

# NEPTUNE

## STANDARD APPLICATION PROCEDURE FOR COILED TUBING OPERATIONS

### INTRODUCTION

Neptune Chemical Corporation, LLC has developed this Standard Application Procedure (SAP) to provide recommended guidelines to coiled tubing service providers in the application of Neptune's Proteus coiled tubing corrosion inhibitor products. If changes are requested or required by the customer, this SAP may incur minor changes without effecting the end result. However, any and all proposed changes should be discussed with Neptune personnel prior to execution.

### CHEMISTRY

The Neptune Proteus chemical line has been developed with unique conditions in mind for each product. It is recommended to follow the SAP to the best of your operational ability with special regards to operational conditions, such as a professional consensus on active fluid quality, potential acid gas contamination, and other contaminants or additives used during the work. Neptune strongly advises against using a single product across multiple operational conditions.

A brief discourse on the "Active Fluids" is defined below:

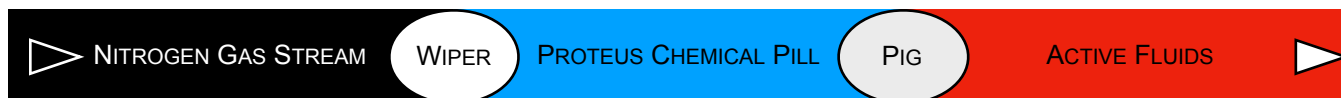
- Standard: standard freshwater that has not been used or has been treated and has little to no contamination
- Intermediate: defined as standard but has been lightly recycled with little FR contamination
- Poor: defined as intermediate that has been recycled numerous and/or includes acid gas contamination or by-product contaminants (e.g. CO<sub>2</sub>, H<sub>2</sub>S, FeS<sub>x</sub> or C<sub>2</sub>S)

Proteus	Active Fluids	Dose / 12 bbl String Volume
500	Standard	1 gallon
545	Intermediate	1 gallon
550	Poor	1.25 gallons

### TREATMENT

The SAP of all Proteus products can be applied in the same manner in all scenarios using the following instructions:

1. Determine string volume per the equation; Volume (bbl) = ID<sup>2</sup> (in.) X Length (ft.) X 0.0009714
2. Determine dose of Proteus product using matrix above. Use in increments as suggested by dose. Do not use less than recommended dose. Use as directed. Review SDS prior to use.
3. Add recommended dose to 10 bbl of freshwater in saddle tank and mix for 60 seconds.
4. Charge string with Proteus CTCL chemical pill from Step 3 in best accordance with your companies internal operating procedure. Consult with Neptune technical staff for advice as needed. Pigs are optional.



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