

Subject: PPE against phytosanitary and chemical risks	Author: Alain Mayer	Date: 2007-07-13 14:27:38
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The university of Bordeaux (*Alain Garrigou and Isabelle Baldi*) has carried out in 2006 a ergo-toxicological study on the real contamination of wine growers by phytosanitary products. The results of this study which not yet available in English calls into question the real efficacy of protective clothing of type 4 against chemicals recommended by manufacturers for phytosanitary treatments. Among the results obtained, it is reported that some workers wearing such PPE were more contaminated than non protected persons (*pre-contamination of the internal surface of the clothing after use*). Additional tests made in laboratory on the basis of EN 374-3. - *Protective gloves against chemicals and micro-organisms. Determination of resistance to permeation by chemicals*, confirm that for broad line of common weedkiller products (pure or diluted) the breakthrough time is lower than 10 min, which is really not sufficient for a conventional 8 hours workday. A note has been sent to all concerned French authorities in particular to Ministries to alert them on the seriousness of this statement.

Do you have similar cases in the agriculture or industrial fields?

Subject: [1] Re: PPE against phytosanitary and chemical risks	Author: Sylwia Krzemińska	Date: 2007-07-27 09:20:27
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In Department of Personal Equipment CIOP-PIB was conducted the project regarding to the evaluation of the methodology for testing resistance of clothing materials to penetration by pesticides. The methodology has been based on the recommendations of European standards EN 369 (now EN ISO 6529) with certain modifications resulting from the specific properties of non-volatile and non-water-soluble biologically active components of pesticides. These modifications primarily involved the use of a solid sorption medium. The methodology has included the tests with diluted and concentrated pesticides agents.

Our studies have concerned penetration of the selected biologically active components of pesticides (dichlorvos, 2,4-D, cypermethrin) through the selected protective materials (fabric coated with viton and butyl on both sides, rubberised fabric, butyl rubber, nonwoven coated by polymer).

The obtained results have indicated that breakthrough time was differential for material and for active substances: from 60 min to 480 min. Many materials intended to use in agriculture (e.g. greenhouses) demonstrated breakthrough time below 480 min, so it was noticed that the organisation of work day is very important (change of clothing, using clothing only during activity connected pesticides agents, decontamination of clothing).

Subject: [2] Re: PPE against phytosanitary and chemical risks	Author: Jens Kramer	Date: 2007-07-27 10:54:24
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In Germany we have a german standard DIN 32781 and a directive by BVL. You can find further information here <http://www.bvl.bund.de/>. Maybe this information is useful.

Subject: [3] Re: PPE against phytosanitary and chemical risks	Author: Alain Mayer	Date: 2007-07-27 11:10:23
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The assessment of real effectiveness of PPE against chemical in particular of protective clothing is a key issue and should be a priority for all stakeholders (manufacturers, testing laboratories, standardizers, social partners...). The recent alert note of the University of Bordeaux sent to all French authorities and the TNO report 2007 on "Default setting of PPE for registration purposes of agrochemical and biocidal pesticides" demonstrate again the need of urgent actions in this field. The 9th European Seminar on PPE, which will be held on 29/30 January 2008 in Kittilä in Finland will be mainly dedicated to this important topic.

Subject: [4] Re: PPE against phytosanitary and chemical risks	Author: Eva Cohen	Date: 2007-09-19 14:43:04
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CNMP has been involved for many years in the search of personal protective equipment for agriculture tasks which mainly includes Chemical Protective Clothing (CPC) suitable for pesticide applications. It is now specially concerned about personal protection in greenhouses applications. Greenhouses may represent the worst case scenario due to manual applications, the density of the foliage and climatic conditions. Among CNMP contributions on that field it could be mentioned the participation in the SAFE USE INITIATIVE project, an initiative of the plant protection products industry through the European Crop Protection Association (ECPA). The project was first implemented and developed in the south of Spain from 2003 to 2005 and then continued in other countries in South Europe. CNMP has participated as an assessment body and testing laboratory for the search of recommendations on specific protective clothing and gloves as well as other PPE. Field studies in greenhouses were also carried out to check the laboratory results when needed. Conclusions showed that at least CPC type 4 should be recommended. But in addition to the design, the material of the CPC should be also addressed from its chemical resistance to pesticides. To assess this aspect, a solvent was selected as a reference, for permeation testing due to its presence in the composition of many products used in Spanish greenhouses and its possible role as a carrier of the active ingredient. On the basis on that, some CPC models were selected. The work done do not cover all the aspects required to make a recommendation to all products and scenarios but it is a good attempt to it.

In the other hand, TNO report on " Default setting of PPE for registration purposes on registration of agrochemical and biocidal pesticides" tries to reach a consensus on the protection factors offered by protective clothing to be used in the registration process of plant protection products by the Authorities. Despite this initiative, the problem of the estimation of the operator exposure to pesticides in greenhouses, not covered by the harmonised predictive exposure models (1) available for registration purposes, still remain. The different authorities in the EU deal the situation as good as possible.

We are facing then three problems, perfectly linked:

- a) the search of suitable personal protection, specially clothing, to protect operators.
- b) How existing CPC standards correlate with this exposure situation and which is the relationship between the different standards(2)(EN, ISO, DIN) published so far or on the way to it.
- c) How to correlate the standardisation on CPC with the registration process of crop protection products (Directive 91/414/CEE) and the protection factors to be used then.

Discussion on all these aspects would need contributions from different experts

Notes

- EN 14605- Protective clothing against liquid chemicals-Performance requirements for clothing with liquid -tight (Type 3) or spray -tight (Type 4) connections, including items providing protection to parts of the body only (Type PB 3 and PB4)
- EN 13034 - Protective clothing against liquid chemicals-Performance requirements for CPC offering limited protective performance against liquid chemicals (type 6 equipment)

- ISO 6530- Protective clothing against liquid chemicals-Test method: Resistance of materials to penetration by liquids.
- EN 14786- Protective clothing. Determination of resistance to penetration by sprayed liquid chemicals, emulsions and dispersions-Atomizer test
- ISO 22608- Protective clothing. Protection against liquid chemicals- Measurement of repellency, retention and penetration of liquid pesticide formulations through PC materials.
- ISO/CD 27065- Protective clothing. Performance requirements for work and protective clothing for horticultural and agricultural pesticide workers.
- DIN 32781- Protective clothing. Protective suits against pesticides.
- (2)(1) PSD, Predictive Operator Exposure Model (POEM), German model (Uniform principles for safeguarding the health of applicators of plant protection products..