



# EXOemul Series

Local. Global. Integrated.



Emulsifiers - agents that promote the formation of an emulsion. An emulsifier involves water soluble hydrophilic parts and oil-soluble lipophilic parts within its. Adding an emulsifier to a mixture of water and oil, the emulsifier is arranged on the interface, anchoring its hydrophilic part into water and its lipophilic part into oil.

On the interface of water, the hydrophilic part and the lipophilic part are adsorbed and arranged around the interface. It reduces interfacial tension. The result is that oil and water is easily mixed.

The hydrophilicity and lipophilicity are different among emulsifiers, and the balance between the two is called HLB value (ranges from 0 to 20). An emulsifier with higher lipophilicity shows a lower HLB whereas higher hydrophilicity has high HLB.

The EXOemul series is a group of emulsifier blends dedicated to the formulation of EC and EW plant protection products as well as to the preparation of adjuvants (tank mixes) based on mineral oils, vegetable oils and their derivatives. EXOemul series shows high emulsifying efficiency and ensures the stability of emulsions.

### Action of EXOemul:

- Enable emulsification of the oil phase into aqueous phase by decreasing interfacial tension,
- They ensure spontaneous emulsification and the formation of milky emulsions when the formulation is added to water,
- Introduce electrostatic and steric stabilization to the fine droplets; preventing coalescence or flocculation,
- Improve compatibility with other components in the aqueous phase.

### Advantages:

- Excellent emulsifying and stabilizing properties
- Excellent solubility in vegetable and mineral oils, solvent naphthas, fatty amines and amides
- Nonylphenol free

### Benefits:

- Safe for water environmental
- Easily biodegradable



Physical and chemical properties of emulsifiers:

EXOemul	OM2	OM3 LSP	EM260	A3
Appearance at (20-25)°C	yellow liquid	yellow to dark yellow liquid	light brown liquid	viscous yellow liquid
pH	5.0 – 7.0 (1% solution B)	7.0 – 9.5 (1% solution B)	6.0 – 8.0 (1% solution C)	5.0 – 8.0 (2% solution B)
Colour	max. 6 (at 20-25°C)	max. 250 (at 20-25°C)	max. 10 (at 20-25°C)	max 500 (Hazen at 40°C)
Solubility in water	insoluble	insoluble	good	very good
Other solvents	octanol, acetone, ethyl ether, methanol	methanol, ethyl ether	octanol, ethyl ether, methanol, acetone	methanol, ethyl ether, acetone, xylene
Flash point [°C]	>120	approx.110	approx. 54	approx. 53
Density at 20°C [g/cm³]	0.90 – 1.00	0.95 – 1.05	0.95 – 1.10	1.05 – 1.07
Solidification point [°C]	approx. 1	approx. -14	approx. -15	approx. 8
Viscosity at 20°C [mPa·s]	approx. 50	approx. 60	approx. 2300	approx. 3000
HLB	9.2	–	–	10.5

Example of formulations:

EXOemul OM2	15 – 25%
Paraffin oil	75 – 85%
EXOemul OM3 LSP	15 – 25%
Paraffin oil	75 – 85%
EXOemul EM260	15 – 25%
Tebuconazole	24 – 26%
Rapeseed oil methyl esters	15 – 25%
N,N-dimethylformamide	10 – 20%
Other additives	0.5 – 2%
Water	up to 100%
EXOemul A3	10 – 20%
Alpha cypermethrin	10 – 11%
Solvent naphtas (e.g. Solvesso 100)	up to 100%





**PCC Exol SA**  
Sienkiewicza 4  
56-120 Brzeg Dolny, Poland  
[products@pcc.eu](mailto:products@pcc.eu)

Please visit our capital group business platform:  
**[www.products.pcc.eu](http://www.products.pcc.eu)**



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Suggestions for product applications are based on the best of our knowledge.

The responsibility for the use of products in conformity or otherwise with the suggested application method and for determining product suitability for your own purposes rests with the user.

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