
Allocation of Risk Mitigation Measures – UK's perspective

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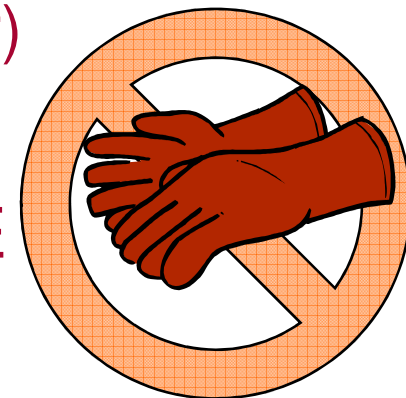
Operators



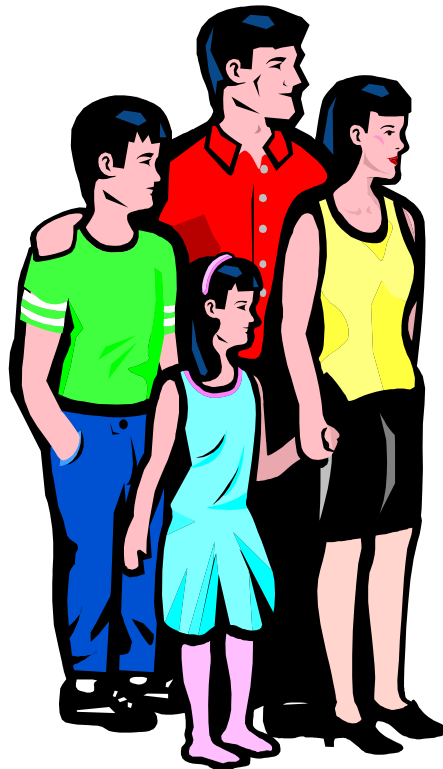
- Tiered approach to PPE refinement options as reflected in UK POEM
- Assigned Protection Factors (APFs) – conservative default values
- PPE design and construction meet relevant standards
- Assumes operators are trained
- Assumes PPE fit well, are well maintained and appropriate for the task involved

UK POEM: PPE options

- Mixing liquid concentrates
 - Gloves (5% or 10% penetration/transfer)
- Mixing solid concentrates
 - Gloves (1% penetration/transfer)
 - RPE (using HSE APF values)
- Application
 - Gloves (10% penetration/transfer)
 - Coated coveralls for knapsack and hand-held CDA (5 penetration/transfer)
- No PPE options for home-garden use
- Closed cab for orchard uses: 5% PDE/PIE



Bystanders/residents



- Bystander (adult)
 - dermal exposure to spray drift
 - assumed to be lightly clothed
 - no clothing reduction factor
- Resident (child)
 - dermal exposure to drift fallout on lawns
 - no clothing reduction factor

Workers



- Re entry into treated crop or area

- Handling treated material



Workers



- Work wear
 - Outdoors: full length clothing generally assumed i.e. arms, body, legs covered (bare hands)
 - Indoors: minimal clothing more likely i.e. shorts and t-shirt
- Gloves
 - UK does not assume any protection from gloves



Workers



- Horticultural Development Company survey
 - 4 grower groups:
 - carrots (11 sites),
 - *Choisya* (11 sites),
 - cucumbers (20 sites)
 - daffodils (27 sites)
- Main conclusions
 - Glove use variable to non existent. Not CE standard chemical resistant gauntlet gloves
 - Training of highly variable or non existent.
 - Each sector different ‘one size does not fit all’

Workers



- UK aware that some MS mitigate risk this way but is this justified?
 - What PF? 95% reduction from gloves equivalent to APF of 20!
 - Assumes CE standard chemical resistant gloves are worn
 - Assumes worker fully trained in their use and aware of the risks involved
 - How is the PF applied to the TC value?

Workers



- Non PPE gloves – what protection factor?
 - HSE funded R&D study ('Chemical Protective effects of 'non-PPE' gloves in greenhouse workers')
 - Calculate a single generic chemical protection factor (PF) for non PPE gloves
 - Compare with protective effect of chemical resistant PPE gloves
 - 5 nurseries, 36 subjects, 6 glove options, same task, *transfer* route only
 - Review of published literature

Workers



Corrected and adjusted protection factor			
	Gauntlet	Cotton	SRSU*
N	22	21	65
Geomean	60.1	5.3	32.1
GSD	3.0	2.8	2.6
GM 95% CI upper	94.4	7.6	40.8
GM 95% CI lower	44.2	3.5	24.9
5th percentile PF	10.8	1.3	7.1
* SRSU (splash resistant single use gloves) gloves for which the value presented is the combined value for vinyl, latex and nitrile glove subsets			

Workers



- Provisional ‘shopping list’ of measures to be addressed by industry:
 - Supply of gloves: quantity and quality. Whose responsibility is it?
 - Training: workers and those responsible for workers
 - Awareness of the risks
 - Safety signs
 - Regular checks