

Berol[®] 99-series emulsifier pairs

Berol 9927, Berol 9960, Berol 9968, Berol 9969 performance blends for emulsification

We are a global leader in emulsion chemistry and performance blend technology. Berol 99-series was developed by our formulation experts to offer robust blends that ensure performance, economy, convenience and sustainability for EC formulations.

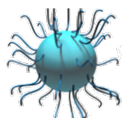
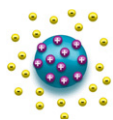
Matched pair of emulsifier blends

The blend of emulsifiers includes anionic and nonionic surfactants in a balanced composition that brings ideal electrostatic and steric stabilization to the emulsion. In combination, as a matched pair, these four blends work for most pesticides and common solvents.

Stabilization of emulsions

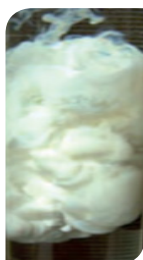
Repulsive forces must be dominant for stable systems. Two mechanisms affecting dispersion stability:

- **Electrostatic or charge stabilization**
This is the effect on emulsified droplet interaction due to the distribution of charged species in the system.
- **Steric repulsion**
This involves polymers adsorbing onto the surface and preventing the droplets coming into close contact. The thickness of the coating is sufficient to avoid van der Waals forces and flocculation.



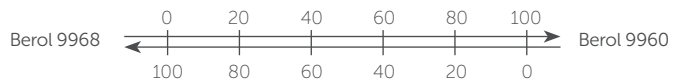
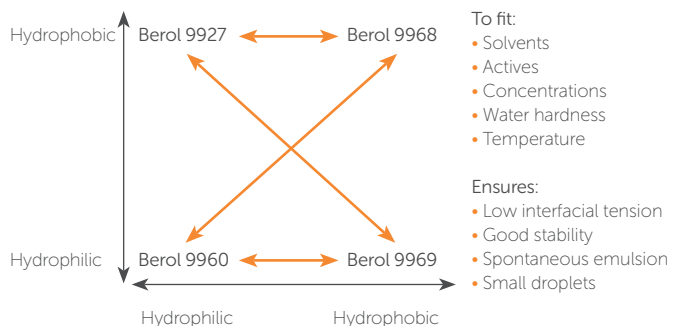
Key benefits

- Robust – can be used with many active ingredients and solvents
- Tolerant to temperature and quality variations
- Convenient – easy to use and dose
- Effective at low concentrations
- Better hard water tolerance
- Reduced complexity and stock keeping



Emulsifier selection

Hydrophobic and hydrophilic components are designed to be tolerant to any variations in active ingredient quality by the means of making small adjustments.



Recipes for Berol 99-series emulsifier pairs

Formulation	AI (g/L)	Berol 9927	Berol 9960	Berol 9968	Berol 9969	Solvesso 100	Solvesso 150	Armid DM10	Armid FMPC
2,4-D EHE	1040	7.5 g/l		52.5 g/l					
Abamectin	18		42 g/l	28 g/l			up to 1 liter		250 g/l
Acetochlor	500		20 g/l	30 g/l			up to 1 liter		
Carfentrazone	420	32 g/l			48 g/l		up to 1 liter		
Chlorpyrifos	480	25 g/l			25 g/l		up to 1 liter		
Clethodim	240		24 g/l		56 g/l		up to 1 liter		
Cypermethrin	300		28 g/l	42 g/l			up to 1 liter		
Cypermethrin	500	28 g/l		42 g/l		up to 1 liter			
Deltamethrin	25		28 g/l		42 g/l	up to 1 liter			
Phenmedipham	91								
Desmedipham	71	55 g/l	35 g/l					up to 1 liter	
Ethofumesate	112								
Oxyflouren	240	100 g/l				up to 1 liter			350 g/l
Propiconazole	250		80 g/l				up to 1 liter		50 g/l
Prochloraz	450	100 g/l					up to 1 liter		250 g/l
Triclopyr	240		36 g/l	24 g/l			up to 1 liter		
Clopyralid	60								
Trialate	480		12 g/l	48 g/l			up to 1 liter	60 g/l	
Quizalofop-ethyl	250			40 g/l	40 g/l		up to 1 liter		

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We operate in over 80 countries around the world and our portfolio of industry-leading brands includes Eka, Dissolvine, Trigonox, and Berol.

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