. The chemical analysis is performed by LC/High Resolution MS. Method performance: DL: 10 ug/kg. Precision high level: better than 10 %. Recovery: 85-115%.		www.nilu.no	Christian Dye, cd@nilu.no, fax: ++47 63 89 80 50, phone: ++47 63 89 82 08, adress: NILU, instituttveien 18, 2027 Kjeller, Norway.
9.22	Analysis of acrylamide in cooked foods by liquid chromathography tandem mass spectrometry	Sweden / Swedish National Food Administration	C	May 2002	To validate an LC-MS/MS method for the determination of acrylamide in cooked foods	Analytical method with in-house validation and interlaboratory comparison data reported		J Rosén and K-E Hellenäs, 2002, Analyst,**127**, 880-882.	Johan Rosén, SLV, box 622, SE-75126 Uppsala, Sweden. Tel: +46 18 175766, joro@slv.se
9.23	GC-MS methods without derivatization of AA	Switzerland / Official Food Control Authority of the Canton of Zurich	C	June 2002	Fast routine method	Extraction with propanol, GC-MS with CI		Mitteilungen aus Lebensmitteluntersuchung und Hygiene 93 (2002) 638-652	Koni Grob, +41 43 244 71 31, Konrad.Grob@klzh.ch
9.24	Determination of potential of formation and rate of elimination	Switzerland / Official Food Control Authority of the Canton of Zurich	C	September 2002	Standardized heating procedure to determine potential of a raw material to form AA. Determination of AA elimination through D3-AA	Tool for the systematic comparison of raw materials and determine the influence of components		Mitteilungen aus Lebensmitteluntersuchung und Hygiene 93 (2002) 653-667	Koni Grob, +41 43 244 71 31, Konrad.Grob@klzh.ch

ACRYLAMIDE - EU Summary of Activities

STUDY AREA 9 - METHODS OF ANALYSIS

NEW/UPDATE since January 2005

Entry No.	STUDY TITLE	SOURCE (Member State/ Organisation)	STATUS C (completed) O (ongoing) P (proposed)	COMPLETION DATE (anticipated date if not yet completed)	SUMMARY OF AIMS OF STUDY Max 50 words	SUMMARY OF MAIN CONCLUSIONS Max 50 words	COMMENTS	REFERENCES/ INTERNET LINKS	CONTACTS
9.25	Analysis of acrylamide in foods.	The Netherlands	C	June 2002	To validate the analytical method for the determination of acrylamide in foods.	Analyses of in house reference material, showed good repeatability. Results of participation in the FAPAS intercomparison study for acrylamide in crispbread showed a z-score between the accepted range of -2 to 2, which means that the analytical data were acceptable.	The method of analysis is based on the work of Rosén and Hellenäs (2002).	J Rosén and K-E Hellenäs, 2002, Analyst,**127**, 880-882.	M. Spanjer. Dutch Food Authority, Inspectorate for Health Protection, Amsterdam, The Netherlands. E-mail: Martien.Spanjer@kvw.nl, Phone: +31205244600, Fax: +31205244700
9.26	Assessment of performance of laboratories in determining acrylamide in crispbread	United Kingdom / Central Science Laboratory (CSL)	O (other FAPAS proficiency rounds are underway)	ongoing	First check-sample exercise to see if labs can made acrylamide measurments reliably	Satisfactory results were obtained by 86% of the 37 laboratories who returned results.	The boundaries set for 'acceptable performance' may be too generous	Assessment of performance of laboratories in determining acrylamide in crispbread. D. B. Clarke, J. Kelly and L. A. Wilson. *Journal of AOAC International* , 2002, 85, 1370-1373.	l.castle@csl.gov.uk
9.27	Analytical procedures, analytical quality control and data generation	The HEATOX project	O	October 2006	Analytical procedures for acrylamide, asparagine or other relevant precursors and biomarkers will either be developed and/or further optimised, harmonised, and validated		STREP under FP6 supported by EC, DGResearch, Priority on Food Quality and Safety	www.heatox.org	www.heatox.org