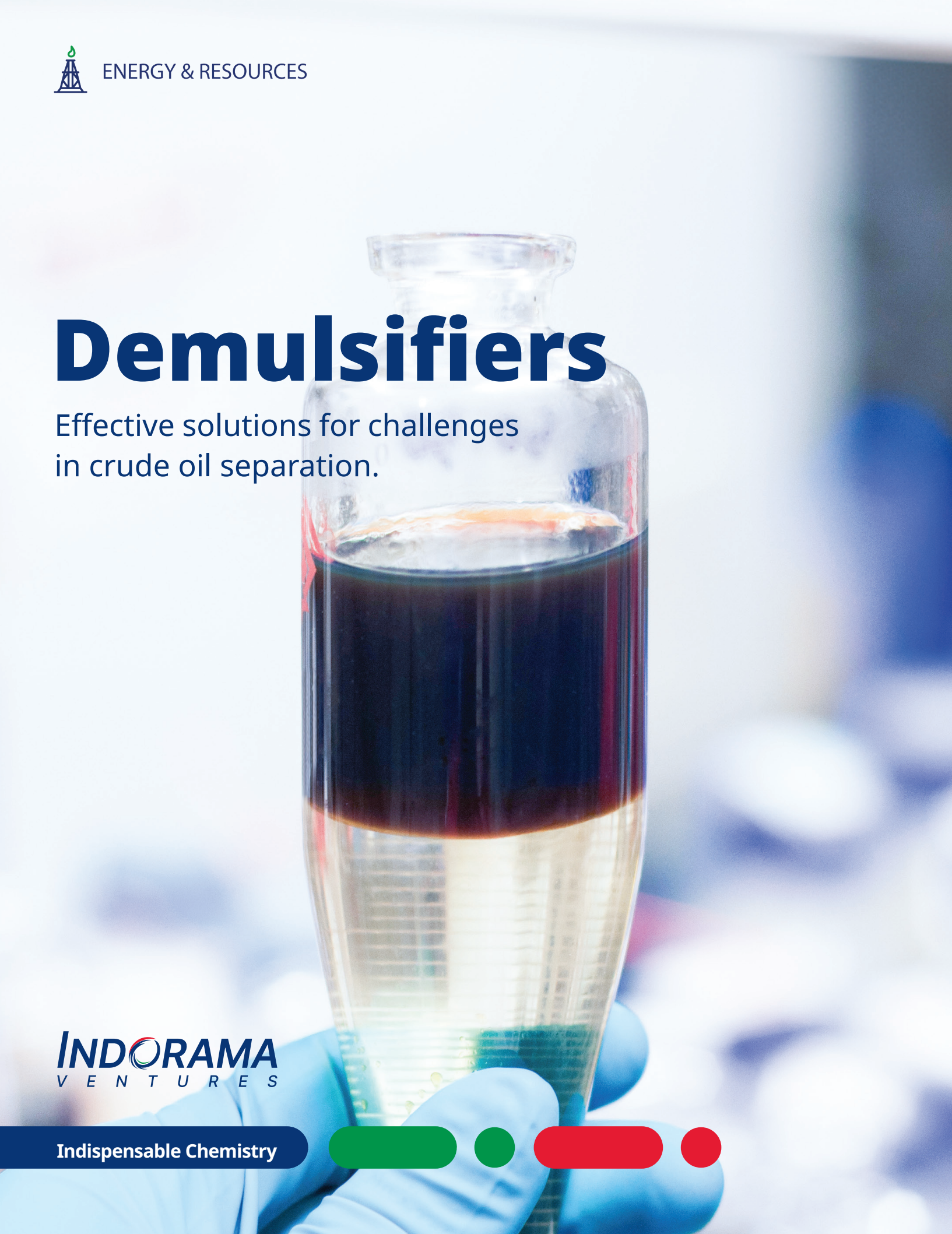
ENERGY & RESOURCES

Demulsifiers

Effective solutions for challenges in crude oil separation.



INDORAMA VENTURES

Indispensable Chemistry

ENERGY & RESOURCES

Demulsifiers

In the oil production process, emulsions occur naturally due to emulsifying agents present in oil, water, and sediments. This can adversely affect the crude oil quality and process productivity. Therefore, it is imperative to effectively treat this emulsion to ensure efficient recovery and maintain the produced oil quality.

Indorama Ventures offers a comprehensive line of **emulsion breaking** components designed to meet every need in the emulsion breaking process. These components perform several functions, including **droppers, treaters, polishers, dryers and desalters**. By combining these chemical solutions, rapid water separation, coalescence and flocculation of smaller water droplets are facilitated, thereby increasing the dehydration of crude oil and ensuring its quality.

DROPPERS
Improve the rate and speed of the water droplets coalescing process

TREATERS
Enhance interface quality, break secondary emulsions

POLISHERS
Boost the water quality and speed water drop

DRYERS
Induce flocculation of fine emulsion droplets

DESALTERS
Reduce the salinity into the oil phase and improve the water drop

Technical Datasheet

The effectiveness of demulsifiers is significantly affected by their solubility and compatibility in different solvents. Dissolution tests in **water, xylene, isopropyl alcohol (IPA), diesel**, among others, are a determining factor in choosing the ideal product, ensuring its effectiveness and consistent results in various challenging scenarios.

Along with solubility, our demulsifiers are evaluated based on other critical factors such as **flash point** and **viscosity**. Furthermore, given the complexity and variability observed between different oils, standard tests help identifying the performance characteristics of each demulsifier in **Primary, Secondary or Tertiary** functionality according to the most observed requirement.

GUIDANCE FOR BETTER EVALUATION OF THE INDORAMA PORTFOLIO IN 3 STEPS

1. Run a screening using the alkoxylated resins to identify the best **dropper.**

2. Combine the **dropper** with the **treater** and **polisher** as needed. **Dropper** to **Treater/Polisher** ratios generally range from 75:25 to 50:50.

3. To refine the formulations, anionic surfactants can also be used in concentration below 5%.

Consider **ULTROIL® HFS 135** solvent to obtain a nonflammable and organic solvent free formulation.

Technical Datasheet

Product	RSN[1]	Function						Active content[2] (%wt)	Appearance (25°C)	Viscosity (cP @ 25°C)	BTEX free	Flash Point (°C)	Flash Point (°F)	Pour Point (°C)	Pour Point (°F)	Solubility[3]				Registration		
		Droppers	Treaters	Polishers	Dryers	Desalters	Sludge treaters									Water	Xylene	Diesel	IPA	EU (REACH)	USA (TSCA)	CANADA (DSL / n-DSL)
PROPRIETARY																						
ULTROIL® EB 6010	11	✓	✓	□	△	□		80	Liquid	459	No	8	46	-	-	D	D	D	S	No	Yes	Yes
ALKOXYLATED RESINS																						
ULTROIL® EB 1020	8	✓				△		80	Viscous Liquid	980	No	32	90	< -20	< -4	I	S	S	S	No	Yes	Yes
ULTROIL® EB 1030	14	✓				△		80	Viscous Liquid	7,200	No	34	93	-14	7	I	S	S	S	No	Yes	Yes
ULTROIL® EB 1040	16	✓		△		△		65	Viscous Liquid	2,020	No	39	102	-14	7	I	S	S	S	No	Yes	Yes
ULTROIL® EB 1055	19	✓				✓		90	Viscous Liquid	1,439	No	28	82	4	39	I	S	S	S	No	Yes	Yes
KEMELIX® 3501X	16	✓				✓		80	Amber Liquid	1,600	No	64	147	-24	-11	D	S	I	S	Yes	Yes	Yes
KEMELIX® 3627X	10	✓						80	Amber Liquid	>5,000	No	64	147	12	54	I	S	I	S	Yes	Yes	No
KEMELIX® 3678X	19	✓				✓		86	Dark Brown Liquid	2,300	No	64	147	-24	-11	D	S	I	S	Yes	Yes	Yes
KEMELIX® 3750X	20	✓						80	Amber Liquid	1,000	No	64	147	-30	-22	S	I	I	S	Yes	Yes	Yes
KEMELIX® D309	21	✓				✓		80	Amber Liquid	1,400	No	64	147	-27	-17	S	S	I	S	Yes	Yes	Yes
KEMELIX® D310	17	✓				✓		88	Amber Liquid	800	No	64	147	-33	-27	D	S	I	S	Yes	Yes	Yes
KEMELIX® D311	17	✓				✓		80	Yellow Liquid	400	No	64	147	-39	-38	D	S	I	S	Yes	Yes	Yes
KEMELIX® D322	16	✓				✓		80	Amber Liquid	5,900	No	64	147	-15	5	I	S	I	S	Yes	Yes	Yes
EO/PO COPOLYMERS																						
SURFONIC® OFD 101	11	□	✓	△				100	Liquid	800	Yes	>100	>212	-23	-9	I	D	S	S	No	Yes	Yes
SURFONIC® OFD 328	9*	□	✓	△				100	Liquid	1,065	Yes	>100	>212	-6	21	I	D	S	S	No	Yes	Yes
SURFONIC® OFD 335	10*	□	✓	△				100	Liquid	862	Yes	>100	>212	-12	10	D	D	S	S	No	Yes	Yes
SURFONIC® POA-17R2	17	□	✓					100	Liquid	354	Yes	>100	>212	-34	-29	D	I	S	S	Yes	Yes	Yes
ULTROIL® EB 2010	19	□	✓					100	Liquid	1,840	Yes	>100	>212	-2	28	S	S	S	S	No	Yes	Yes
ULTROIL® EB 2020	18	□	✓					100	Liquid	795	Yes	>100	>212	-11	12	S	S	S	S	No	Yes	Yes
ULTROIL® EB 2030	21	□	✓					100	Liquid	1,013	Yes	>100	>212	19	66	S	S	S	S	No	Yes	Yes
ULTROIL® EB 3010	18	□	△	✓				100	Viscous Liquid	2,077	Yes	>100	>212	-17	1	S	S	S	S	No	Yes	Yes

✓ – Primary △ – Secondary □ – Tertiary
S – Soluble D – Dispersible I - Insoluble

[1]RSN values are based on dioxane/toluene as solvents, and temperature between 18-20 °C.
*RSN values are based on toluene/ethylene glycol dimethyl ether as solvents, and temperature 25 °C.
[2]Infrared radiation. 1g @ 105 °C, until mass loss stabilization.
[3]40% active @ 20-25 °C during 24 hours.

Product	RSN[1]	Function						Active content[2] (%wt)	Appearance (25°C)	Viscosity (cP @ 25°C)	BTEX free	Flash Point (°C)	Flash Point (°F)	Pour Point (°C)	Pour Point (°F)	Solubility[3]				Registration		
		Droppers	Treaters	Polishers	Dryers	Desalters	Sludge treaters									Water	Xylene	Diesel	IPA	EU (REACH)	USA (TSCA)	CANADA (DSL / n-DSL)
EO/PO COPOLYMERS																						
ULTROIL® EB 3020	21	✓	△	✓				100	Viscous Liquid	1,550	Yes	>100	>212	19	66	S	S	S	S	No	Yes	Yes
ULTROIL® EB 4050	9				✓			97	Liquid	712	Yes	65	149	-17	1	I	S	S	S	No	Yes	Yes
KEMELIX® D104	14		✓					100	Yellow Liquid	1,800	No	320	608	-30	-22	S	S	I	S	Yes	Yes	Yes
KEMELIX® D317	9		✓					80	Yellow Liquid	1,900	No	63	145	-27	-17	I	S	I	S	Yes	Yes	No
KEMELIX® D400	7		✓	✓				80	Yellow Liquid	900	Yes	30	86	-45	-49	I	D	I	S	Yes	Yes	Yes
KEMELIX® D501	20	✓	✓					100	Colorless Liquid	800	Yes	>100	> 212	1	34	S	S	I	S	Yes	Yes	Yes
KEMELIX® D503	20		✓	✓				100	Colorless Liquid	1,100	No	>100	> 212	9	48	S	S	I	S	Yes	Yes	Yes
KEMELIX® D506	10		✓					100	Colorless Liquid	900	No	224	435	-9	16	D	S	I	S	Yes	Yes	Yes
KEMELIX® D511	17					✓		100	Colorless Liquid	1,100	No	>100	> 212	3	37	S	S	I	D	Yes	Yes	Yes
ALKOXYLATED POLYAMINE/POLYIMINES																						
SURFONIC® OFD 150	32	△	✓					100	Liquid	180	Yes	>100	>212	-3	26	S	I	S	S	No	Yes	Yes
SURFONIC® OFD 301	17*	△	✓					100	Liquid	515	Yes	>100	>212	< -40	< -40	S	I	I	S	No	Yes	Yes
SURFONIC® OFD 302	16*	△	✓					100	Liquid	908	Yes	>100	>212	< -40	< -40	S	I	I	S	No	Yes	Yes
KEMELIX® 3216X	9		✓					88	Yellow Liquid	1,400	Yes	100	212	-33	-27	D	D	I	S	Yes	Yes	No
KEMELIX® 3422X	7		✓					100	Yellow Liquid	3,900	Yes	>100	> 212	-27	-17	I	D	I	S	No	No	Yes
KEMELIX® 3515X	10		✓		✓			100	Pale yellow Liquid	4,100	Yes	>100	> 212	12	54	I	D	I	S	Yes	Yes	Yes
KEMELIX® 3551X	10		✓					100	Pale yellow Liquid	4,400	Yes	>100	> 212	3	37	I	D	I	S	Yes	Yes	Yes
KEMELIX® D510	12		✓			✓		100	Pale yellow Liquid	1,900	Yes	>100	> 212	-3	27	I	D	I	S	Yes	Yes	Yes
KEMELIX® D513	7		✓					100	Yellow Liquid	2,800	Yes	>100	> 212	-30	-22	I	S	I	S	Yes	Yes	Yes
ANIONIC																						
SURFONIC® OFD 750	-						✓	70	Liquid	170	Yes	39	102	-26	-14	S	I	S	S	No	Yes	Yes
XOF-22A	-						✓	92	Liquid	1,055	Yes	>100	>212	-17	1	S	I	S	S	No	Yes	Yes
XOF-26A	-						✓	92	Viscous Liquid	1,162	Yes	>100	>212	-11	12	D	D	S	S	No	Yes	Yes
LAVREX® 200 BP	-						✓	98	Liquid	1,200	Yes	>100	>212	-14	7	S	S	S	S	No	Yes	-

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