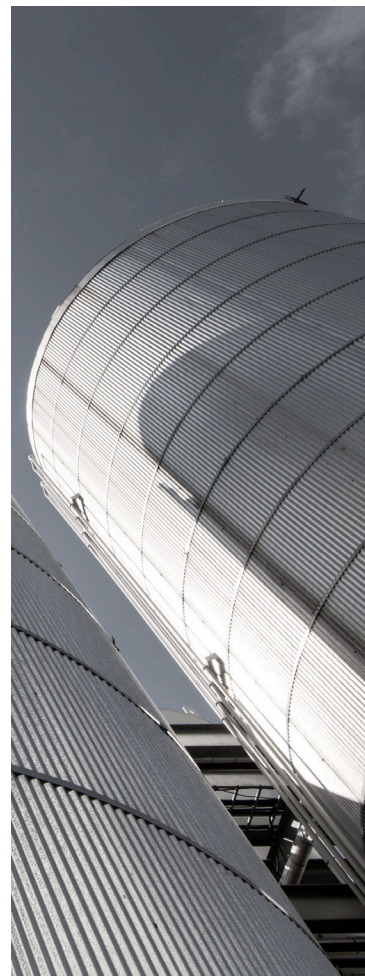


PARATENE®

Flow Assurance- Disperant

Asphaltenes & wax dispersants.

CleanHarbors®





What is Flow Assurance?

Flow Assurance is a term that is relatively new in the oil and gas sector, and means exactly that, assuring the economical flow of hydrocarbons from the well to the point of sale.

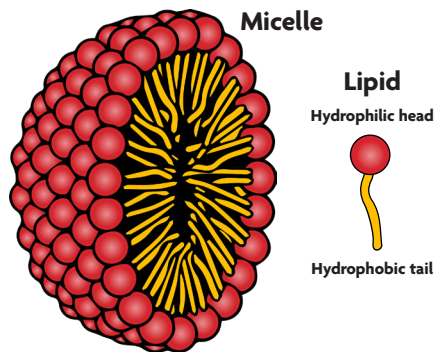
Crude oil is a mixture of many different types of hydrocarbons and there are many aspects where the flow of the oil along the path can be compromised. As a result, flow assurance is an extremely complex process, which may involve the treatment of either discreet or synergistic aspects of the crude.

- Asphaltenes
- Paraffin
- Gas hydrates
- Naphthenates
- Emulsions
- Scales and solid deposits

When the flow of hydrocarbons is interrupted, the financial loss due to production disruption and potential asset damage can be astronomical. Solid deposits can also interact with each other as the stoppage points causing further blockages in pipelines and other pinch points.

Specialty Dispersants

The Paratene® Chemical line contains several unique products designed to disperse sludge deposits found in crude oil storage vessels, pipelines and well tubulars.



Applications

Anywhere along the line where paraffin and asphaltene pose a problem, Paratene® dispersants can be used to help clear out the deposit.

Paratene® specialty dispersants can be added to many of the existing Paratene® degreasers when site-specific deposits require the added benefit of paraffin and/or asphaltene specific solvents.

The Specialty Chemicals division of Clean Harbors also has a line of Paraffin Inhibitors that have been tried and tested in the field for down-hole applications. If you are interested, please call the Specialty Chemicals division for more information about this line of chemicals.

PARATENE® Dispersant - Flow Assurance

Paratene® S620

Paraffin Dispersant

Paratene® S620 is a unique solvent based blend of anionic and non-ionic surfactants which are designed to disrupt paraffin micelles in sludge deposits and crude oils. These paraffin micelles represent a major source of the high viscosity for typical hydrocarbon sludges and emulsions.

Paratene® S620 is a highly concentrated blend and is typically applied at a rate of 500 - 2000 ppm based on sludge volume. When mixed and circulated in the sludge, Paratene® S620 aids in reducing the pour point, converting the sludge back into a marketable crude oil.

- Recovery of Tank Bottoms
- Pour point depressant for waxy crudes
- Promotes solid settling and demulsification
- Contains no product detrimental to refinery operations

Paratene® S627

Paraffin Dispersant

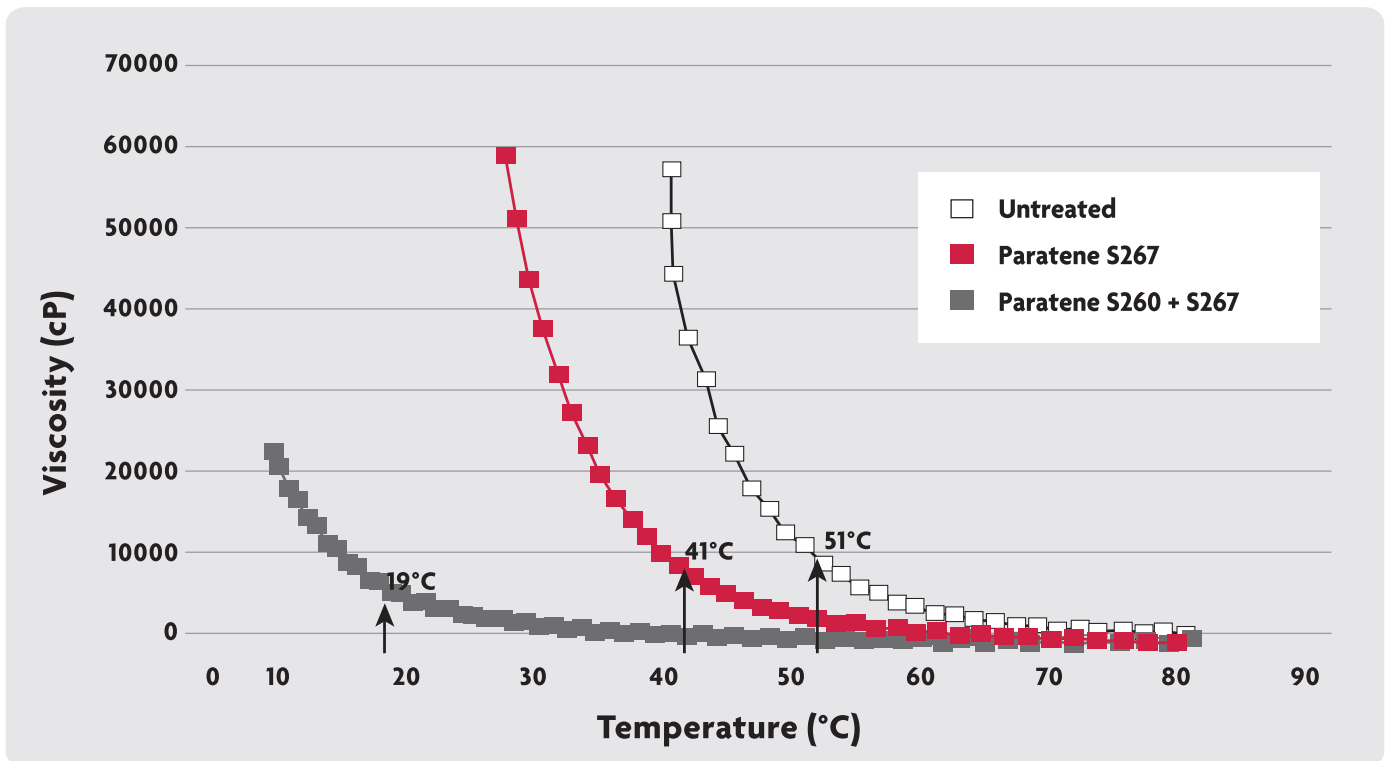
Paratene® S627 is a unique blend of surfactants and solvents designed to aid in the dispersion of asphaltenes and asphaltic materials into crude oil or aliphatic solvents.

Asphaltenes are high molecular weight compounds containing nitrogen, oxygen and/or Sulphur, that are dispersed in crude oil through the action of resins and paraffin. These molecules form micelles with the asphaltenes and thus increase the viscosity and temperature at which the oil will pour (pour point).

Paratene® S627 interacts with the asphaltenes and disperses them in the oil preventing the accumulation of such micelles.

- Recovery of Tank Bottoms
- Aids in the removal of asphaltic deposits
- Lowers viscosity of asphaltene containing oils
- Improves pour point of heavy oils
- Contains no product detrimental to refinery operations

Viscosity vs. Temperature





PARATENE® Dispersant - Flow Assurance
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