Introduction to terminology and derivation of DegT50 from laboratory and field dissipation studies in the new EFSA GD on DegT50

Arnaud Boivin / Andy Massey
(EFSA Working Group member)

DEGT50 FOR PPP RISK ASSESSMENT

- DegT50 : Required as **endpoint** for Risk assessment purpose (SW and GW)
- DegT50 : A **sensitive parameter** for risk assessment (no acceptable /acceptable risk)
- DegT50 : Derived from **Laboratory and/or Field studies**

DegT50 FROM LABORATORY AND FIELD STUDIES

- DegT50 derived from Laboratory or Field studies : same soil, same active, same processes ?

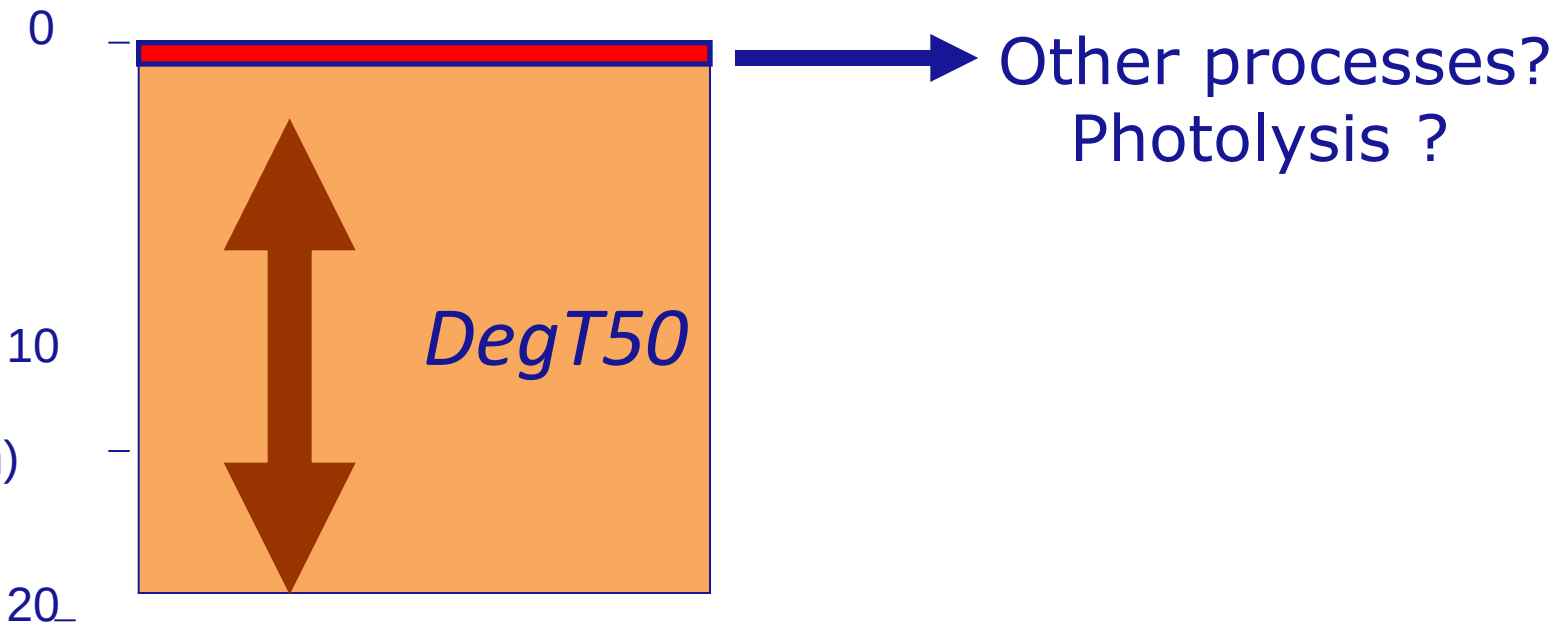
DegT50 FROM LABORATORY AND FIELD STUDIES

- **Laboratory studies :**
  - Guideline (OCDE 307)
  - 20°C / pF2
  - DT50/DegT50 (Degradation)

- **Field studies :**
  - Existing field studies (Legacy)
  - Light / daily T°/soil Moisture
  - Degradation + photodegradation+ leaching … = Dissipation
  - DissT50 vs DegT50
  - *See presentations*

DEGRADATION AND/OR DISSIPATION

- Make sure that field studies allow to derivate DegT50
- Specific rules shall apply for legacy studies (10 mm etc…) ->*See presentations*
- Specific field experiment shall be performed *tailored field studies->See presentations*



GLOSSARY AND ABBREVIATIONS

AVAILABLE IN THE GUIDANCE

Degradation	**loss process by which a substance is physically transformed from one chemical species to another. This can ultimately result in the formation of unextracted residues and CO2, but not necessarily in all cases**
DegT50	**Description of time taken for 50 percent of substance to disappear from a compartment due to degradation processes alone**
DegT50matrix	**For aerobic laboratory studies and tailored field dissipation studies with no significant influence of surface processes or aged sorption, relates to the time taken, assuming SFO kinetics, for 50 percent of substance to disappear from the soil matrix due to degradation processes alone.** **For legacy field dissipation studies, relates to the DT50 corresponding to either the SFO k after elimination of data points before 10mm of rain has occurred, or DFOP slow phase (kslow) of HS slow phase (k2).**
Dissipation	**The result of one or more loss processes leading to the disappearance of a substance from an environmental matrix, e.g. soil. Loss processes contributing to dissipation include degradation within the soil matrix by biotic and/or abiotic processes, soil surface photolysis, volatilisation, plant uptake and leaching**
DT50	**Generic term relating to disappearance time for 50% of the residue. Ideally should be clarified as to which loss processes the disappearance time relates to, e.g. DegT50 within the soil matrix degradation, DisT50 for dissipation processes. If the calculation of the DT50 is performed using single first order (SFO) kinetics, the DT50 can also be referred to as a 'half life'**

GLOSSARY AND ABBREVIATIONS

DEFINITION IN LINE WITH GUIDANCE

- **DegT50matrix :** For aerobic laboratory studies and tailored field dissipation studies with **no significant influence of surface processes** or aged sorption, relates to the time taken, assuming SFO kinetics, for 50 percent of substance to disappear from the soil matrix **due to degradation processes alone**.

For legacy field dissipation studies, relates to the DT50 corresponding to either the SFO k after elimination of data points before 10mm of rain has occurred, or DFOP slow phase (kslow) of HS slow phase (k2).

AIMS OF THE GUIDANCE:

- to provide methods to **derive the *DegT50*$_{matrix}$** from individual laboratory and field dissipation studies,

→ *see presentation*

- To explain how to determine whether the databases of **DegT50matrix values from Lab and field** can be treated as **separate** databases or whether they should be **pooled**

→ *see presentation*

- provide guidance on selecting the **appropriate input value** for use in exposure modelling

→ *see presentation*

Thank you !