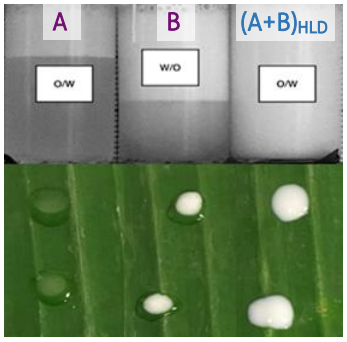
A New Strategy for Crop Protection

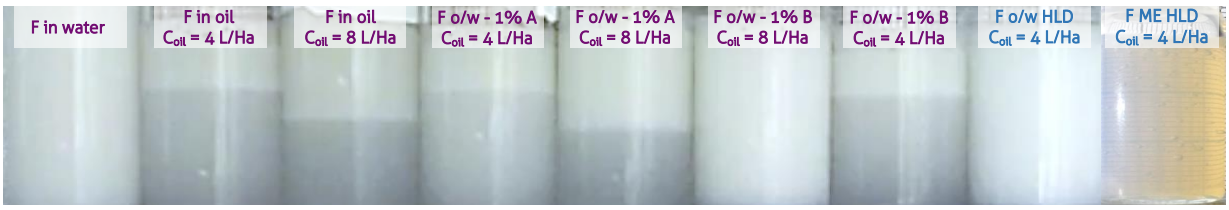
In the crop care industry, formulating stable fungicide-based emulsions is a key aspect in order to achieve optimal bio-availability, i.e. insure an even distribution of leaf coverage and maximize the penetration of active. These actives are particularly known to destabilize/shift emulsions. This document highlights the benefits of the HLD-NAC approach to smoothly tackle these challenges.

About our Proof of Concept

VLCI has worked on a collaborative project in the field of banana crop protection, where these issues have been reported, and has carried out a proof of concept based on in-house expertise in the HLD-NAC approach. This method is a core technology at VLCI, which allows to select the right combination of surfactants to find the best stable region of a given emulsion (read more about HLD-NAC). The method also allows for compensating the shift observed when adding the fungicide actives.



First, two surfactants ($A_{hydrophilic}$ and $B_{hydrophobic}$, registered for current usage) were assessed to emulsify a typical parafinic oil blend. Each surfactant was used individually, and in a third emulsion, the oil blend was characterized via HLD-NAC in order to apply an optimal blend of the two surfactants (A+B). As shown on the pictures on the left, the surfactant blend has drastically improved the stability of the base emulsion. The emulsions have been applied on banana leaves, showing how the emulsions A and B can cause uneven distribution of fungicide actives. The shifting effect of the fungicide F has been highlighted in a next set of tests. This was compensated via HLD-NAC, resulting in a stable emulsion, even at lower oil concentration (4 liters/hectare). The HLD-NAC approach also allows to formulate micro emulsions (ME), offering the possibility to increase the active solubility. This is shown on the picture below.



Our Offer

As an expert in formulation science and HLD-NAC, VLCI offers lab support to:

- Practically determine oil and surfactant parameters (EACN and Cc) and effects of actives according to HLD-NAC and give guidelines for their implementation. This can result in building up a database of parameters with specific ingredients for the crop protection industry. This is useful for raw material suppliers, for a better promotion of their ingredients, but it is also key in order to ease the work of the formulators.
- Improve the stability of emulsions containing actives used for banana growing, or other crop disease control emulsions.

T: +31(0) 20 4685657
E: info@vlci.biz
W: www.vlci.biz