



 **NuGenTec**[®]
Redefining Chemistry[™]

**Oilfield Chemicals
2019**

About NuGenTec

NuGenTec was formed in 1997 with its roots based in the technology epicentre of Silicon Valley. The company maintains its heritage in its headquarters in California, incorporating cutting-edge technologies into its product line.

NuGenTec specializes in high-performance, custom-engineered and environmentally friendly solutions for a diverse range of industries that include Oil & Gas, Energy, Semiconductor, Biotech and Industrial Manufacturing.

NuGenTec's mission has remained unchanged; "We will provide the most innovative chemical technology solutions to our customers combining cutting-edge, high-performance chemicals with environmentally friendly formulations."

KEY CUSTOMERS



Oilfield Chemicals

NuGenTec and its partners excel in all oilfield functions with specific expertise in downhole, midstream and wastewater treatment applications. The NuGenTec team combines a global perspective with highly specific regional knowledge. It has operations in the United States, the Middle East, South America, Asia and Africa serving many of the largest oil & gas companies in the world.

We tailor custom designed solutions to tackle our customers' most difficult problems.

NuGenTec's Oilfield solutions:

- Increase oil & gas production
- Reduce maintenance
- Deliver innovative solutions for wastewater treatment
- Restore flow efficiency to pipelines and flowlines
- Clean out and recover oil from sludge in tanks
- Improve overall efficiencies in the field

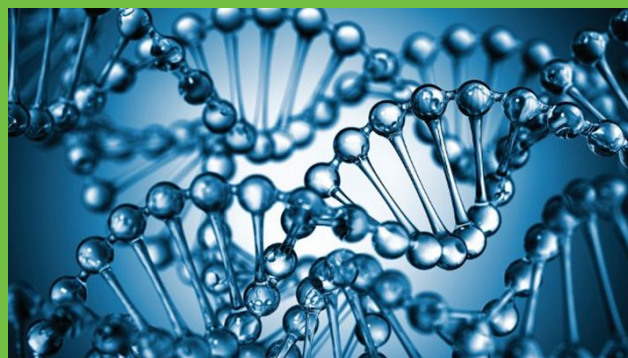


Technologies and Solutions

NuGenTec tackles the industry's most difficult problems and tailors solutions to each of its clients' diverse needs. With its local service partners, NuGenTec's technical team collaborates with its clients to provide lasting, differentiated solutions with a broad array of oilfield problems.

We are Redefining Chemistry[®]. Our company is built on our Research & Development efforts. Our team of chemists has formulated over 600 proprietary products harnessing decades of forward-thinking knowledge aimed at solving the Oil & Gas industry's most complex problems.

We apply innovative chemistry and deliver superior solutions. Our uncompromising standards combine the latest scientific advancements, materials and expertise to produce more effective chemistries that deliver health, safety and environmental benefits over legacy technologies.





Health, Safety, Environment

NuGenTec has practiced and delivered environmental excellence since its inception. NuGenTec has been working with new materials and compounds formulating original chemistries for decades.

NuGenTec values the health and safety of its customers, partners, employees and the inhabitants of the local communities that it serves. Wherever possible we design our products with low toxicity, low flammability, and high biodegradability. We deliver the highest quality products that outperform our client's performance objectives.

NuGenTec maintains ISO 9001 Quality Management and ISO 14001 Environmental Management Systems accreditation. As a global chemical provider specializing in ultra-high purity chemicals, our processes are in full compliance with the quality management systems, standards, and guidelines.



Flow Assurance Technology

NuGenTec's NuFlo[®] flow assurance products are a proprietary line of environmentally friendly chemicals designed to dissolve and disperse hydrocarbons in the C₈ – C₅₅ range in a wide range of conditions.

NuGenTec's NuFlo[®] products are a custom-blend of specialty organic solvents, alkyl benzene aromatic, saturated aliphatic, wax crystal modifiers dispersants and surfactants. This "Swiss Army Knife" approach allows NuFlo[®] to break down paraffins, asphaltenes and natural resins that create the sludge that plagues all oil wells, pipelines, tanks and oilfield vessels. It is also a crude oil viscosity reducer and has been formulated to adhere to strict refinery standards for processing. It is 100% compatible with all production infrastructure.

Unlike most production chemicals, our solutions eliminate the root cause of a problem rather than just treating the effects. This results in significantly improved fluid flow, reduced maintenance downtime and enhanced system reliability.

Before NuFlo[®]

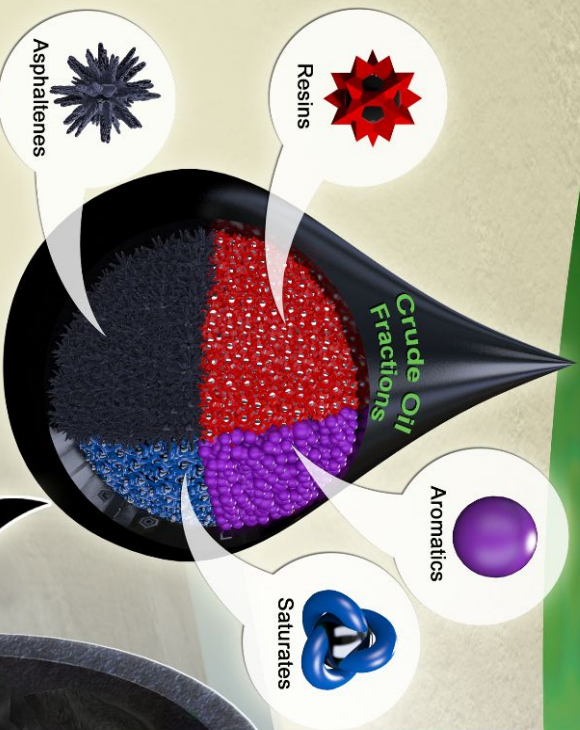


After NuFlo[®]



- NuFlo 187
- NuFlo 151XP
- NuFlo 547
- NuFlo 647
- NuFlo AI212
- NuFlo AI212-F
- NuFlo DM10
- NuFlo DM12

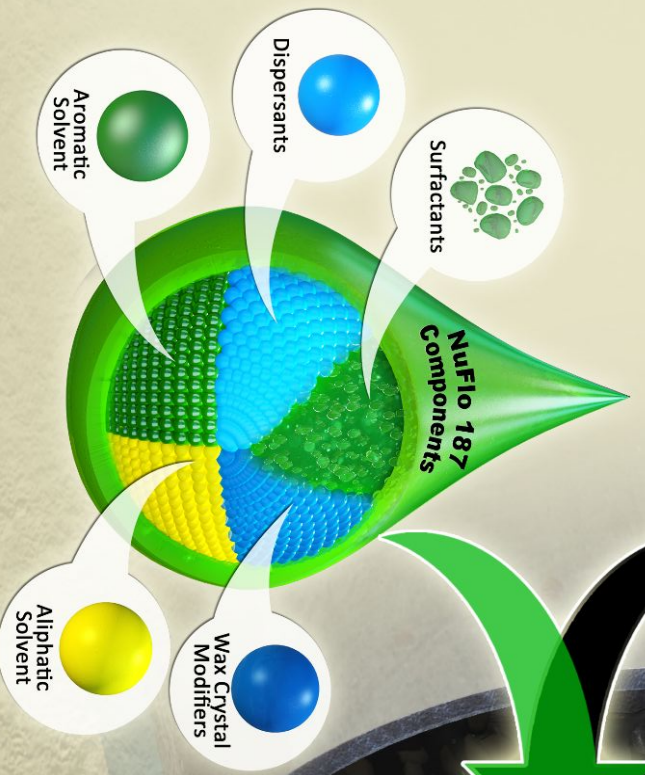
NuFlo 187[®] vs. Aromatic Solvent in Crude Oil Production Stream



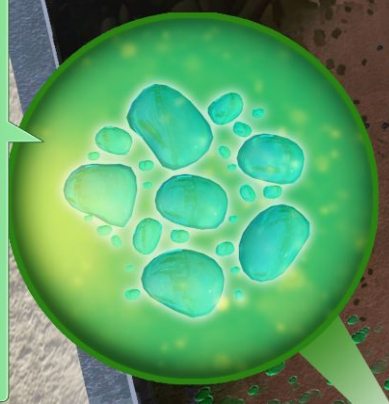
NuFlo 187
Dissolves asphaltene with aromatic solvent and resin with aliphatic solvent.

AROMATIC SOLVENT
(e.g. Toluene)
Only dissolves asphaltene. No effect on resin. No dispersion. No inhibition.

NuFlo 187
Disperses and inhibits asphaltene and resin with proprietary dispersants which attach to dissolved particles, preventing re-precipitation and deposition.



NuFlo 187
Dissolves and disperses Paraffin Waxes (Saturates) with a wax crystal modifier.



NuFlo 187
Inhibits asphaltene and resin from depositing on tubing walls. Contains proprietary surfactants which attach to metal surfaces neutralizing ionic attractive forces.

Scale Removers and Inhibitors

The NuFlo® descalers are highly concentrated, industrial strength scale removers for all Oil & Gas applications. The NuFlo® descalers work to simultaneously penetrate and dissolve scale by using a proprietary dissolving chemistry with both polar and nonpolar solubility properties, and a synergistic blend of chelating agents, dispersants and wetting agents.

NuFlo® descalers perform in the fastest, most efficient, and broadest application of any treatment chemistries to date.

NuGenTec's NuFlo® descalers include solutions for:

- Sulphate Scale (CaSO_4 , BaSO_4 , MgSO_4 , SrSO_4)
- Iron Sulphide (FeS , FeS_2)
- Triazine Scale (Dithiazine)
- Carbonate Scale (CaCO_3 , BaCO_3 , MgCO_3 , SrCO_3)

Applications include:

- Oil & gas production infrastructure from the formation to the terminal
- Water and waste water infrastructure
- Desalination infrastructure



- DeScale 433
- DeScale 533
- NuFlo SIC-30
- DeScale 1014-30
- DeScale 31-30i



Safe and Efficient Scale Management

Using advanced chemistry, NuGenTec's NuFlo[®] descalers utilise advanced chemical engineering and packaging to create smarter, safer, and more effective treatment solutions. NuFlo[®] descalers operate at a neutral pH (and are therefore non-corrosive), are safe to handle, and convert, dissolve, and chelate scale in a combined solution, through the following:

- Scale crystal conversion
- Dissolution, chelation & fracturing
- Catalytic hydrocarbon penetration

Example – NuFlo[®]DeScale 433 Comparison to Legacy Descalers

Product	Conc (%)	pH	Reaction Time (Mins:Secs)
NuFlo [®] DeScale 433	20	7.8	12:11
EDTA Na ₄ , 39%	100	>11.5	47:48
GLDA Na ₄ , 38%	100	>11.5	45:12
KSDPTA, 40%	100	>11.5	41:33
HCl, 31%	100	<1.0	No reaction

Temp – 80-85°C, fluid volume 50mls, CaSO₄ dissolved 6.0g

H₂S Scavengers



NuFlo[®] H₂S Scavengers are highly concentrated, non-hazardous, non-flammable, pH NEUTRAL (6.5 - 7.5) and stable at high temperature. Best applied early in the production process (downhole), injection captures H₂S before it can cause corrosion damage to well and flowline infrastructure.

NuFlo[®] H₂S Scavengers can reduce corrosion inhibitor usage across production facilities. The products produce no scaling or solids, reacting with H₂S to form stable, water-soluble compounds.

NuFlo[®] H₂S Scavengers are far more effective than other products. With a scavenging rate of 1:1, NuFlo[®] H₂S Scavengers are nearly 3 times more efficient than alternatives such as triazine.

	MEA Triazine	NuFlo [®] SB80
Unit cost	Low	High
Full cycle cost (treatment qty included)	Medium	Medium
Reduces other chemical spend	No	Yes
Thermal stability > 100°C	No	Yes
Suitable for downhole injection	No	Yes
Non-scaling, non-corrosive, no dithiazine	No	Yes
Scavenger is pH dependent	Yes	No
Recommended injection ppm per ppm H ₂ S	2.5 : 1	1 : 1

- H₂S Scavenger Triazine base
- NuFlo SB80 non-Triazine H₂S Scavenger



Product Lines

NuGenTec continues to develop new product lines to meet and exceed our customers' expectations.

NuGenTec's state-of-the-art products include:

- Acid neutralizer
- Asphaltene/paraffin treatment & viscosity reducer - zero aromatics
- Asphaltene/paraffin treatment & viscosity reducer
- Carbonate and sulphate scale dissolver and inhibitor
- Corrosion & scale inhibitor - downhole and pipelines
- Descaler, for triazine scale
- Demulsifier - oil from water
- Demulsifier - water from oil
- Heavy oil viscosity and drag reducer
- Hydrogen sulphide scavenger
- Iron sulphide inhibitor
- Oil spill absorbent material
- Oxygen scavenger
- Paraffin control, inhibition, crystal modifier
- Sand removal solution
- Torque reducer (lubricant) for brine based drilling muds
- Well completion fluid, fracking - organic mud acid



NuGenTec[®]
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1155 Park Ave., Emeryville, CA 94608

Phone: 866-319-0453

salesteam@nugentec.com

www.NuGenTec.com

For more information about the environmentally responsible, customized chemical solutions that NuGenTec can create for your company to increase oil & gas production, restore flow efficiency to pipelines, clean-out and recover oil from sludge in tanks, clean-up and recover oil from spills, and improve overall efficiencies in the field, contact NuGenTec today and request a quote. We look forward to providing the individualized solutions your company requires.