

EDITOR'S PREFACE: THE MIXTURE ASSESSMENT FACTOR DILEMMA

This issue of *The CLER Review* focuses on a key public policy decision, the proposal by the European Commission (EC) to impose a mixture assessment factor (MAF) on every chemical in the REACH registration database, currently with over 26,000 registered chemicals. The Commentary and studies in this issue provide scientific support for an alternative proposal – application of the MAF in a more focused assessment rather than to every chemical in the REACH database.

The MAF is intended to protect the environment from effects of chemical mixtures, given that current safety assessments focus on individual chemicals while mixtures of chemicals are found in the environment. There is general scientific agreement that mixtures of environmental chemicals may have greater effects than individual chemicals alone. The MAF is intended to reduce environmental concentrations of chemicals that may produce mixture effects.

The dilemma is how best to optimize protection of the environment and at the same time minimize additional costs and disruption of the European chemicals industry, a major contributor to the economy (<https://cefic.org/a-pillar-of-the-european-economy/>). Application of a MAF to every chemical in the REACH database would require revised risk evaluations, incorporating the MAF for each quantitative assessment. Depending on the magnitude of the MAF this would trigger the need for additional risk management measures, which could be costly and difficult, especially considering the large number of chemicals potentially impacted.

Minimizing these costs would require application of the MAF just to those chemicals that have the potential for mixture effects. Environmental monitoring studies indicate that only a small number of chemicals are responsible for any environmental impact observed. However, the EC is proposing to apply a MAF to every chemical to ensure that all chemicals responsible for mixture effects are covered. Is this the best option?

A case study assessment of this question is presented in the Commentary titled an “Investigation of the Scientific Basis for the Proposed Application of a Mixture Assessment Factor (MAF) to Every Chemical in the EU REACH Chemicals Registration Program.” The case study considers linear alkylbenzene sulfonate (LAS), a major cleaning agent (surfactant) used in laundry and cleaning products with more environmental

mixture data than any other down-the-drain disposal chemical in the REACH database. This extensive dataset is examined to assess if any MAF value is needed for LAS.

Also, in this *issue* are three of the key scientific studies reporting environmental mixture data on LAS:

- **Atkinson et al.** (2009) and **Slye et al.** (2011) report the results of an environmental monitoring study conducted on the highly impacted Trinity River in Texas.
- **Kapo et al.** (2014) report the results of an environmental monitoring study conducted across the state of Ohio USA.

These studies found no evidence of environmental impacts from LAS or from environmental mixtures in which LAS was a component. These and the other studies reviewed in the Commentary do not support the EC proposal to apply the MAF to every chemical in the REACH database as there is no need for a MAF value for LAS. Instead, the Commentary and supporting studies provide a strong case that a MAF value should be applied in a more focused assessment, consistent with the observation that relatively few chemicals are responsible for environmental impacts.

The *issue* is dedicated (see flyleaf page) to long-time CLER member and colleague, John N. Rapko, Ph.D. His passing was a great loss to all of us at CLER.

John Heinze, Ph.D.
Editor

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