ACRYLAMIDE - EU Summary of Activities

STUDY AREA 2 - DIETARY EXPOSURE TO ACRYLAMIDE IN FOOD

NEW/UPDATE since February 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
2.1	Level of acrylamide in different foodstuffs on the Belgian market (see also study area 1)	Belgium / FPS health and FASFC	C	July 2004	To find out how much acrylamide is present in different foodstuffs on the Belgian market Second round of samples. Analysis with LC-MS/MS	The study contains a more precise intake estimate : 31,3% from fries, 21,9% from biscuits;	Observed levels see study area 1.	National Food Authority web site	yasmine.govaert@iph.fgov.be, 0032/2 642 50 54; Christine Vinckx@health.fgov.be; emmanuelle.moons@afsca.be
2.2	Risk assessment of dietary acrylamide intake in Flemish adolescents	Belgium / Ghent University, Department of Public Health	C		To estimate the level of exposure of Belgian adolescents to acrylamide in foods and the risk for cancer and neurotoxicity	The estimated dietary intake of acrylamide per person given as the 5th, 50th and 95th percentile were 0.19, 0.51 and 1.09 µg/kg bw/d. Bread, despite its low acrylamide content, is relevant as a source of acrylamide exposure at the lower percentiles. At higher percentiles the contribution of French fries and crisps is more important. It must be emphasised that the exposure assessment has several limitations. Risk of neurotoxicity seems negligible.	Contamination data is based on Belgian data	Paper accepted for publication in Food and Chemical Toxicology	Christophe Matthys or Maaike Bilau, christophe.matthys@ugent.be; maaike.bilau@ugent.be fax:+32 (0)9 240 49 94 tel: +32 (0)9 240 24 23 Department of Public Health, UZ - 2 Blok A, De Pintelaan 185, B-9000 Ghent, Belgium
2.3	Exposure sources and doses	Czech Republic / National Institute of Public Health in Prague	O	May 2006	To estimate the level of exposure of consumers to acrylamide in foods on the national level. Exposure doses will be calculated in May 2006.	Ongoing production of analytical data for exposure calculation	Study is involved in the national Total diet study.	Will be published in the monograph of the NIPH Prague and as a scientific paper	J.Ruprich, jruprich@chpr.szu.cz, tel/fax +420541211764, Natl Inst Publ Hlth, Palackeho 3a, 61242 Brno, CZ

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2.4	Estimates of national exposure of breakfast cereals and coffee for different age groups	Denmark / Danish Veterinary and Food Administration	0	2005	To estimate the level of exposure of consumers to acrylamide in breakfast cereals and coffee for different age groups	The daily acrylamide intake from ranged from 0-9 µg for different age groups (highest for men aged 35-44).The daily acrylamide intake from breakfast cereals ranged from 0-2 µg for different age groups (highest for boys aged 4-14).		not yet	Kit Granby kgr@fdir.dk
2.5	Reduction of formation and occurrence of acrylamide in food in Denmark.	Denmark / Danish Veterinary and Food Administration	P	2003	To estimate the level of exposure of consumers to acrylamide in foods			www.fdir.dk	Mrs. Kit Granby, E-mail kgr@fdir.dk Phone +45 33 95 64 74, Institute of Food Safety and Nutrition
2.6	To estimate the dietary intake of acrylamide from coffee	Denmark / Danish Veterinary and Food Administration	C	2004	To estimate the dietary acrylamide intake from coffee	The average dietary intake is 6.5 µg/day for adults and the 95 percentile 18 µg/day		Granby K., Fagt S. 2004 Anal. Chim.Acta, 520, 177-182.	kgr@dfvf.dk
2.7	Estimates of national exposure to acrylamide in food	France / French Food Safety Agency (AFSSA)	C	July 2002	To estimate the level of exposure of consumers to acrylamide in foods based on French diet and level of acrylamide as presented in SCF opinion (3 July 2002)	adults (> 15 years old) : mean exposure = 0,5 µg/kg bw/d ; higher consummers (percentile 95) = 1,1 µg/kg bw/d ; infants (2-14 years old : mean exp = 1,4 µg/kg bw/d ; higher consummers (percentile 95) : 2,9 µg/kg bw/d		www.afssa.fr	J.L. Volatier AFSSA-DERNS 27-31 av. du Général Leclerc BP 19 94701 Maisons-Alfort cedex jl.volatier@afssa.fr
2.8	Estimates of national exposure to acrylamide in food	France / French Food Safety Agency (AFSSA)	O	June 2003	To estimate the level of exposure of consumers to acrylamide in foods based on French diet and level of acrylamide measured in national products				

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2.9	Acrylamide – Carry-over into cow milk and occurrence in mixed concentrates for dairy cows	Germany / Federal Research Centre for Nutrition and Food (location Kiel) and Federal Institute for Risk Assessment (BfR)	C	August 2004	To generate data on acrylamide carry-over in cow milk (provocation study)	From the data a mean carry-over of 0.24 %, and a mean half-life time of 2.8 h could be estimated. This means acrylamide was rapidly transformed in the cow.		www.bafm.de; www.bfr.bund.de; submitted to Food Additives and Contaminants	pabst@bafm.de; h.klaffke@bfr.bund.de; w.mathar@bfr.bund.de
2.10	Acrylamide in food of animal origin – Carry over of acrylamide in laying hens (a pilot study)	Germany / Federal Institute of Risk Assessment (BfR) in cooperation with Federal research Center of Agriculture (FAL) Braunschweig	O	May 2005	To find out the carry over of acrylamide in food of animal origin	Low levels of acrylamide were determined in liver, breast muscles, abdominal fat and eggs			Dr. M. Lahrssen-Wiederholt. M.Lahrssen-wiederholt@bfr.bund.de
2.11	Acrylamide in food of animal origin - Carry over of acrylamide in laying hens	Germany / Federal Institute of Risk Assessment (BfR)	P	December 2005	Determination of acrylamide in spezified (single) organs and eggs				Dr. M. Lahrssen-Wiederholt. M.Lahrssen-wiederholt@bfr.bund.de
2.12	Estimates of national exposure to acrylamide in food	Ireland / Food Safety Authority of Ireland (FSAI)	O	July 2005	To estimate the level of exposure of Irish consumers to acrylamide in foods (total diet study)	No conclusions yet available, study is at the food selection/analysis stage	None	www.fsai.ie	Christina Tlustos, FSAI ctlustos@fsai.ie

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2.13	Estimates of exposure to acrylamide in food, coffee and cereal based baby food in Norway.	Norway / The Norwegian Food Safety Authority, Norwegian Scientific Committee for Food Safety	C	June 2002	To estimate the national exposure of consumers to acrylamide through the consumption of foods	Mean intakes of acrylamide calculated per kg bodyweight (micrograms/kg bw/day): males 0.36, males (16 - 30 years) 0.53, females 0.33. Potato crisps contributed mostly to the total mean intake (24.4% males, 32.6% males (16-30), 24.4% females).	Report from the Scientific Committee of the Norwegian Food Control Authority	http://www.snt.no/nyt/tema/Akrylamid/	Tor Øystein Fotland, Norwegian Scientific Committee for Food Safety tofo@fhi.no
			C	December 2002	To estimate the exposure of consumers to acrylamide through consumption of coffee	Mean intakes of acrylamide from coffee calculated per kg bodyweight (micrograms/kg bw/day) 0.17 for both men and women.			
			C	December 2002	To estimate the exposure of children to acrylamide through consumption of barnemat.	Mean intake calculated from the highest detected levels of acrylamide in cereal based baby foods. Mean intake (micrograms/kg bw/day) 6 month old boys 0.29, 6 month old girls 0.31; 1 year old boys 0.33, 1 year old girls 0.36.			
2.14	Dietary intake of acrylamide in Sweden - a pilot study	Sweden / Swedish National Food Administration	C	December 2002	To estimate the level of exposure of consumers in Sweden to acrylamide in foods	Mean intake 40 ug/person and day		K. Svensson et al, (2003) Dietary intake of acrylamide in Sweden, Food and Chemical Toxicology,41, 1581-1586.	Kettil Svensson, Toxicologist at the Division of Toxicology, National Food Administration, Box 622, SE-75126 UPPSALA, SWEDEN. Phone: +46 18 175751, Fax: +46 18 105646, e-mail: kesv@slv.se

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2.15	Potential of reducing AA in the diet by presently known measures	Switzerland / Official Food Control Authority of the Canton of Zurich	C	March 2004	Model calculations to point out main contributions of AA for various consumers and potential reduction	Substantial reduction primarily for roasted and fries potato products, then reaching a level which is difficult to further reduce		AOAC (in press)	Koni Grob, +41 43 244 71 31, Konrad.Grob@klzh.ch
2.16	Estimates of dietary exposure to acrylamide in The Netherlands.	The Netherlands / Dutch Food Authority, Inspectorate for Health Protection	C	December 2002.	To estimate the level of exposure of consumers to acrylamide in foods	Mean exposure for a representative sample of the Dutch population is 0.5 µg/kg bw/day.		Food Chem Tox 41 (2003) 1569-1579 by Konings EJM, Baars AJ, van Klaveren JD, Spanjer MC, Rensen PM, Hiemstra M, van Kooij JA, Peters PWJ.	Dr. E. Konings. Dutch Food Authority, Inspectorate for Health Protection, Den Bosch, The Netherlands. E-mail: Erik.Konings@kvw.nl, Phone: +31402911500, Fax: +31402911600
2.17	Acylmaide generation in bread and toast	United Kingdom / RHM Technology for the UK Federation of Bakers	C	August 2003	To understand the impact of different baking times and temperatures on acrylamide formation in bread and toast.	Acylamide levels in bread are comparatively low. Gentler baking and a falling oven temperature give lower levels (c.92 ppb) than more intense baking (c150 ppb). These baking profiles had no impact on toast levels. Acrylamide is concentrated in the crust.			John White - Director. John.white@bakersfederation.org.uk

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2.18	Acrylamide in Cooking Fume	United Kingdom	C	November 2004	OBJECTIVES: Determine if acrylamide vapour is released to air in cooking fume and if so:- (i) Determine at what levels it is released in a typical small scale cooking operation. (ii) Establish the relationship between acrylamide levels in the food and that released to air. (iii) Investigate how cooking temperature affects the emitted acrylamide levels in cooking fume.	MAIN FINDINGS Acrylamide produced during cooking of food appears to be retained within the food; No evidence of the release of acrylamide in cooking fume during deep frying or oven cooking of chipped potatoes was detected even on overcooking; No evidence of the release of acrylamide in fume from heated crispbread was detected.	CONCLUSION Acrylamide produced during cooking of food appears to be retained within the food or reacts at high temperatures with food components. It is unlikely to pose a great risk through inhalation to cooks and food factory workers.	Report Number OMS/2004/10	Health and Safety Laboratory, Harpur Hill, Buxton SK 17 9JN Telephone: 01298 218000
2.19	Exposure assessment	The HEATOX project	O	October 2006	To generate validated data on acrylamide exposure and intra- and inter-individual variation in exposure		STREP under FP6 supported by EC, DGResearch, Priority on Food Quality and Safety	www.heatox.org	www.heatox.org