



DGP / DWP / DSF
Demulsifiers



Additives
for oil production



EMULSIONS IN THE OIL INDUSTRY

The formation of emulsions in oil production is linked to extreme temperature and pressure conditions in reservoirs and the high shear generated by changes in the flow regime (nozzles, pumps) during production. Their stability is closely linked to natural surfactants in crude oil: fatty acids, asphaltenes, naphthenic acids, etc.

HOW DOES A DEMULSIFIER ACT?

The injection of a demulsifier is now considered as a strategic chemistry, as it acts directly on the productivity of the field, both recent fields where the separation began sub-sea to more mature operations where the percentage of water has increased significantly, resulting in the issue of process under-sizing (shorter separation time). A more controlled separation of the emulsion in the tubing permits the reduction of viscosity of the effluent and a reduction of pressure in the tubing, thereby increasing the yield.

REP SOLUTIONS

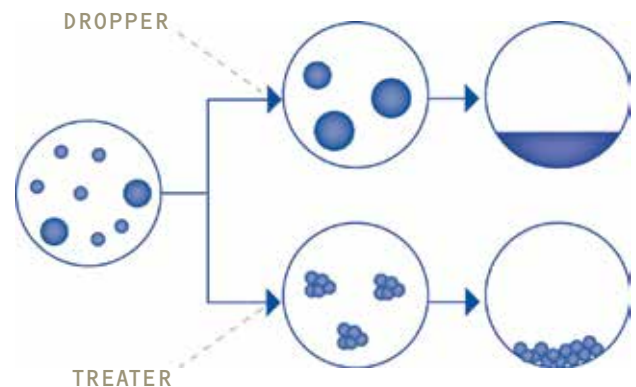
Demulsifiers from our DGP/DWP/DSF range are selected by taking into account the compositions of water and oils for treatment and by always favoring the specific objectives of each client. Four objectives are the most often requested: high-speed separation, complete extraction of water, salinity of the oil and low hydrocarbons content in the water.

In the O&G field, each emulsion is unique. REP technicians are trained to provide customized products tailored to the type of oil encountered but also to the production conditions.

Particular attention is paid to injection site conditions (gas lift, downhole, subsea liner, pump type), which will determine the solvent system used in the formula.

WHICH PRINCIPLES OF ACTION?

According to the emulsion encountered, a base functions as a “*dropper*”, which will coalesce the micro water droplets in the crude, or as a “*treater*”, which will increase their aggregation and sedimentation. Some combinations of bases may also propose these two effects that in certain cases enable an economically viable solution in front of the simultaneous injection of a “*dropper*” and a “*treater*”. A demulsifier is a combination of several bases: a mixture of “*treaters*”, “*droppers*” and hybrids.



TESTS AND PERFORMANCE: THE BOTTLE TEST ON SITE

Once formed, an emulsion may separate itself, or age and oxidize, as the surfactants in the crude gradually migrate to the water/oil interface. In selecting an effective demulsifier, and if conditions permit it, we always choose to work on site with fresh and untreated emulsion.



Result of a bottle test carried out on site

HOW DO WE PROCEED ?

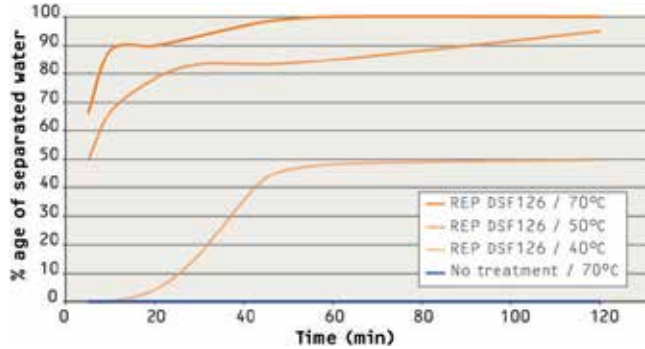
Within the available time, the Bottle Test is based on two methods:

- **Two to three days on site:** optimization of the method based on an existing demulsifier
- **More than three days on site:** evaluating performances of each of the bases in the kit, followed by the product formulation.

The Bottle Test allows for a maximum of parameters specific to the field: temperature and agitation in the process phases where the separation takes place, total separation time, influence of FWKO, desalination plants and storage tanks. The intrinsic parameters of the emulsion, such as the water and crude compositions, are also considered

Bottle Test Results REP DSF126/Temp effect

dosage: 50 ppm
at: 5, 10, 20, 30, 45, 60, 120 minutes
bottles removed from the water at t=1 hour
solution stirred after each measure



DGP/DWP/DSF RANGE: PRODUCTS AND FEATURES

Products	Composition	Density at 20°C	Viscosity at 20°C (cps)	Process Time	BSW	Application
DGP 23WAM	Phenolic resins + acid derivatives sulfonic	0.94	12	Long	50-70%	Gross average anti-asphaltene/paraffin
DGP 140PTP	Phenolic resins + imidazoline + derivatives sulfonic acid	0.92	11	Quick	30-60%	Injection gas lift Rapid treatment
DWP 123A	Phenolic resinss	0.92	8	Long	5-20%	Heavy Arabian crude
DWP 195	Phenolic resins + Polyethyleneimide	0.93	8	Average	40-60%	Light paraffin crude
DSF 105AA	Phenolic resins + PIBSAs	0.92	10	Average	10-30%	Gross heavy asphaltene
DSF 118	Phenolic resin + epoxy resins	0.93	20	Average	40-60%	Light paraffinic crude + desalting against current
DSF 124 P	Phenolic resins + Ethylene amine + paraffin dispersant	0.97	18	Long	70-90%	Antiparaffin demulsifier
DHN 205	Phenolic resins + TMP oxyalkylate + imidazoline + derivatives of sulfonic acid	0.93	14	Average	60-80%	Demulsifiers for electrostatic separator

Environment

In the field of oil production, REP products, developed in strict compliance with European standards, provide maximum safety, hygiene and prevention.

Packaging

REP products intended for use on site are available in a wide range of containers, notably including 215-liter drums and IBC totes of 1000 liters.

For further information about the DGP/DWP/DSF Range or to receive a sample, please contact us on +33 (0) 1 30 98 80 00 or at info@rep.fr.



REP is available worldwide through its subsidiaries and distributors. For more information, please contact REP at the following address:

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**REP: SUSTAINABLE SOLUTIONS IN
THE SERVICE OF MANKIND, PRODUCTION
AND THE ENVIRONMENT.**

Design and production: La machine à écrire
Artistic director: Emmanuelle Le Danvic
Photo credits: Gregory Gonzalez/Studio Annexe, DR.

REP is represented
in your market by:

