How to bring your registration dossier in compliance with REACH – Tips and Hints Part 4

Hydrolysis

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REACH information requirement Annex VIII

COLUMN 1 STANDARD INFORMATION REQUIRED	COLUMN 2 SPECIFIC RULES FOR ADAPTATION FROM COLUMN 1
9.2.2.1. Hydrolysis as a function of pH.	9.2.2.1. The study does not need to be conducted if: — the substance is readily biodegradable, or — the substance is highly insoluble in water.

Hydrolysis as a function of pH: what?

"The hydrolysis test should be performed at pH values of 4, 7 and 9."

- Section 1.8.3, Method C.7, Commission Regulation (EC) No 440/2008.

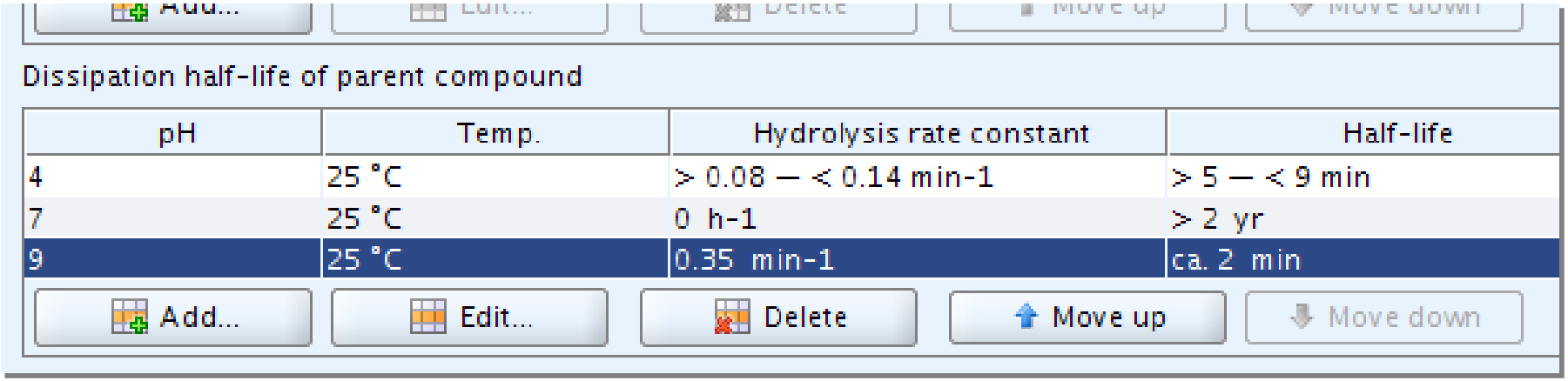
Hydrolysis as a function of pH: how?

- Report data at all of these 3 pH values:

  pH = 4 … pH = 7 … pH = 9
- QSAR data also need to be obtained at these 3 pH values

- Very fast, very slow, or no hydrolysis: still need to report all 3 pH values
  - (How? Explained later.)

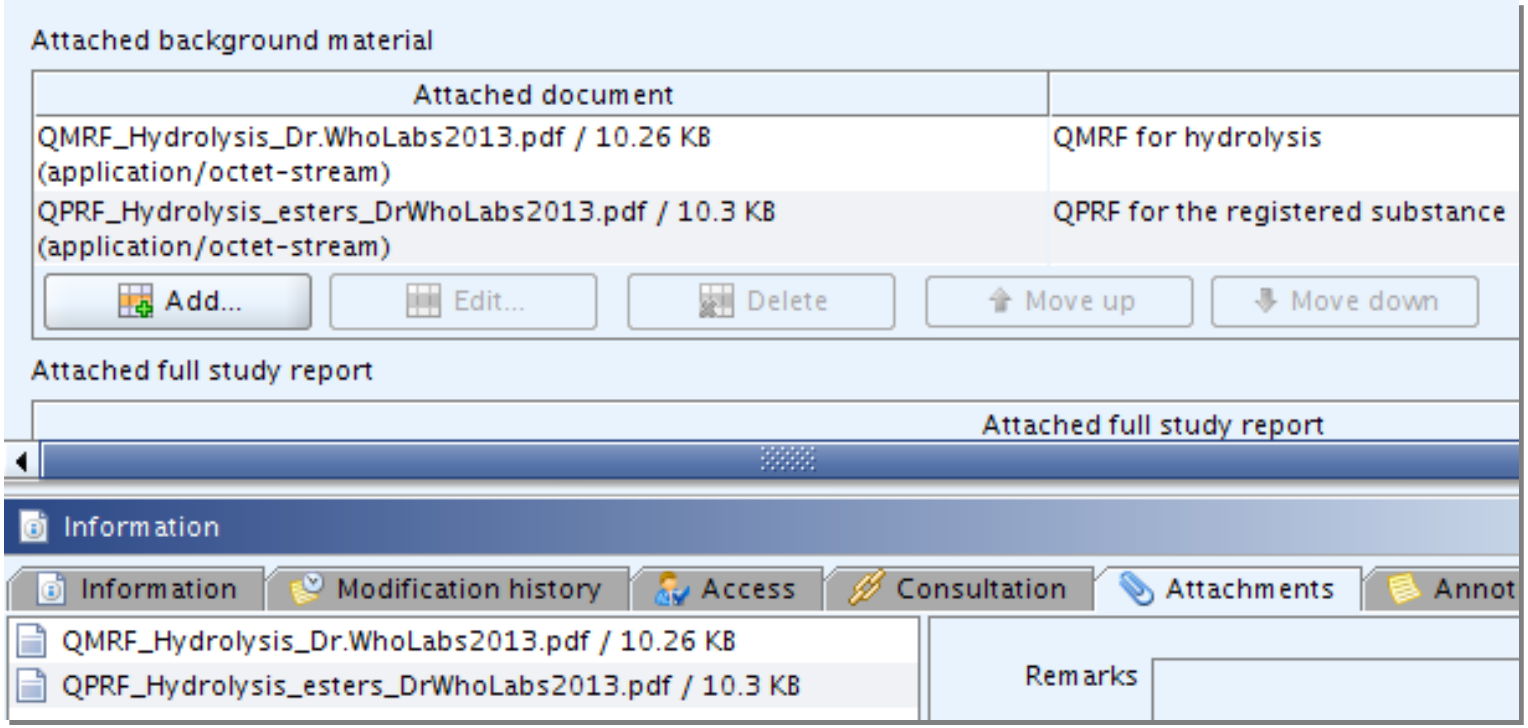
Hydrolysis as a function of pH: how in IUCLID?



Using QSAR

- You still need to report at all 3 pH values
- Attach QMRF and QPRF …
  - QSAR Model Report Format
  - QSAR Prediction Report Format
- … at the endpoint study record for **hydrolysis**

Using QSAR: QMRF and QPRF in IUCLID



ECHA Practical guide 5: How to report (Q)SARs

http://echa.europa.eu/documents/10162/13655/pg_report_qsars_en.pdf

Reporting format: use numbers

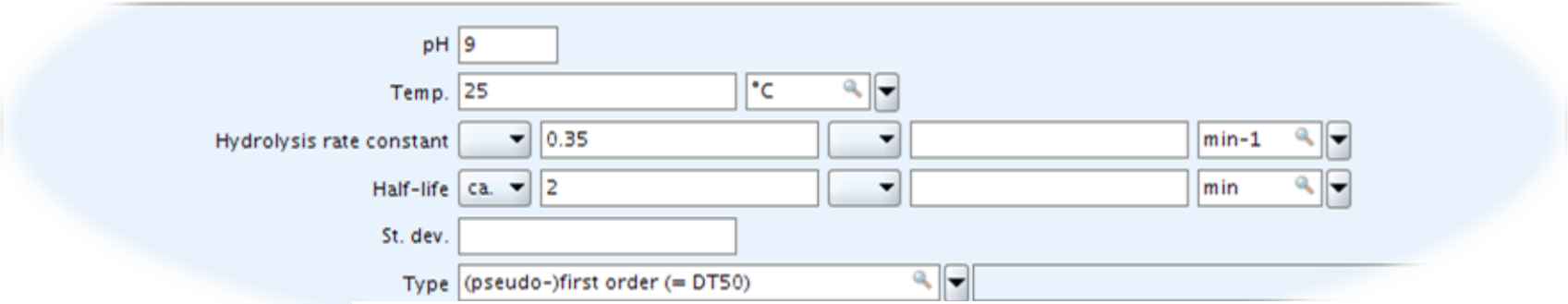
- Fill in quantitative fields
- This helps in ECHA's evaluation
- This also helps when ECHA publishes data for the public

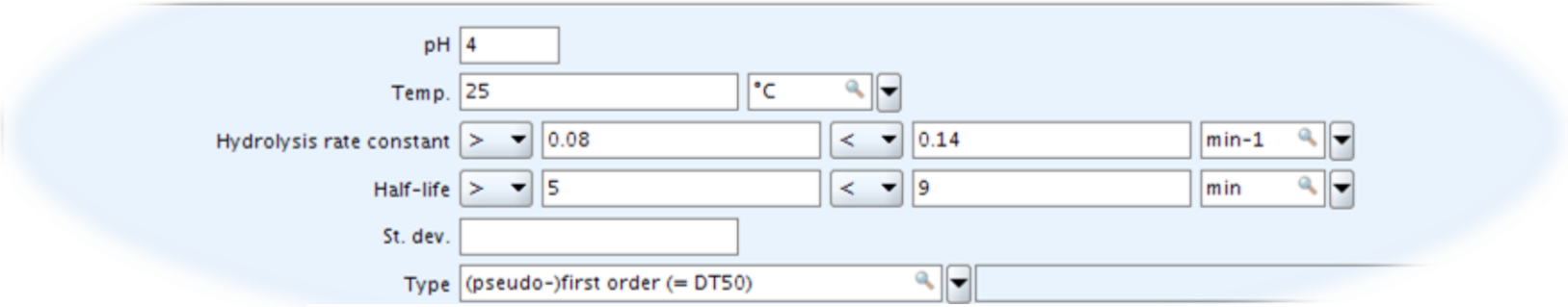
Reporting format: very fast, very slow

- Very fast hydrolysis can be reported as:
  half-life < 1 min
  half-life: ca. 2 min

- Very slow or no hydrolysis:
  half-life > 2 a
  rate: ca. 0

Reporting format: examples





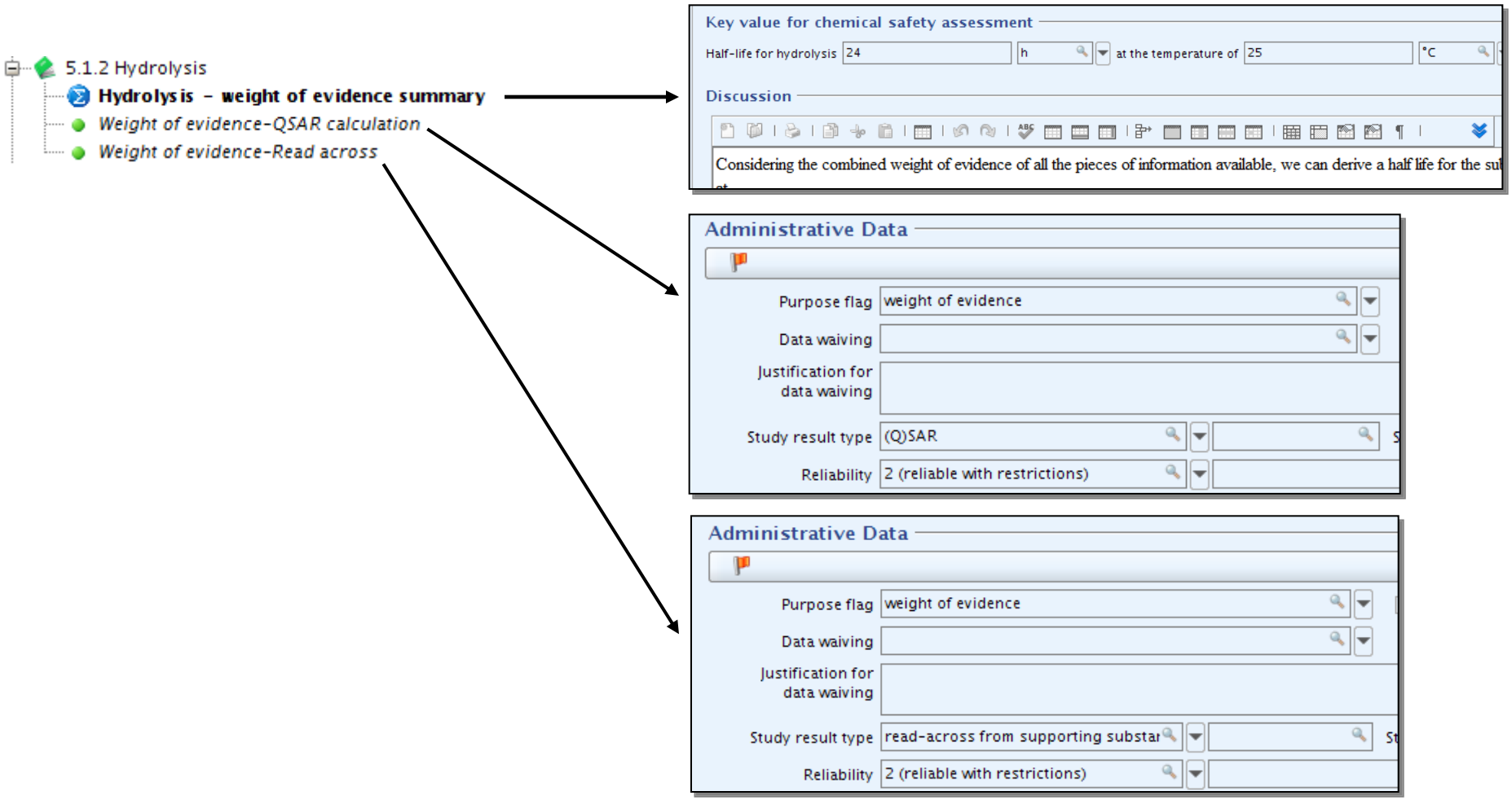
REACH adaptations in general

- Adaptations need to be based on
  - either Annex XI
  - or Column 2 in the relevant annex
- Be clear which one you are relying on
- Explain why

Weight-of-evidence

- One study record for each piece of evidence
- Endpoint summary: your own conclusion
- At least 2 independent pieces of evidence

Weight-of-evidence: example



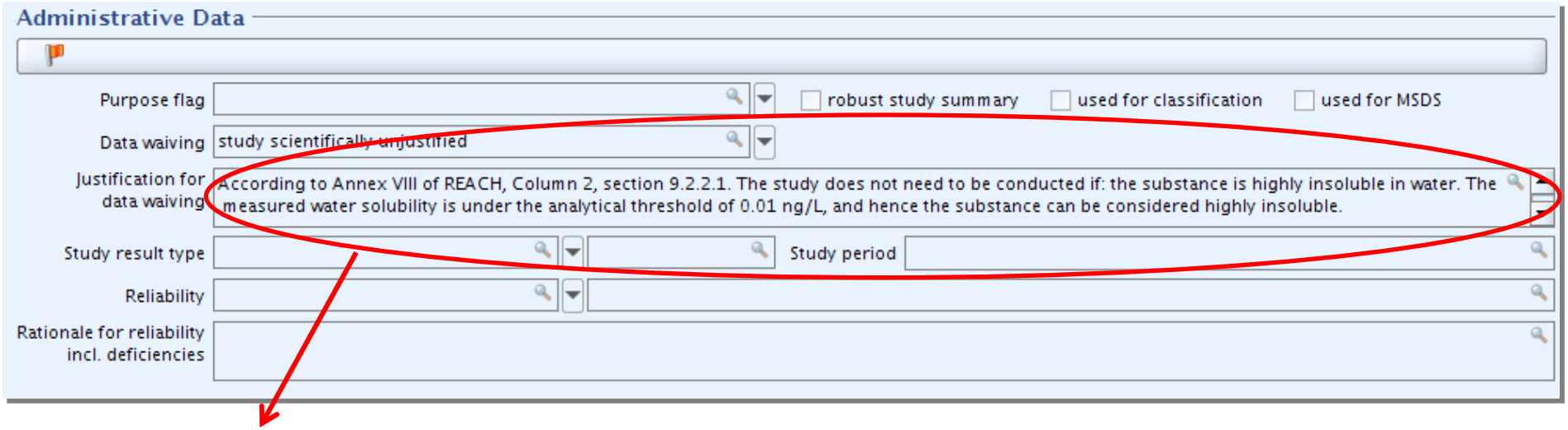
REACH adaptations for hydrolysis

- Column 2 for hydrolysis (Annex VIII, section 9.2.2.1):
  - readily biodegradable, or
  - highly insoluble in water

- Annex XI: Read the criteria carefully, and justify adequately according to these.

REACH adaptations for hydrolysis

Example for a properly structured justification



"According to Annex VIII of REACH, Column 2, section 9.2.2.1, the study does not need to be conducted if the substance is highly insoluble in water. The measured water solubility is under the analytical threshold of 0.01 ng/L, and hence the substance can be considered highly insoluble."

REACH adaptations based on hydrolysis

- Based on
  - column 2: e.g. water solubility, adsorption/desorption; or
  - Annex XI, section 2 (technically not possible)
- Submit a proper endpoint study record for hydrolysis
- Provide sufficient evidence for such an adaptation

Thank you!

http://echa.europa.eu/contact/helpdesk-contact-form