

NuGenTec Oil and Gas Product Line- High Tech Solutions

NuFlo™ 151: Asphaltene & Paraffin Treatment & Viscosity Reducer

NuFlo™ 151 is the backbone chemical of the NuGenTec oilfield chemical product line. It was developed to solve the following crude oil sludge problems which are currently each addressed with single-function, highly flammable and toxic chemicals:

- viscosity reduction
- asphaltene dissolution
- emulsification
- paraffin crystal modification
- pour point reduction
- paraffin dissolution
- demulsification

This enables NuFlo 151 to be a single choice chemical for almost all applications involving paraffin and asphaltene build-up and blockages from the formation to the refinery.

Unlike conventional solvents for asphaltene and paraffin treatment, NuFlo 151 was formulated with a diverse selection of additives allowing it to work with an extremely wide variety of crudes. NuFlo 151 is effective on light crude sludge, high water content sludge, high paraffin content sludge and high asphaltene (heavy) crude sludge. NuFlo 151 is a highly effective solvent and it has the ability to emulsify produced water and will split the water from the crude oil sludge.

The formulation is 100% petroleum hydrocarbons and therefore has no negative effects on the refining process. NuFlo 151 is 100% biodegradable, non-toxic and has a high flash point 66°C, meaning this product is safer to work with than other commercially available products that are highly flammable or explosive. NuFlo 151 eliminates the most common hazards associated with working with many solvents on the market today, including xylene and toluene based oilfield chemicals.

Product Features:

- Proprietary formulation to remove paraffin & asphaltene build-up
- Non-corrosive, non-hazardous, carcinogen free, high flash point and environmentally friendly
- Formulated to work throughout a petroleum system: from the formation through flow-lines, tanks, separators, pipelines, tanks and into refineries
- Formulated to not need additives, works with all asphaltene and paraffin combinations
- Formula contains the complete distillation range, which allows it to dissolve virtually all variations of crude oil

NuFlo™ DG M235x: Low Silicon defoamer, Oil Soluble, 100% Active

Shell Oil has internationally mandated that all of its field operations reduce the quantity of silicone-based chemicals being used in the oil production line. This mandate was issued in an attempt to reduce the quantity of silicon entering the refinery process in crude oil, which causes degradation of refining catalysis and deposits on refinery infrastructure.

NuGenTec has taken on the challenge and produced a **brand new** product with 60+% lower Silicon while being 25-50% more effective than conventional silicon based defoamers. Shell's own laboratory testing has confirmed that NuGenTec's product achieves the desired silicone reduction targets. This proprietary breakthrough technology is only available from NuGenTec. With a 60% reduction in introduced silicon the cost savings in catalysts in the refineries is exponential.

Product Features:

- Proprietary formulated low silicon defoamer <10.0% Silicone, current technology uses >30%
- 25-50% more effective than current >30% Silicone, Siloxane type defoamers
- Developed to help reduce silicone levels in crude at refineries
- Uses: Oil and Gas Separators, Pipelines, Flow-lines
- Effective at high temperature and can be diluted with any hydrocarbons like diesel fuel, crude oil, kerosene, even **NuFlo™ 151**

NuFlo Conc CSI: Concentrated Corrosion & Scale Inhibitor

NuGenTec has taken a step forward in corrosion and scale treatment and prevention by reducing the number of chemicals required to treat for corrosion and scale inhibition. Based on currently available technology, many individual chemicals are required for:

- Iron scale inhibition
- Calcium scale inhibition
- Galvanic corrosion protection
- Water softening

Our complex formula provides the benefits of many products in one chemical and is concentrated fully. NuFlo Conc CSI requires the lowest working concentrations in the industry from 20-60ppm depending on the severity of the application, while most other treatments require three different chemicals at 100-200 ppm each for corrossions and scale inhibition.

Also, NuGenTec has added an additional polymer to this proprietary formulation to prevent re-deposition of scale and potentially improve laminar flow long after the treatment has been completed.

Product Features:

- Proprietary formulated rapid acting for scale and corrosion prevention
- Non-corrosive, non-hazardous, and environmentally friendly
- Prevents Scale, Corrosion and re-deposition while chelating salts and softening produced water
- Prevents the precipitation of inorganic solids from supersaturated water

NuFlo 1014: Inhibited Corrosion and Scale Remover

Most corrosion and scale removers available on the market are untainted acids. NuGenTec has enhanced our acid-based products with surfactants for faster penetration and inhibitors for steel protection during descaling.

These enhancements eliminate unnecessary corrosion of steel caused by the typical acid-descaling process and extend the lifetime of process piping and equipment. NuFlo 1014 works faster and is more economical than conventional descaler chemicals.

Product Features:

- Highly concentrated industrial/professional strength scale remover with inhibitors to protect steel
- Does not contain dangerous fluorides
- Does not cause corrosion like most scale removers while descaling is occurring
- Does not harm well bores or pipelines

NuFlo S301: Hydrogen Sulfide Scavenger

Most commonly available Hydrogen Sulfide (H₂S) scavenging products dissolve H₂S into the production oil stream which means that sulfur reaches the refinery and potentially damages refinery infrastructure. NuGenTec's **brand new** H₂S scavengers are based on either aldehyde or triazine derivatives which react with H₂S or mercaptanes to form stable, water soluble compounds. These compounds are dissolved into the water phase and can be easily separated from gas or crude oil and disposed of. NuFlo S301 is non-hazardous and non-flammable compared to many of today's commonly available products.

Importantly, NuFlo S301 works very economically, requiring only 1ppm of chemical for every 2ppm of H₂S, unlike other products that require 5ppm of chemical to 1ppm H₂S. Another great feature of the S301 is the wide pH range that it is stable in, making the product suitable for many applications allowing for the use of only one product for H₂S scavenging.

Product Features:

- Up to 10 times more effective than other products
- Remove low H₂S concentrations economically
- Stable in highly acid to highly alkaline environments
- Eliminate safety risks and reduce corrosion problems
- Meet natural gas sale specifications
- H₂S is converted to non-hazardous water soluble compounds that are easily disposed of
- Reaction is instantaneous and irreversible and has no effect on oil or gas quality

NuFlo™ is a registered trademark of NuGenTec.