



**Decision on the pesticide
Chlorpyrifos**

Brussels, 22-05-2014.

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To:
Mr. Tonio Borg
European Commissioner for Health and Consumer Policy
European Commission
B-1049 Brussels.

Concerning :
Your proposal on the pesticide Chlorpyrifos.

Dear Commissioner, Dear Mr. Borg,
On the 7th of June 2011 and the 13th of September 2012 we have send you letters regarding the pesticide Chlorpyrifos and asked you to withdraw the chemical from the market. Much more worrying evidence on the negative effects of Chlorpyrifos has been published in academic literature in recent years. US-EPA acted in June 2011 and concluded that Chlorpyrifos is far more toxic than assumed before and that the health standards had to be made stricter, even 30x lower than the current EU standard. We were happy to note that in September 2012 you started a review of Chlorpyrifos based on Article 21 of Regulation 1107/2009. Now it is more than time for you to take action and to protect EU citizens.

Food Authority EFSA last week published her peer-review summarising many of the long-term health effects of Chlorpyrifos and in fact acknowledging the claims PAN Europe made in previous letters to you.

EFSA did a good job analysing Chlorpyrifos as far as the data allowed them to do. They however worked -as mandated by you- on a very narrow scope only, the derival of the ADI, the acceptable daily intake. EFSA proposes to adjust the EU-standard in the direction of the US-standard but it still remains 3x higher. The consumption of table grapes with the legally allowed amount of contamination of Chlorpyrifos is now acute very toxic (up to 50x higher than the safe level!!) and an intervention by you is needed urgently.

The EU standard setting procedure is based on the well-known cholinesterase inhibition caused by Chlorpyrifos but many data are lacking in the dossier submitted by industry, making the opinion provisional. It is remarkable to note that legally obliged data are still missing 8 years after the approval of the pesticide. Information on the metabolite Chlorpyrifos-oxon is lacking while this substance is even more toxic than the active substance Chlorpyrifos itself. And toxicological data are missing for the major metabolite desethyl chlorpyrifos (up to 87% in hydrolysis studies). If there is a lack of

data you will not be able to assess if the conditions of Article 4 of Regulation 1107/2009 are fulfilled and you have no choice but withdraw the pesticide.

On top of this we feel the evidence on other adverse (than cholinesterase inhibition) effects from academic literature is an urgent reason to act, more urgent even. Literature convincingly shows that neurodeveloping effects are seen in children (IQ decrease) linked to exposure of Chlorpyrifos. This is for instance shown in the 2012-Rauh study¹ where effects are demonstrated in human bodies at a level of pg/g, >1000x lower than the current EU-ADI for Chlorpyrifos! She suggests that “human exposure limits based on the detection of cholinesterase inhibition may therefore be insufficient to protect brain development in exposed children”. This makes it important to also include other adverse effects of Chlorpyrifos in the Commission proposal. In the many studies on Chlorpyrifos by the group of Slotkin, 2012² the same is concluded for another effect: Altered gene expression is already demonstrated before an inhibition of cholinesterase occurs.

Several EU member states have commented that a thorough literature review should be performed to assess possibly more sensitive adverse effects of Chlorpyrifos but for now an additional evaluation is moved to the future. The other adverse effects, genotoxicity³, developmental neurotoxicity, endocrine disruption are acknowledged but not assessed – as could have been done- based on the many independent studies. Since the approval of pesticides has to be based on current scientific knowledge, independent studies need to be assessed. Now this is not done, this omission creates another reason for withdrawing Chlorpyrifos until all studies are assessed. People and the environment should not be the victim of high risks which are not evaluated. We therefore ask you to withdraw the approval of Chlorpyrifos immediately because the conditions mentioned in Article 4 of Regulation 1107/2009 are not fulfilled anymore.

An environmental risk assessment is still lacking for Chlorpyrifos. Since the moment of approval in 2006 and long before it was known that Chlorpyrifos poses a high risk for birds and mammals. In contrast to the provisions in the pesticide Directive 91/414 (no unacceptable effects for the environment) Chlorpyrifos was approved and the applicant granted time to do more studies. These additional studies again didn't prove any safe use of Chlorpyrifos, and now, 8 years later, the pesticide is still allowed market access without meeting the regulatory standards. Also for environmental reasons an immediate withdrawal is urgent and legally obliged.

¹ Virginia A. Rauh, Frederica P. Perera, Megan K. Horton, Robin M. Whyatt, Ravi Bansal, Xuejun Hao, Jun Liu, Dana Boyd Barr, Theodore A. Slotkin, and Bradley S. Peterson, Brain anomalies in children exposed prenatally to a common organophosphate pesticide, PNAS | May 15, 2012 | vol. 109 | no. 20 | 7871–7876

² Theodore A. Slotkin, Frederic J. Seidler, Developmental neurotoxicity of organophosphates targets cell cycle and apoptosis, revealed by transcriptional profiles in vivo and in vitro, Neurotoxicology and Teratology 34 (2012) 232–241

³ Mehta A, Verma RS and Srivastava N (2008). Chlorpyrifos-induced DNA damage in rat liver and the brain. Environmental and Molecular Mutagenesis 49, 426-433;
Abdelaziz KB, El Makawy AI, El-Abidin Abd Elsalam AZ and Darwish AM (2010). Genotoxicity of chlorpyrifos and the antimutagenic role of lettuce leaves in male mice. Communicata Scientiae 1, 137-145;
Cui Y, Guo J, Xu B and Chen Z (2011). Genotoxicity of chlorpyrifos and cypermethrin to ICR mouse hepatocytes. Toxicology Mechanisms and Methods 21, 70-74.

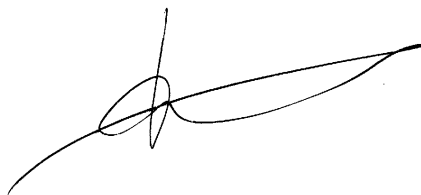
Chlorpyrifos is one of the most dangerous pesticides on the European market. It is a chemical known to be capable of changing brain structure of the unborn with adverse effects in later life such as a low IQ.⁴ There is evidence on genotoxicity of the chemical, evidence on endocrine disruption and evidence on harming birds and mammals. And this evidence is not new, it is there for years. Despite this evidence the 2006-approval remained in place unchanged.

It is remarkable that EFSA and the member state did not discuss the current views on the main mechanism of action of Chlorpyrifos and remain with old insights. Chlorpyrifos targets cell signalling cascades that control neural cell replication and differentiation, leading to cell damage and loss in the immature brain, mis-wiring of neuronal circuits, and corresponding behavioural deficits that continue to emerge later in adolescence and adulthood (Slotkin 2010⁵). The key finding was that organophosphate-induced interference with this signalling cascade during critical developmental periods permanently reprograms the future expression and function of the signalling proteins themselves. This means that cellular responses to the multiple neurotransmitters, hormones, cytokines and trophic signals that operate through cyclic AMP are permanently altered. Current views and evidence from top-level scientists with decades of laboratory experience are disregarded and this should not be the case. These views also should have an impact on any further testing strategy.

Finally, Chlorpyrifos is a disaster for the environment comparable to DDT. Due to its inherent properties, it undergoes long-range transport and has been measured consistently in the Arctic, in ice, snow, fog, air, seawater, lake sediment, fish and vegetation. It is amongst the pollutants with the highest concentrations present in the Arctic, in excess of most legacy POPs pesticides (see PAN Europe letter 13 September 2012). This widespread contamination of the environment means organisms in the environment and millions of people will be exposed to the chemical.

We would like to ask you to do a similar Art.12 review for the substance Chlorpyrifos-methyl because we expect the same health risks for this substance (Chlorpyrifos-methyl was used a few times as a surrogate for Chlorpyrifos safety testing by the applicant). We hope you will take the necessary steps soon.

Sincerely yours,



Hans Muilerman, PAN Europe.

⁴ Virginia A. Rauh, Frederica P. Perera, Megan K. Horton, Robin M. Whyatt, Ravi Bansal, Xuejun Hao, Jun Liu, Dana Boyd Barr, Theodore A. Slotkin, and Bradley S. Peterson, Brain anomalies in children exposed prenatally to a common organophosphate pesticide, PNAS | May 15, 2012 | vol. 109 | no. 20 | 7871-7876

⁵ Theodore A. Slotkin, Does early-life exposure to organophosphate insecticides lead to prediabetes and obesity?, Reproductive Toxicology xxx (2010).