

BASF Oilfield Chemicals

Your one-stop-shop to demulsification

Basorol®

Separate the best from
the rest! For phase
control, choose Basorol!



Demulsifiers that maximize oil production

Our broad portfolio of high-performance demulsifiers have proven effectiveness in multiple crudes worldwide. Discover how your Basorol® journey could start today ...

Managing to quickly and efficiently separate water from crude oil is an essential requirement in any oil production facility.

BASF has developed a broad range of high-performance demulsifiers that have proven results and can be used in multiple applications.

We offer the full suite of chemistries required for any efficient formulation, with options for every region – we really are your one-stop-shop to demulsification!





Function Guide

Crude oil is generally produced as a water-in-oil emulsion and demulsifiers are necessary for breaking such emulsions. The factors involved in treating emulsions include breaking the film surrounding the small water droplets and coalescing the droplets to produce larger drops. Finally, the water drops settle during or after their coalescence.

A demulsifier is usually a blended product, where each single base gives a unique performance, so that the mixture will give export crude within the desired KPI range of residual BS&W and salt content.

Droppers will give a fast initial water drop, removing the bulk of the water and therefore increasing throughput. However, droppers will typically not give satisfactory BS&W results.

Polishers are used to give good BS&W results in the top oil, and good interface and water quality. They are usually poor droppers.

Treaters are hybrids in between droppers and polishers. Their speed of water drop may not be as fast as with a dropper, but over time, will reach the same level, or may ultimately drop more water. This is also the reason why they show some polishing quality.

Desalters are often required when the emulsified water has a high salt content. Depending on the separation plant setting, residence time and treatment temperature, either droppers or polishers can act as a desalter.

Wetting Agents are typically high RSN products which will alter the wettability of solids. Sand, clay, other minerals or ores, or even corrosion byproducts like iron sulphide, can increase the stability of crude oil emulsions. Changing their wettability will support the demulsification process.

The Basorol® Product Range

Basorol® demulsifiers are developed to treat the full range of crude oil emulsions, be it light, high salinity crudes from the Arabian Peninsula to waxy, light crudes in West Africa, or even heavy, asphaltenic crude oil emulsions from North and South America. The product portfolio covers classical droppers (resin chemistry, group 1) and a variety of EO/PO block polymers, either as linear (group 2), or branched polyalkylenglycols based on oligools (group 3), or oligoamines (group 4) which will serve as droppers, polishers or wetting agents depending on the crude oil API. Complementing the portfolio are high molecular weight PEI alkoxylates (group 5) which are very successful as polishers and desalters, and diepoxides (group 6), which are excellent treaters and work well as droppers on heavy fluids.

	Product	RSN
Group 1	Alkoxylated alkylphenol resins	
	Basorol® P DB-9945	8 – 10
	Basorol® P DB-9946	10 – 12
	Basorol® P DB-9947	12 – 14
	Basorol® P DB-9934	14 – 16
	Basorol® P DB-9935	17 – 20
	Basorol® P DB-9429	11 – 13
	Basorol® P DB-9954	10 – 12
	Basorol® P DB-9955	13.5 – 15.5
	Basorol® P DB-9958	14 – 16
	Basorol® P DB-9954 A	10 – 12
	Basorol® RI-14 A	17 – 21
	Basorol® RI-15 A	20 – 22
	Basorol® RI-16 A	13.5 – 16.5
	Basorol® RX-17 A	16.5 – 19.5

	Product	RSN
Group 2	EO/PO block co-polymer	
	Basorol® L 101	8.5 – 10.5
	Basorol® L 61	10.5 – 12.5
	Basorol® L 62	15.5 – 17.5
	Basorol® L 64	16 – 18
	Basorol® PE 9200	17.5 – 19.5
	Basorol® P 84	28.5 – 30.5
	Basorol® PE 10500	30.5 – 32.5
	Basorol® 17-R2	16 – 20
	Basorol® 17-R4	28.5 – 30.5

Group 3	Tri-functional alkoxylate	
	Basorol® K 3800	8.5 – 10.5
	Basorol® K 2090	8.5 – 10.5

	Product	RSN
Group 4	Tetra-functional alkoxylate	
	Basorol® 1301	9 – 11
	Basorol® P DB-5951	10 – 12
	Basorol® P DB-9904	11 – 14
	Basorol® 904	33 – 35

Group 5	Polyethyleneimine	
	Basorol® P DB-9360	6.5 – 8.5
	Basorol® P DB-9393	5 – 7
	Basorol® P DB-9392	7 – 9
	Basorol® P DB-9390	10 – 12
	Basorol® P DBD-1303	6 – 8

Group 6	Di-epoxide	
	Basorol® P DB-9928	5 – 7
	Basorol® DI-18	5 – 7
	Basorol® DI-19	6 – 8
	Basorol® DI-21	9 – 11

Performance in Different Oil Types

Depending on the crude oil API, the performance of the different chemical groups of the Basorol® range will change. Based on laboratory and field experience spanning several decades of product development and application, the below table gives a guideline of which products will work on what kind of crude.



Basorol® Performance with Oil Type

	Light						Medium						Heavy					
API Gravity (SG kg/L)	> 30 (< 0,88)						20-30 (0,88-0,93)						< 20 (> 0,93)					
Product Group	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
Dropper	■	■	■		■		■	■		■		■				■		■
Desalter	■	■	■		■		■	■			■		■				■	
Treater		■	■						■	■		■				■		■
Polisher		■			■	■					■	■					■	■
Wetting agent	■	■	■				■	■	■	■			■			■		

Supply Chain

Once your solution has made it through the field trial and you’re ready to order regular Basorol® supply, BASF can support you by evaluating optimal stocking points to reduce lead times. Selected Basorol® products are already in stock at various locations around the world.

Sustainability

BASF has years of experience in the field of sustainability, and dedicated experts within the company. Contact us to discuss your sustainability priorities, whether it be carbon management related, or with regards to environmental regulations for chemical application on- and offshore.

Bringing Innovation

We are constantly enhancing our demulsifier portfolio to offer an innovative solution package. We spend time enhancing formulations, and conduct lab work to maximize product performance, to ensure our customers receive the best products and recommendations.

Example supply stocking points





Technical Support & Capabilities

In every demulsifier related project, the applicable crude oil will need testing to determine which Basorol® products perform best, and to formulate the end solution. We offer technical support, both lab and field based, depending on your requirements. We have experts who are even BOSIET qualified to visit offshore sites.



Customized solutions



**Experienced team of chemists
& application experts**



**Quality & consistency-
backed brand**

Chemical Compatibility

Multicomponent formulation stability and compatibility under ambient temperature and pressure.

Demulsifier Characterization

Cambridge HTHP viscosity, Anton Paar-Rheology for flow qualities, RSN evaluation (Titration) per BASF and industry standard method, interfacial tension analysis, Karl Fisher titration for dehydration effect.

Bottle Testing (In-Lab or In-Field)

Screening of and formulation with Basorol® demulsifier intermediates for treating crude oil emulsions to achieve typical (or required) KPI's like BS&W or salt in crude.

Additional Test Methods

SVT-IFT Measurement (In-House)

Turbiscan / Gas Chromatography* (O/S)



Initial Recommendations

If you're dealing with light crude, focus on group 1 and 3 for drop, and group 5 for low BS&W. Recommendations are Basorol® P DB 9946, 9947, 9935, 9954, 9955, 9954A, RI-15A, K 3800, 9393 and 9392.

If emulsion has a high salinity, focus on group 1, 2 and 5. Recommendations are Basorol® P DB-9946, 9947, 9935, 9954, 9955, 9954A, RI-15A, L61, L101, P 84, 9393 and 9392.

If crude is heavy, focus on group 4 and 6 for drop and treatment. Recommendations are Basorol® P DB 5951, 9904, 9928, DI-18, DI-19 and DI-21.

If water quality is a concern, check group 2, 3 and 4. Recommendations are Basorol® L 61, PE 10500, P 84, K 3800, 5951 and 9904.

If interface is an issue, check group 2, 5 and 6.

Recommendations are Basorol® L 61, PE 10500, P 84, P DB-9393, 9392, 9928, DI-18, DI-19 and DI-21.

For solids control, use a high RSN products.

Recommendations are Basorol® P DB-9935, 9958, RI-14A, RI-15A, L64, P 84, 9904.

Slop Oils

The above treatment rules don't apply for slops, as those have already been treated and sent to slop tanks since they were out of spec. Flowback from fracking, EOR fluid breakthrough, acid stimulation, and fluids from newly completed wells will add to the complexity. Especially high RSN products from group 1 and 2, in combination with surfactants or sulphonic acids, have shown good results and should be tested first.



For further information visit our website:
www.oilfield-chemicals.basf.com



Product availability may vary by region.

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