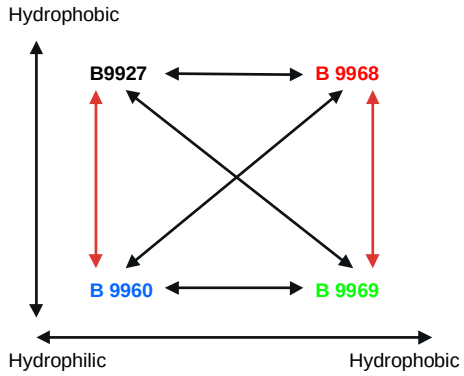
Alcohol based emulsifiers for Emulsifiable Concentrates

"Matched pair" system
The total concentration of the emulsifier blend is normally 5-10% of the formulation. The optimum ratio of anionic and non-ionic surfactants is determined experimentally with regards to spontaneous emulsification in water and the stability of the emulsion in required temperature and water hardness. Two-component systems "matched pair" usually works better than single components and make it easier for the formulator.



BEROL 9960 : BEROL 9968 1st choice
BEROL 9960 : BEROL 9969 or
BEROL 9927 : BEROL 9969
BEROL 9927 : BEROL 9968

Oil formulations require other emulsifiers, which are much more hydrophobic

Our new **Alcohol based** emulsifier blends could be used alone or in combination as a "matched pair". They are efficient in both hydrophobic and hydrophilic formulations independent of active ingredients and solvent systems.

With four blends **Berol 9927, Berol 9960, Berol 9968** and **Berol 9969** one can easily emulsify the most commonly used pesticides namely, insecticides, herbicides, fungicides and acaricides.

Key benefits
- EPA Compliance 40 CFR 180.1001
- Alcohol based
- Universal
- Wide range of temperature and water hardness

All recipes optimised in accordance with FAO, 500 ppm $CaCO_3$ and 30C

HLB
HLB value is a theoretically calculated value of the hydrophobic (solubility in oils) and hydrophilic (solubility in water) balance of a surfactant. The system was introduced in the 1940's and does not cover the newer types of surfactants.

Water hardness
The formulation suggestions are optimised for 500 ppm $CaCO_3$ and if a better stability is required in soft water, the emulsifier system has to be adjusted to a more hydrophobic balance. This means you change the ratio between the hydrophilic and hydrophobic pair.

Temperature
The formulation suggestions are optimised for 30ºC, but if the formulation is to be used at a lower temperature, the hydrophobic part of the emulsifier system has to be increased by changing the ratio between the hydrophilic and hydrophobic pair.

Solvents
A change of solvent from e.g. xylene to a more hydrophobic solvent, like Solvesso 150, makes it necessary to increase the hydrophobic part of the emulsifier system as well.

Formulation	AI (g/l)	Emulsifier (g/l)					Solvent				Stabilizer (g/l)
		BEROL 992	BEROL 9927	BEROL 9960	BEROL 9968	BEROL 9969	Xylene	SOLVESSO 100	SOLVESSO 150	Cyclohexanone	AGRILAN FS101
Alachlor 48 EC	480			20		30	up to 1 l				
Alpha-Cypermethrin 5 EC	50			25		25	up to 1 l				
Bifenthrin 10 EC	100			25		25	up to 1 l				
Chlorpyrifos 20 EC	200			30	20		up to 1 l				
Chlorpyrifos 20 EC	200			25	25			up to 1 l			
Chlorpyrifos 20 EC	200			20	30				up to 1 l		
Chlorpyrifos 45 + Cypermethrin 5 EC	450/50			21	49			up to 1 l			
Chlorpyrifos 48 EC	480			25	25		up to 1 l				
Chlorpyrifos 48 EC	480			20	30			up to 1 l			
Chlorpyrifos 48 EC	480		25			25			up to 1 l		
Cypermethrin 5 EC	50			42		28	up to 1 l				
Cypermethrin 5 EC	50			35		35		up to 1 l			
Cypermethrin 5 EC	50			21		49			up to 1 l		
Cypermethrin 5 EC	50			35	35				up to 1 l		
Cypermethrin 10 EC	100			42		28	up to 1 l				
Cypermethrin 10 EC	100			35		35		up to 1 l			
Cypermethrin 10 EC	100			21		49			up to 1 l		
Cypermethrin 20 EC	200			35		35	up to 1 l				
Cypermethrin 20 EC	200			49	21		up to 1 l				
Cypermethrin 20 EC	200			35	35			up to 1 l			
Cypermethrin 20 EC	200			28	42				up to 1 l		
Cypermethrin 30 EC	300			21		49	up to 1 l				
Cypermethrin 30 EC	300			42	28		up to 1 l				
Cypermethrin 30 EC	300			28	42			up to 1 l			
Cypermethrin 30 EC	300			28	42				up to 1 l		
Decamethrin 2.5 EC	25			42		28	up to 1 l				
2.4-D-Isoctylester	1070		7.5		52.5						
Diazinon 18 EC	180			25	25			up to 1 l			10
Diazinon 60 EC	600			36	24		up to 1 l				10
Diazinon 60 EC	600			30	30			up to 1 l			10
Diazinon 60 EC	600			30	30				up to 1 l		10
Dimethoate 20 EC	200	50					up to 1 l			301 g/l	
Dimethoate 40 EC	400	50					up to 1 l			455 g/l	
Dimethoate 40 EC	400	50						up to 1 l		455 g/l	
Esfenvalerate 2.5 EC	25			49		21	up to 1 l				
Ethofumesate 20 EC	20%			4.9%		2.1%	balance				
Ethylparathion 25 EC	250			16		24	up to 1 l				
Fenitrothion 50 EC	500			30		20	up to 1 l				
Fenvalerate 10 EC	100			42		28	up to 1 l				
Fenvalerate 30 EC	300			42	28		up to 1 l				
Omite 57 EC	570		24		36		up to 1 l				
Permethrin 10 EC	100			42		28	up to 1 l				
Permethrin 10 EC	100			21		49		up to 1 l			
Permethrin 10 EC	100			35	35			up to 1 l			
Permethrin 10 EC	100			35	35				up to 1 l		
Permethrin 25 EC	250			42	28		up to 1 l				
Permethrin 25 EC	250			35	35			up to 1 l			
Permethrin 25 EC	250			28	42				up to 1 l		