

Name and surname:

UCO:

Date:

Imagine you are paid as expert ecotoxicologist from the government of your country to help developing new legislation for the biodegradable waste use as fertilizer on arable land. What BATTERY OF THE STANDARDIZED ECOTOXICOLOGICAL BIOASSAYS would you recommend for the new law? Explain in detail your reasons.

You have got the following results of the ecotoxicity bioassays with soil organisms for a chemical:

- 1) springtail reproduction NOEC is 30 mg/kg dry soil;
- 2) soil microorganisms N mineralization NOEC 450 mg/kg dry soil.
- 3) earthworms reproduction NOEC is 90 mg/kg dry soil

No data for plants or any other soil species are available.

Suggest approximately PNEC value for soil - PNECsoil.

Explain the reasons for your answer in detail.

The application rate of a pesticide is 200 g per ha. Half of the pesticides amount applied is retained by plants and never come to the soil. You also know the following: the layer of soil considered for the calculations is 5 cm (in this layer the pesticide is homogenously distributed and does not go deeper); density of wet soil is 2 kg/L; the soil has 20% water by weight basis; DT50 (half-life) of the pesticide in the soil is 30 days. What will be the soil concentration (in mg/kg dry weight) after 60 days from the application (PECsoil, 60d)? Explain the reasons for your answer in detail; if any calculations, show them clearly.

Calculate RQ for a chemical which NOEC is 3 ug/kg soil and measured concentration in the soil is 15 ug/kg. Is there any risk at the site? Calculate TER for the same case.