Borregaard

VANISPERSE CB IN SL FORMULATION

Vanisperse® CB is a bio-based dispersant for inhibiting crystal formation during dilution of soluble concentrates (SL) in the spray tank.

PURPOSE

Showcase example of how Vanisperse CB prevents precipitation of active ingredient when a soluble concentrate is diluted in water containing electrolytes.

RESULTS

Vanisperse CB is efficient in controlling crystal growth when a soluble concentrate formulation is in contact with divalent cations found in hard water or fertilizers, due to its superior complexing ability.

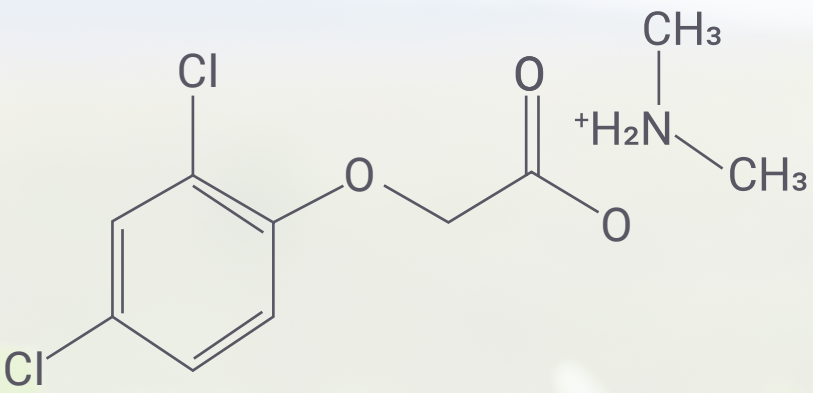
PROCEDURE

The results are illustrated by the following experimental work:

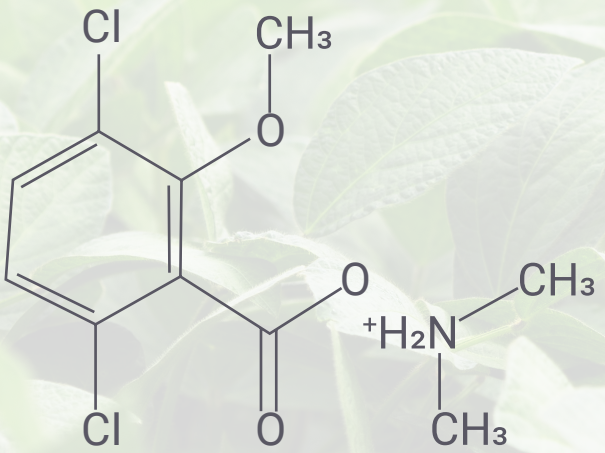
Vanisperse CB as crystal growth inhibitor
A 720g/L soluble concentrate containing salts of 2,4-D and Dicamba was prepared by reacting the actives with dimethylamine (DMA). The concentrated SL was diluted at a ratio of 9:1 with extra-hard water (1000ppm) containing dissolved lignosulfonate. The formation of crystals was monitored for 24 hours, and the weight of crystals formed was determined gravimetrically.

A similar experiment was performed by replacing Vanisperse CB lignosulfonate with Ethylenediaminetetraacetic acid (EDTA) and citric acid. A control experiment was performed without Vanisperse CB, EDTA or citric acid.

2,4-D DMA



Dicamba DMA



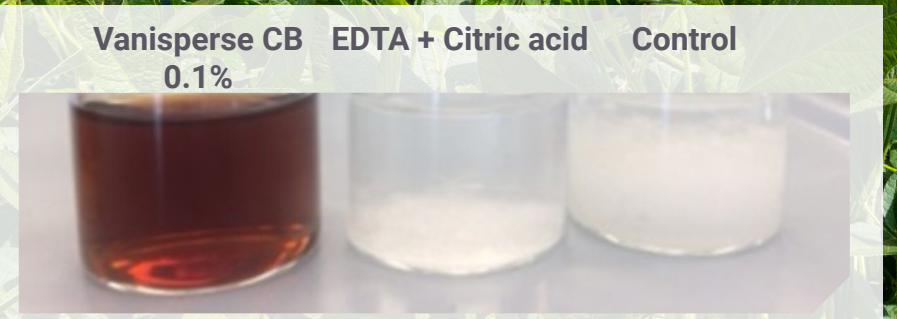
DISCUSSION

In a spray tank, the soluble concentrate is diluted in water (possibly containing electrolytes). This can lead to precipitation of active ingredients in the diluted SL.

Adding Vanisperse CB in extra-hard water (1000ppm) prevents the active ingredient in the SL from precipitating on dilution. A small dosage (0.1%) of Vanisperse CB is sufficient to inhibit active crystallisation on SL dilution compared to traditional complexing agents like EDTA and citric acid. Significantly higher dosages of EDTA and citric acid were required to provide the same crystallisation inhibition effect, thereby indicating the superior performance of Vanisperse CB.

Is crystal formation inhibited?
2,4-D and Dicamba (DMA salts) diluted in water containing EDTA or Vanisperse CB

Inhibitor	Inibitor concentration, wt%		
	1%	0.5%	0.1%
Vanisperse CB	Yes	Yes	Yes
EDTA	Yes	No	No



CONCLUSIONS

Vanisperse CB is an excellent inhibitor for preventing crystallisation of active ingredient from soluble concentrates when diluted in water containing electrolytes. Vanisperse CB is efficient at low dosages compared to EDTA + citric acid, thereby illustrating the superior performance of Vanisperse CB.

Contact us:

Agriculture@borregaard.com