

Environmental Health

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Interim Re-registration Eligibility Decision: Carbofuran

The Agency has determined that all products containing carbofuran (a widely used pesticide) are not eligible for re-registration. A small number of uses will be permitted until 2010. The immediate effect is a 98% reduction in use. High acute exposure is potentially fatal but there are no suspected 'long tail' effects of exposure.

Carbofuran was first registered for use as a pesticide in the US in 1969. It is mainly applied by means of spray equipment. Since 1991 use of the solid form has been restricted to help reduce risks to wild birds.

Carbofuran N-methyl carbamate works as a cholinesterase inhibitor. Its toxic action works in mammals as well the target pests. Its action is thought to be rapidly reversible if doses are low. No chronic exposure effects have been observed in humans but reproductive effects were observed in rats.

Dietary exposure for 99.9% of the US population was estimated at less than 0.000154 mg/kg/day and less than 0.000292 mg/kg/day for 99.9% of children 1-2 years old. Both values, however, are well in excess of the guideline values; 0.00006 mg/kg/day.

It remains active in groundwater. WHO suggest a 0.007mg/litre guideline value (1998), authorities generally adopt a figure of around this size.

Pesticide workers have experienced moderate to relatively serious cholinergic poisoning. The margin for error in prescribed use is quite low i.e. it is relatively easy to significantly mishandle and misapply.

Carbofuran is used to treat alfalfa, artichoke, banana, barley, coffee, corn (field, pop, and sweet); cotton seed, cucurbits (cucumber, melons, and squash); grapes, oats, pepper, plantain, potato, sorghum, soybean, spinach, sugar beet, sugarcane, sunflower, wheat, fallow land, cotton, ornamental and/or shade trees, ornamental herbaceous plants, ornamental non-flowering plants, ornamental woody shrubs and vines, pine, and tobacco. It is often applied by aircraft or ground equipment by methods that include broadcast, banded, in furrow, and drip irrigation. An estimated 1.5 million lbs. of carbofuran are used annually in the USA.

Comment

There are some restrictions on the sale of carbofuran in the UK [poisons Act 1972 and the Poisons List Order 1982].

HSE lists carbamates [including carbofuran] as being of particular concern if involved in warehouse fires. Fire fighters and the environment require protection.

Carbamate poisoning can be fatal to humans but so far there is no evidence of diseases of long latency. Small exposures on separate days should not have a cumulative effect. In non-fatal doses carbofuran is rapidly metabolised.