ecetoc
WE ARE THE CENTRE FOR CHEMICAL SAFETY ASSESSMENT

Webinar Q&A 'Recent work of ECETOC Task Force: Moving Persistence (P) Assessments into the 21st Century' 29 September 2020, 13.00 – 15.00 CET

	Question/comment during webinar (anonymised)	Reply Task Force (TF; based on webinar minutes together with additional information provided after the webinar)
Q&A: Conceptual framework for improving P assessments (presenter: Delina Lyon, Concawe; moderator: Aaron Redman, ExxonMobil)		
1	The evidence of Pov demands data. You mention screening methods/parameter estimations for evidence collection like QSARs, modelling approaches etc. I wonder how this will match to polymers that are under pressure right now (QSAR?). Thanks!	• Great question, no reason the concept could not be applied, and will give a good idea of the fate of a molecule and where the risk assessment should be focussed. Unfortunately, QSARs for polymers are practically non-existent.
2	Do you intend to introduce ecotoxicity testing in the WOE process?	• This would be up to regulators to incorporate. At the moment, it is not an integral part of P assessment, but could be a factor to consider in terms of uncertainty in the P assessment, i.e. how close P is to the cut-off may be more important for chemicals with toxicity.
3	Are there new methods for measuring degradation that the authors recommend considering?	• Yes, Russell will this cover more in his presentation.
4	Is the intention to use Pov as a hazard criterion in a regulatory scheme?	• Do not think of persistence as hazard criteria, more indication of exposure. • Would not think of Pov as hazard criteria; used in Canadian scheme as part of a high-throughput screening approach.
5	You referred to variability of the compartment specific results. What is your view of the uncertainty of the Pov compared to compartment specific assessment regarding the level of uncertainty? And how would you measure this?	• Will have uncertainty in both compartment-specific half-life and Pov half-life. With Pov half-life, one can work back and identify where the uncertainty lies. • We can also use our ability to do a sensitivity analysis with the Pov calculation to pinpoint where we can tolerate more or less uncertainty. For example, if a certain piece of data is not that important in the Pov, then we could tolerate a higher level of uncertainty.
6	Persistent chemicals are in focus of being regulated. Seems like assessing whether a substance is persistent is far from straight forward. What's your view on regulators aiming at regulating 'persistent only' substances without assessing those as you have presented e.g. taking into account even the environmental conditions?	• Have to be careful on what is the goal of these criteria i.e. if would just regulate based on persistence? • Requires nuanced view, persistence on its own might need more info, not something discussed within the TF. • Perhaps worth picking up on this for further discussion later. Ultimately this is a policy decision.
7	Will the Pov approach and associated multimedia fate models be able to handle non-single first order degradation when assessing persistence?	• The assumption is usually that first order kinetics apply. This could be a consideration when assessing how close you are to the P threshold, i.e. one could likely build non-first order kinetics in, but depends on whether this is necessary.

	Question/comment during webinar (anonymised)	Reply Task Force (TF; based on webinar minutes together with additional information provided after the webinar)
8	Will you share the full reference to the Canadian study and the other studies you have mentioned?	• Yes, within the papers.
9	In PoV approach, how to handle UVCBs/mixtures with physico-chemical properties in a wide range?	• Concawe approach for handling UVCBs is to break down petroleum substances into blocks of related hydrocarbon molecules. It may be then more useful to calculate Pov per block, but we would have to adjust the tonnage info that is put into the model.
10	To account for variability and uncertainty should you be looking at introducing probabilistic modelling techniques?	• Possibly. More meta data in the generated testing data could also be useful to assess uncertainty
11	Could it be that persistence (persistence only) is very important because even iif emissions cease it is difficult to control concentrations in the environment?	• "Persistence only" is partly a policy decision. • The focus of our work was on characterization of the scientific methods for Persistence assessment. Clearly the ECETOC work can inform this discussion, but it was not a focus of our work.
12	Non-first order kinetics can be built into fugacity models, but they are not 'off the shelf'	• Agreed. Non-first order kinetics are not the standard approach, but it is possible that higher tier evaluations could incorporate these concepts.
13	How are degradation products taken into account in the Pov approach?	• It depends on the basis of the HL that are used to support the calculations. If the data are Primary HL, the metabolites could need to be characterized as well. If the persistence properties of the metabolites can be estimated, the Pov approach could still be applied.
Q&A: Scientific concepts and methods for improving P assessments (presenter: Russell Davenport, Newcastle University; moderator: Kathrin Fenner, EAWAG)		
14	Is standard inocula realistically feasible when microbial adaptation or acclimatisation is apparently evident?	• This is covered in the manuscript. There is already some standardisation in the OECD TG MITI test. In terms of being able to implement as a practical solution, there are merits but indeed also difficulties in maintaining an inoculum and may in the end not represent the true diversity observed in the environment.
15	Would you say that more discussion is needed on relevance (in terms of experimental conditions, types of endpoint etc) of degradation data to the persistence assessment is needed before real progress can be made in adoption of new methods in persistence assessment? A lot of data in the lit which may not use standard OECD TGs. Is more discussion needed to define what we are looking for in terms of P assessment?	• Yes, context is important and better reporting is required with more data from standard regulatory and other studies. Progress can otherwise be made but will be hastened by understanding other factors that may influence the microbial community and/or the bioavailability of substances. • In the absence of better understanding of the influence of these factors, pragmatic solutions such as normalising for the quantity of microorganisms in a test and the use of benchmark reference substances can help to assess persistence in a relative way.
16	Thank you for sharing ECETOC's excellent progress on P assessment! We like it because of sound	• It takes time for these scientific methods to get through to regulations, e.g. the test guidelines still

	Question/comment during webinar (anonymised)	Reply Task Force (TF; based on webinar minutes together with additional information provided after the webinar)
	science. But at the same time, international on chemical regulation (i.e. REACH, etc) still have a traditional P assessment frameworks. How to approach to practical regulatory frames?	use methods for measuring microbial abundance that are quite outdated. Perhaps look to fast-tracking certain types of methods, e.g. flow cytometry for microbial abundance is starting to be used by the Swiss authorities for water analysis.
17	To reply to this problem (Q14), we proposed the Probabio concept using several inocula and leading to an index of persistence	• These are analogues to screening tests as they also use high substance concentrations. • These high-throughput tests could be used prior to a simulation tests to provide a more nuanced probability of biodegradation (Thouand *et al.,* 2011, Frontiers in Microbiology; Cregut et al., 2013, Environmental Science and Pollution Research; Martin et al, 2017, Environmental Science and Technology). • These tests have merit in perhaps identifying and prioritising those factors in response to Q15 in understanding the distribution and variability of catabolic potential for the degradation of substances. • Uncertain how it could be used in simulation tests without increasing replication and/or modelling.
18	What natural background benchmark is used for Persistence of substances used as pesticides like Cu/Copper salts and other "Natural" substances ubiquitous in the environment?	• The main substances of interest for P assessment under REACH are organic ones. • There are probably few analogous organic substances that could be used, with the exception of for instance polycyclic aromatic hydrocarbons, which can originate from natural seeps, though it is questionable whether these could be deemed ubiquitous and sufficiently widespread. • There is currently little consideration of natural geological or biochemical ubiquitous substances, their influence or measurement as natural background benchmarks. • However, samples for simulation tests should come from pristine environments where there are no known anthropogenic inputs (which could include mining, petroleum wells etc.).
19	Consideration of natural background is absent from almost all regulatory systems, sadly.	• See above