

microflex™ 1

microemulsion delivery matrix

efficient and versatile carrier system for broad array of bioactive materials

Microflex™ 1 microemulsion matrix is an effective delivery system for use with a variety of agricultural insecticides, fungicides and animal health applications. Consisting of EPA-registered solvents, emulsifiers and polymers, this product offers excellent solvency for hydrophobic, water-insoluble organic compounds and actives. Highly cost-effective, it is also stable, penetrates better than alternative technologies, provide better coverage and is easy to use in formulations.

Suitable for dip and sprayable products as well as for bait and granule coatings, this product can help lower development and production costs through its unique properties. Optimized for use with cypermethrin and permethrin insecticides, Microflex™ 1 has also been shown to boast better stability and efficacy compared with alternative technologies. It is also easily customizable to accommodate economical delivery of many hydrophobic water-insoluble chemicals in water-based formulations.

Users of the Microflex™ matrix simply add the active insecticide or fungicide to the concentrate for a ready-to-use mix. Capable of high loading of actives, Microflex™ 1 can deliver superior performance compared with other microemulsions. Its octyl pyrrolidone component also serve as an excellent interfacial solvent and surfactant, enhancing both stability and efficacy. Microflex™ 1 is compatible with a variety of chemistries.

The high loading capacity of formulations using Microflex™ 1 is highly effective. Formulations containing as much as 25% actives have been achieved.

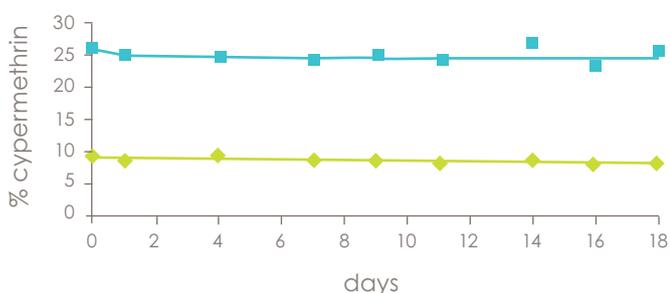
Because active ingredients are better dispersed in microemulsions, they are more efficient. Microflex™ 1 boast superior stability and achieve considerably higher coverage (two orders of magnitude) compared to conventional emulsions. The N-octyl pyrrolidinone in Microflex™ 1 helps enhance biological activity due to increased flux, higher diffusion rates, bi-layer formation on drying and better wetting/penetration initiated.

benefits

- excellent solvency and emulsification
- high actives loading
- long-term stability
- easy to formulate
- customizable
- economical advantages over competing technologies
- available for direct food crop applications
- available for animal health applications

Figure 1 shows the stability of formulations utilizing Microflex™ 1 over the course of days at varying actives load levels. Even after 18 days, formulations containing 25% and 10% cypermethrin remain stable with 95% of the active recoverable.

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cypermethrin recovered = 95%; non-NPE formulation (caster oil EO)

Table 1 summarizes various active ingredients formulated with Microflex™.

table 1

active ingredients	% loading producing clear microemulsions
cypermethrin	20
permethrin	20
d-dallethrin	10
piperonil butoxide	10
1:5 d-allethrin & piperonil butoxide	24
deltamethrin	5

typical Properties

Microflex™ 1

Appearance	Clear liquid
pH (10 Wt % aq.)	3.0 - 3.8
Specific Gravity (Pycnometer)	1.00 (20/20°C)
Viscosity (Brookfield Viscometer)	70 - 95 cps

For more information on Microflex™ series of products, or any other chemistry from Ashland, contact your local Ashland representative or visit www.ashland.com.

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