REPASPHALT

Asphaltene inhibitors

Additives
for oil production

Recherche
Exploitation
Produits

HOW TO PREVENT THE FORMATION OF ASPHALTENE DEPOSITS IN OIL PRODUCTION?

The asphaltenes constitute the fraction of insoluble oil in the lighter aliphatic hydrocarbons (pentane, hexane, heptane). Present in crudes, they are stabilized in the form of colloidal dispersion by compounds called resins.
In the manner of paraffins, their precipitation in production can lead to serious problems of solid deposits that are difficult to solubilize. The economic consequences of this phenomenon range from a simple temporary break in production to the destruction of the platform if the problem had not been addressed early enough.

The separation of the resins when changing the physicochemical state leads to the agglomeration then the precipitation of asphaltenes, which form solid deposits, reducing or blocking production.
This flocculation is usually associated with two frequently encountered phenomena:
• Reaching the bubble point due to the decompression of gas during its rise in the tubing. The aliphatic and light cyclic compounds being among the first molecules to pass gas.
• The flux of heavy and asphaltene crude with a lighter effluent, of the stripped and condensated gasoline kind.

The inhibitors of the REPASPHALT range delay not only the flocculation of asphaltenes but significantly limit the floc size, if the precipitation has already occurred prior to the point of treatment.

EMULSION STABILIZATION

As natural surfactants of crude, asphaltenes are likely to play a role in stabilizing emulsions. A preliminary study is performed in the laboratory to assess this risk. An asphaltene dispersant can then be incorporated into the formulation of the demulsifier.

TEST AND PERFORMANCE THE REPASPHALT RANGE

Precipitation tests in heptane
Once extracted, the asphaltenes are dissolved in toluene and then treated with different REPASPHALT dispersants. They are then brought into contact with a large volume of n-heptane precipitant. The black color of asphaltenes in the clear n-heptane indicates whether they are stable or they precipitate. This test is only qualitative and selects the most appropriate chemistry.

Precipitation tests in the n-heptane.

For greater accuracy, it is also possible to measure the kinetics of asphaltene precipitation. A selection of the best products is thus made.

Precipitation kinetics of crude asphaltenes
Evolution of absorbance at 800 nm

Interfacial characteristics

The selection of the best asphaltene inhibitors can also be demonstrated by the reduction of asphaltene activity in the oil-water interface. Indeed, the addition of a suitable additive can limit the increase in the elastic module of the interface, as a result of asphaltene precipitation. The use of a pendant drop tensiometer is adapted to study these phenomena and thus, the selection of REPASPHALT asphaltene inhibitors.
The effectiveness of the product is proven by the stability of the interfacial properties.

Elastic module in time
Asphaltene crude of West Africa

pH = 5.2 Warm sample

REPASPHALT RANGE: PRODUCTS AND FEATURES

Products	Composition	Density at 20°C	Viscosity at 20°C	Application
REPASPHALT 32	Alkylamidoamine	0.83	43	Booster demulsifier
REPASPHALT 109	PIBSA	0.90	10	Universal
REPASPHALT 109 S	PIBSA in a proprietary blend	0.91	24	Certified Deep Offshore
REPASPHALT 150 C	Mixture of anionic and cationic surfactants	0.92	46	High concentration (55% active material)

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 REPASPHALT Range or to receive a sample, please contact us on +33 (0) 1 30 98 80 00 or at info@rep.fr .

REP is represented in your market by:

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**.

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