**Permethrin**

**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.

**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. Poisonings (ingestion) reported in Taiwan; second most common child pesticide exposure incidents in UK.

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

**Neurological:** neurobehavioural effects, delayed mental development. Parkinson’s disease-associated changes in brain.

**Cancer:** associated with leukaemia, lung and liver tumours; multiple myeloma, breast cancer risk.

**Genotoxicity:** mutagenic and genotoxic in human cells.

**Endocrine disruption:** Oestrogenic causing breast cancer cells to grow, disrupts testosterone production, anti-progestagenic.

**Reproduction:** birth defects in fish, implicated in transgenerational inheritance of adult onset sperm abnormalities and reproductive diseases.

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

**Environmental effects:** Aquatic: highly toxic to fish, aquatic invertebrates. Terrestrial: highly toxic to bees and beneficial insects.

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


22. NPIC. 2009. Permethrin Technical factsheet National Pesticide Information Center, USA.
