

Permethrin

Hazard to children: developmental effects, leukaemia, immune suppression, endocrine disruption, respiratory and skin irritation, asthma, allergies; later in life breast cancer



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Uses: synthetic pyrethroid insecticide; often used indoors and in head lice shampoo.

Bans: EU

Residues: in breast milk, cord blood, newborn's blood, children's urine; food.¹

Acute toxicity: moderately toxic, neurotoxin. Symptoms include vomiting, headache, dizziness, incoordination, hyperactivity, prostration, difficult breathing, twitching, paralysis; bed nets treated with permethrin have caused rash, cough, runny nose, sneezing.² Poisonings (ingestion) reported in Taiwan;³ second most common child pesticide exposure incidents in UK.⁴

Chronic toxicity: adverse effects on adrenals, liver, red blood cells; oxidative stress; early in life exposure leads to long-term cardiotoxicity⁵.

Neurological: neurobehavioural effects, delayed mental development.⁶⁻⁸ Parkinson's disease-associated changes in brain.⁹

Cancer: associated with leukaemia;^{10 11} lung and liver tumours;¹² multiple

myeloma,¹³ breast cancer risk.¹⁴

Genotoxicity: mutagenic and genotoxic in human cells.¹⁵⁻¹⁷

Endocrine disruption: Oestrogenic causing breast cancer cells to grow;¹⁸ disrupts testosterone production;¹³ anti-progestagenic.¹⁴

Reproduction: birth defects in fish;¹⁹ implicated in transgenerational inheritance of adult onset sperm abnormalities and reproductive diseases.²⁰

Immune: suppresses immune system; immune-mediated respiratory and dermal irritation in children; elevated levels in cord blood associated with asthma and allergies.²¹

Environmental effects: *Aquatic:* highly toxic to fish, aquatic invertebrates.²²

Terrestrial: highly toxic to bees and beneficial insects.²²

Environmental fate: Residues persist on indoor surfaces - 60% after 20 days;²² detected in urban air samples in Guangzhou, China;²³ and in surface water samples.²⁴

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