



Borregaard

ULTRAZINE NA IN SC FORMULATION

Ultrazine NA is a bio-based dispersant for suspension concentrates, providing crystal growth inhibition and superior rheology control.

PURPOSE

Showcase example of how Ultrazine NA maintains good rheology control in SC formulations.

RESULTS

In suspension concentrates (SC), formulations with Ultrazine NA have lower viscosity compared to those formulated with standard lignosulfonates and sodium naphthalene condensates.

Ultrazine NA provides

Improved milling efficiency

Good crystal growth control

Superior rheology control



PROCEDURE

The results are illustrated by the following experimental work:

Ultrazine NA as dispersant in suspension concentrate

A 60 wt% Ziram suspension was formulated in water with 2% dispersant and other co-formulants. The suspension was adjusted to pH 7. The flow curve of the fresh suspension was measured over the range 0.1 s^{-1} - 1000 s^{-1} followed by measurement of storage modulus development over time.



DISCUSSION

Figure 1 illustrates the performance of Ultrazine NA in a 60 wt% Ziram suspension. The formulation prepared with Ultrazine NA has a significantly lower viscosity (129 mPa·s) compared to a standard sodium lignosulfonate (333 mPa·s) and naphthalene sulfonate condensate (2630 mPa·s).

Similarly, the oscillatory measurement of storage modulus of the suspension (figure 2) indicates that the formulation prepared with Ultrazine NA has low gel strength compared to standard sodium lignosulfonate (Na-LS) and naphthalene sulfonate condensate. In addition, a slower development of the storage modulus with time is observed in formulations with Ultrazine NA, thereby indicating the likelihood of the suspension retaining fluidity on long term storage.

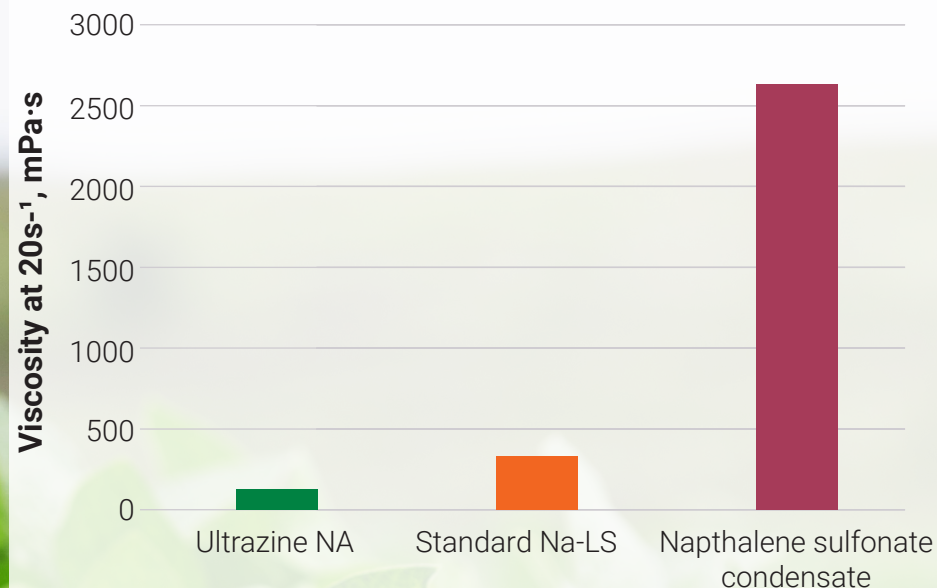


Figure 1: Viscosity of fresh 60% Ziram suspension

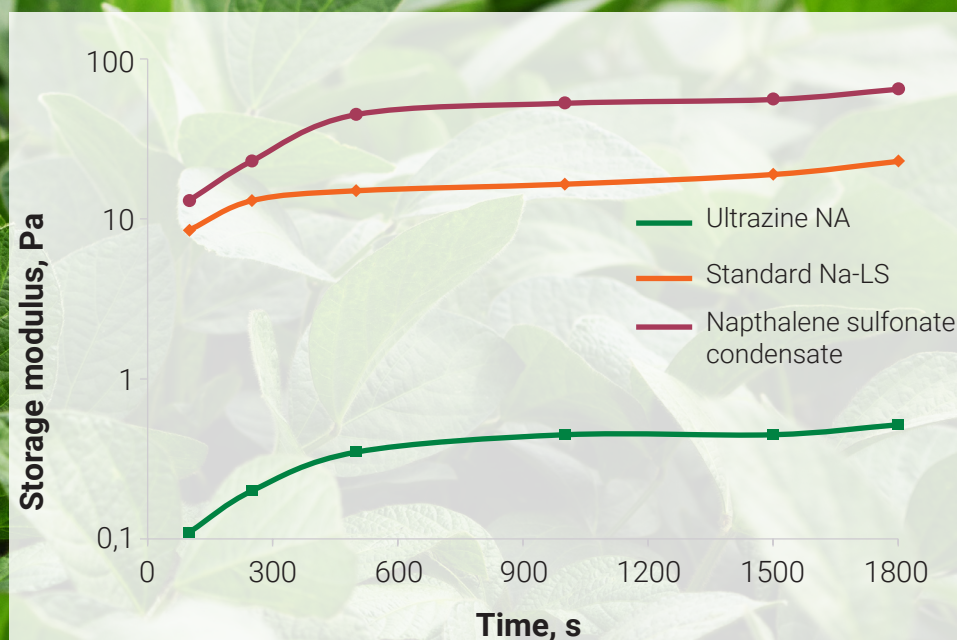


Figure 2: Development of storage modulus vs. time for fresh 60% Ziram suspension

CONCLUSIONS

Ultrazine NA is an excellent dispersant for formulating suspension concentrates imparting low viscosity during milling and reducing structural buildup on storage.

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Ultrazine NA is designed to

Aid in ease of milling

Good crystal growth control

Superior rheology control