

QUIZALOFOP-P ESTERS: ENVIRONMENTAL FATE AND LEVELS OF RESIDUES (FROM DATA OF STATE TESTS IN UKRAINE)

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Quizalofop-p esters, the esters of (R)-2-[4-[(6-chloro-2-quinoxalinyloxy]phenoxy]propanoic acid, is a selective post-emergence herbicides.

It used in Ukraine for control of annual and perennial grass weeds in potatoes, soya beans, sugar beet, oilseed rape, sunflowers, flax and vegetables.

Presently in Ukraine 4 fomulations are incorporated on the basis of quizalofop-p-tefuryl, one formulation on basis of propaquizafop and 13 formulation on the basis of quizalofop-p-ethyl of different firms-producers.

In our investigations for the determination of residues quizalofop-p esters in air we use reverse phase HPLC with UV detection and GC/ECD. We use alkaline hydrolysis with formation of 6-chloro-2-methoxyquinoxalin at the same time, followed clean-up on Florisil PR and HPLC for detection of quizalofop-p esters and quizalofop-p in water, soil and plants. Limits of determination of quizalofop-p esters and quizalofop-p in water, plants and soil is 0,1 µg/litre, 0,01-0,1 mg/kg and 0,01-0,02 mg/kg, respectively.

Levels of quizalofop-p esters and quizalofop-p (expressed as quizalop-p ester) content in soil and different agricultural crops is presented.

Conducted state of the field pre-registration tests of formulation quizalofop-p esters in Ukraine as herbicide may result in the presence of residues in air, drinking-water, crops and animal tissues destined for human consumption. Main routes of exposure to quizalofop -p esters are expected to be inhalation and dermal exposure in the occupational setting and consumption of water and food for the general population. Because of its microbial degradation in the aquatic environment and in soil, the major source of exposure to quizalofop-p esters is expected to be food.