

News & features

EU industry project focuses on assessment of cationic polymers

16 October 2018 / Ecotoxicology, Europe, Personal care, Risk assessment, Test methods

The EU chemical industry has launched a three-year project to improve environmental risk assessment of cationic polymers, which are widely used in hair products such as shampoos and conditioners.

The "improved aquatic testing and assessment of cationic polymers" (iTAP) project, launched in September, brings together Aarhus University in Denmark and global consumer products giant P&G.

The polymers combine two contrasting elements – a positive charge and a long hydrophobic chain – and the resulting dichotomy typically provides unusual behaviours in water, particularly in interfacial regions. A 2000 BASF study of those used in hair products suggested that they stick to the hair and the chains form hydrophobic loops that provide a "conditioning" effect by reducing friction between strands.

The project aims to "lay the foundation for regulatory acceptance based on improved methods" and address significant gaps in the knowledge base.

One of the challenges is that the polymers are typically large and not expected to pass biological membranes, making toxicity testing problematic. Another is that they are expected to interact with the outer membranes of aquatic organisms and thereby affect their functionalities. This behaviour makes it hard to describe the dose-response relationship.

The team will assess a group of closely related but "understudied" model cationic polymers widely used in industry. They will address several OECD test guidelines, including:

the freshwater alga and cyanobacteria growth inhibition test, TG [201¹](#);

the Daphnia sp acute immobilisation test, TG [202²](#);

the Daphnia magna reproduction test, TG [211³](#); and

the fish embryo acute toxicity test, TG [236⁴](#).

The project is funded by a €350,000 grant from the European Chemical Industry Council's (Cefic's) Long-range Research Initiative (LRI) and is led by Hans Sanderson at Aarhus University.



Andrew Turley⁵
Science editor, Chemical Watch

Further Information

Cefic-LRI project description⁶

BASF study⁷

<https://chemicalwatch.com/crmhub/61262/freshwater-alga-and-cyanobacteria-growth-inhibition-test>

<https://chemicalwatch.com/crmhub/61264/daphnia-sp-acute-immobilisation-test>

<https://chemicalwatch.com/crmhub/61282/daphnia-magna-reproduction-test>

<https://chemicalwatch.com/crmhub/61332/fish-embryo-acute-toxicity-fet-test>

<https://chemicalwatch.com/crmhub/?q=&author=Andrew%20Turley>

<http://cefic-lri.org/projects/eco-46-improved-aquatic-testing-and-assessment-of-cationic-polymers-itap/>

<https://doi.org/10.1046/j.1467-2494.2000.00003.x>

© CW Research Ltd. You may circulate web links to our articles, but you may not copy our articles in whole or in part without permission

CORRECTIONS: We strive for accuracy, but with deadline pressure, mistakes can happen. If you spot something, we want to know, please email us at: reportanerror@chemicalwatch.com

We also welcome YOUR NEWS: Send announcements to news@chemicalwatch.com