

BioFlo Solvents

A green solution for paraffin and asphaltene

BioFlo solvents dissolve and inhibit the formation of heavy hydrocarbon compounds in the most difficult applications in oil and gas wells, pipelines, and storage tanks.



BioFlo solvents work as fast as toluene and xylene-based solvents and are among the safest and most environmentally friendly solvents on the market today.



High Flash Point

Environmentally Friendly

Effective to -40 C/F



BioFlo Max 100 is an effective, safe, and biodegradable high flash point solvent that can be deployed in any application in place of aromatics-based solvents.



BioFlo Max 200 is a biodegradable and powerful solvent that boasts a flash point of over 200 F. Non-flammable, & non-combustible by GHS guidelines.



BioFlo Eco 100 is a non-toxic, safe, biodegradable, high flash point solvent that effectively replaces the best aromatic solvents on the market.



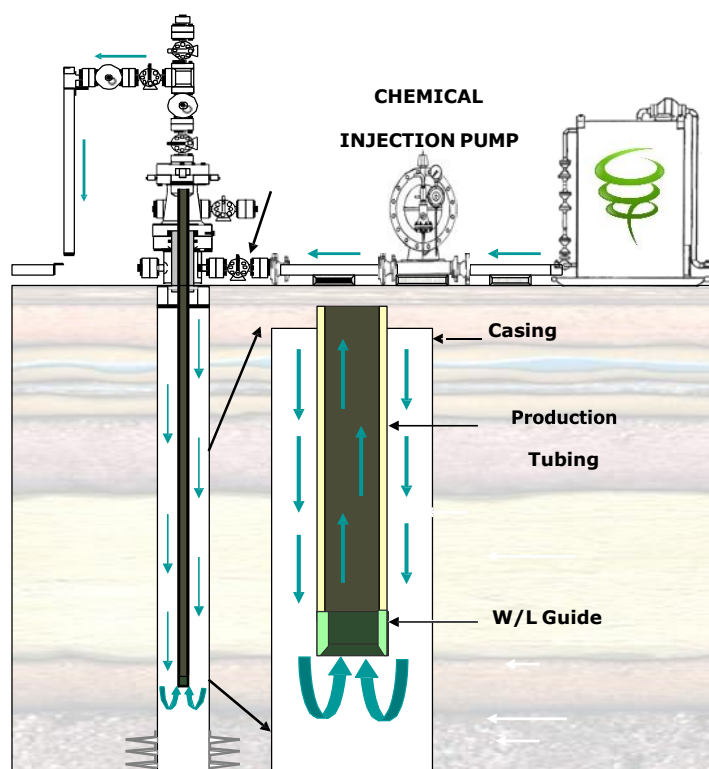
BioFlo Eco 200 is a 200 F flash point non-toxic, non-combustible, non-flammable, and biodegradable solvent suitable for any application.

BioFlo Solvents

Deployment

BioFlo solvents can be deployed in continuous or batch form through the annulus, tubing, or capillary tubing. The best practice is to identify the plug depth with Slickline or Electric Line deployed with a bailer. Coiled tubing (continuous and batch) and wireline deployment (batch) are recommended for severe paraffin buildup in the tubing. For the most extreme wellbore plugs, coiled tubing milling with recirculation to the surface with BioFlo is recommended to clean the wellbore to total depth. Casing side injection, when there is no packer, can be used to circulate up the tubing string to the surface. For pumping wells, casing deployment or tubing injection are recommended depending on the location of the blockage.

BioFlo is suitable for all types of lift systems: gas lift, screw pumps, pumping jacks, jet pumps, and ESP systems. The rates of batch treatment and continuous injection are dependent on well conditions and paraffin and asphaltene characteristics.



Flash Point

BioFlo solvents are among the safest solvents in the industry. Their high flash points far exceed those of the most commonly used solvents on the market today.

BioFlo Max 200 and BioFlo Eco 200 blends are neither flammable nor combustible. These characteristics create a much safer working environment and greatly reduce shipping, storage, and deployment logistics.

Product Name	Flash Point	GHS Class
BioFlo Max 100	61 °C / 143 °F	4
BioFlo Max 200	94 °C / 202 °F	None
BioFlo Eco 100	65 °C / 149 °F	4
BioFlo Eco 200	95 °C / 204 °F	None
Baker Hughes PAO 100	7° C / 44° F	2
Halliburton Paragon	27° C / 81° F	3



Environmentally Friendly

BioFlo solvents have been uniquely designed to reduce and eliminate toxic effects to the environment. Never has there been such an effective paraffin and asphaltene solution that eliminates environmental hazards and increases worker safety by such a large degree. All of our solvents are 100% biodegradable. Our Eco Blends have zero toxicity which makes them a safe choice for offshore applications or applications where there is a risk of damage to aquatic ecosystems.

Employee Safety and Wellbeing

Toluene and xylene-based solvents are carcinogenic and can have long lasting harmful effects on your employees. BioFlo solvents are not carcinogenic. They are safe and effective solvents that will contribute to the improvement of workplace health when replacing traditional solvents. Many of the HSE precautions required for toluene and xylene based solvents are eliminated with BioFlo solvents which makes them safer and easier for shipping, storage, and deployment. The chart below shows the GHS classification of each of the hazards associated with BioFlo solvents compared to other commonly used solvents.

Hazard	BioFlo Max 100	BioFlo Max 200	BioFlo Eco 100	BioFlo Eco 200	Baker Hughes PAO 100	Halliburton Paragon
Acute Toxicity, Inhalation	No	No	No	No	4	4
Acute Toxicity, Oral	No	No	No	No	4	4
Carcinogenicity	No	No	No	No	2	2
Specific Target Organ Toxicity – Single Exp.	No	No	No	No	3	3
Specific Target Organ Toxicity – Repeated Exp.	No	No	No	No	2	2
Aspiration Hazard	1	1	1	1	1	1
Acute Aquatic Toxicity	1	1	No	No	3	2
Chronic Aquatic Toxicity	1	1	No	No	3	3
Toxic to Reproduction	No	No	No	No	2	No
Skin Irritant	2	2	No	No	2	2
Eye Irritant	2	2	No	No	2	2B
Skin Sensitizer	1	1	No	No	2	2



Effective at extreme temperatures

BioFlo solvents have been successfully tested to temperatures of -40°C/F. Toluene and xylene-based solvents lose effectiveness at near freezing conditions.

BioFlo boiling points also exceed most downhole temperatures meaning they stay in solution longer and penetrate deeper than competing solvents.



Logistics

BioFlo products are not flammable and have less stringent shipping requirements compared to toluene and xylene based products. In fact, BioFlo Eco Blends are not restricted by DOT, ADR, ADN, IMDG, or IATA greatly simplifying shipping and storage precautions. The following table shows the NFPA ratings BioFlo and other commonly used solvents.

Product	NFPA Health	NFPA Fire	NFPA Reactivity
BioFlo Max 100	1	2	0
BioFlo Max 200	1	1	0
BioFlo Eco 100	1	2	0
BioFlo Eco 200	1	1	0
Baker Hughes PAO 100	2	3	0
Halliburton Paragon	2	3	0

BioFlo Technologies

BioFlo Technologies has been serving customers with comprehensive solutions since 2010. Our bilingual staff has extensive experience in every facet of the Oil and Gas industry. Please inquire for additional information in English or Spanish.

BioFlo Safety Data Sheet (SDS) and Technical Data Sheet (TDS) are available on request.

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