ORGANOPHOSPHATE PESTICIDES AND CAPTAN IN WATER BY GC/MS

Organophosphate pesticides (organophosphates) are widely used as agents for exterminating insect pests and parasites in the agricultural industry, veterinary and human medicine and their usage is still growing up. Incorrect application or disposal of these agents can pollute the environment. Most of them are dangerous as well for warm-blooded animals. Their monitoring in the environment is therefore a necessity and essential especially for water sources, where the pesticides can persist.

ALS Czech Republic developed an efficient GC/MS method to determine organophosphate pesticides and captan in surface, ground and drinking waters.

The following parameters are included in the method:

Analyte	CAS number	LOR (µg/l)
Azinphos-methyl	86-50-0	0.1
Bromophos-ethyl	4824-78-6	0.05
Captan	133-06-2	0.05
Carbophenothion	786-19-6	0.05
Chlorfenvinphos	470-90-6	0.05
Chlorpyrifos	2921-88-2	0.05
Chlorpyrifos-methyl	5598-13-0	0.05
Demeton-S-methyl	919-86-8	0.1
Diazinon	333-41-5	0.1
Dimethoate	60-51-5	0.05
Dichlorvos	62-73-7	0.05
Ethion	563-12-2	0.05
Fenthion	55-38-9	0.05
Fenitrothion	122-14-5	0.05
Malathion	121-75-5	0.05
Parathion-methyl	298-00-0	0.05
Parathion-ethyl (Parathion)	56-38-2	0.05
Phorate	298-02-2	0.1
Phosmet	732-11-6	0.05
Pirimiphos-ethyl	23505-41-1	0.05
Prothiofos	34643-46-4	0.05

Organophosphate pesticides

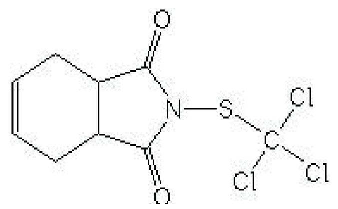
- Belong to contact insecticides (insect killing agents) and acaricides (mite killing agents).
- Effect occurs during the contact between the insect and the plant (beetle walk on the leave surface or eat the leave treated with pesticide).
- Some are still used, others are banned but can still persist in the environment.
- Toxic to humans through the chain food

Toxicity

- Most of determined pesticides are classified as toxic substances (by swallowing, by skin contact).
- According to International Agency for Research on Cancer some of them are carcinogenic.
- Organophosphates are nervous poisons.

Captan

- Fungicide (anti-mold agent)
- Used in the agricultural industry as agent for treating apple and pear scab, grapevine mildew and agent against mold on young seedlings of vegetable.
- The usage of captan grows from year to year due to its low potential for developing a resistance.
- Shows hazard to the water environment and toxicity to human.



Legislation requirements

The European Union directive (98/83/EC) on the quality of water intended for human consumption declares maximal acceptable concentrations for particular pesticides and their metabolites to 0.1µg/l while sum of all pesticides and metabolites must not exceed the value of 0.5 µg/l.

Order

To order Organophosphate pesticides and Captan determination in surface, groundwater and/or drinking water, please, fill the code W-PESGMS01 into the Chain of Custody.

Method

- Accredited method based on US EPA method 8141B
- Concentration of analytes by solid phase extraction
- Extract analysed by modern technique GC/MS (EI/Q)
- Suitable for drinking surface and ground water
- Limit of reporting for each analyte at 0.05 – 0.1 µg/l

Sample containers and volume

The routine analysis requires a volume of 500 ml in glass amber container. Containers are provided by ALS free of charge.

Storage and transport conditions

Samples must be stored in the dark at temperature below 8°C. Special thermo boxes are used for transportation.

Delivery time

Routine delivery time from the samples receipt to results reporting is 7-10 working days.

Feel free to contact us for further details

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