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*making
14 mg/m²
DM*

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9 Jan 81

Dear Matt,

Following your phone call on 7th January, here and enclosed is some information from my files which might possibly be of some use to you.

EA 3148 is an OP antiChE of some sort.

Maybe it would be worthwhile seeing if Hormats is still around. So far as I recall. I got to him originally through Jeremy Stone: Hormats having approached the FAS early 74 or late 73 to see if he could contribute to any CW arms-control endeavours. He knows all the US CW weapons development programmes during his period of tenure as director inside out (and much of the French too).

Edgewood Arsenal reckons that "systemically, VX is about twice as toxic as GB" in man.* So, with VX on his skin, a man will be at the brink of death by the time about half a milligram has penetrated. Craig et al (1977)--copy enclosed-- indicate degrees to which the rate of VX skin penetration in man may vary with environmental temperature and site of application: within a given time, the dose of VX absorbed from a cutaneous dosage may vary over three orders of magnitude for the temperature range X -18 to +46 deg C and for the cheek as compared with the forearm. After 3 hours at 18 deg C about 0.4 percent of dosages of VX applied to forearms (having "intermediate permeability to VX") had penetrated, as compared with about 3 percent at 46 degC. So, to get 0.5 mg through the skin of the forearm within a 3-hr period, some 125 mg would have to be applied at the lower temperature, or 17 mg at the higher. For the cheek (which has "high permeability to VX") the corresponding dosages would be around 3.3 and 1.6 mg respectively (7 mg at 2 degC, 14 mg at -18 degC).

The surface area of a man is about 1.8 m². At 18 degC against a target of prone naked men, the permeability of whose skin averaged out to that of the forearm, VX would have to be deposited at a density of at least 140 mg/m² to kill the men, assuming they did not try to decontaminate themselves before 3 hrs had elapsed. This must come quite close to being a specification of a minimum effective deposition density for VX.

No. This is only if we want LD50 by 3 hrs.

*For t = ∞
4% of
dose is
taken in.
For 0.5mg
taken in,
need 12.5mg
on skin.
Or 14mg/m²
in above
example.*

I have some more relevant stuff somewhere which I will try to find.

As ever,

J.P. Perry

J P Perry Robinson

encs

*Chem Abstr 81: 34040a: abstract of AD 770434/9GA, B P McNamara et al, 'Proposed limits for human exposure to VX vapor in nonmilitary operations'.