



Pesticide Detectives

ORGANOCHLORINES

Insecticide DDT and metabolites



What is DDT?

DDT is an organochlorine insecticide manufactured for agricultural use and to control vector-borne diseases. DDD was also manufactured under the trade names Rothane, Dilene and TDE (ATSDR 2002) to control insects.

DDT breaks down into its primary aerobic metabolite, DDD and its anerobic breakdown product DDE.

In Australia, the final registration of DDT was cancelled in 1997 and its import prohibited.



<https://www.ebay.com>

How does DDT and its metabolites work?

Both DDT and DDD interfere with normal nerve impulses in the nervous system.

DDE is an antiandrogen which inhibits the binding of androgens to the androgen receptor. DDE has been demonstrated to cause demasculinization in juvenile guppies and shown to disrupt sexual characteristics in adult male guppies.

DDE has been implicated in eggshell thinning in bird eggs leading to reproductive failure.





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What happens when DDT and its metabolites enter the aquatic environment?

DDT and its metabolites have low water solubilities and tend to bind to suspended particles which then settle into sediment. DDT and its metabolites have been found to accumulate in fatty tissues.

DDT and its metabolites are highly persistent in the environment and have been listed under the Stockholm Convention as persistent organic pollutants.



Default guideline values (DGVs) values for sediment quality ANZECC/ARMCANZ (2000)

DDE - DGV value is 1.4 mg p.p'-DDE/kg (normalised to 1% organic carbon, dry weight).
The GV-High value is 7.0 mg p.p'-DDE/kg (normalised to 1% organic carbon, dry weight).

DDD - DGV value is 3.5 mg p.p'-DDD/kg (normalised to 1% organic carbon, dry weight).
The GV-High value is 9.0 mg p.p'-DDE/kg (normalised to 1% organic carbon, dry weight).

References

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