Developing Field or Well Specific Corrosion Models

using DownHole SAT®

Develop Field or Well Specific Corrosion Models

History and corrosion modeling can increase your confidence in evaluating and choosing metallurgy for a new well in an existing field. DownHole SAT provides an easy, straight forward method for organizing existing corrosion data for different metalluriges into a field or well specific model.

You need:

- Historic brine analysis, temperature, pCO2, pH2S (if applicable).
- Observed corrosion rates on metallurgies of interest.
- Inhibitor dosages, if desired and available.

Model Development

Navigate to the LABORATORY menu and select the INPUT LAB DATA Module. This menu is on the main, Windows style menu.

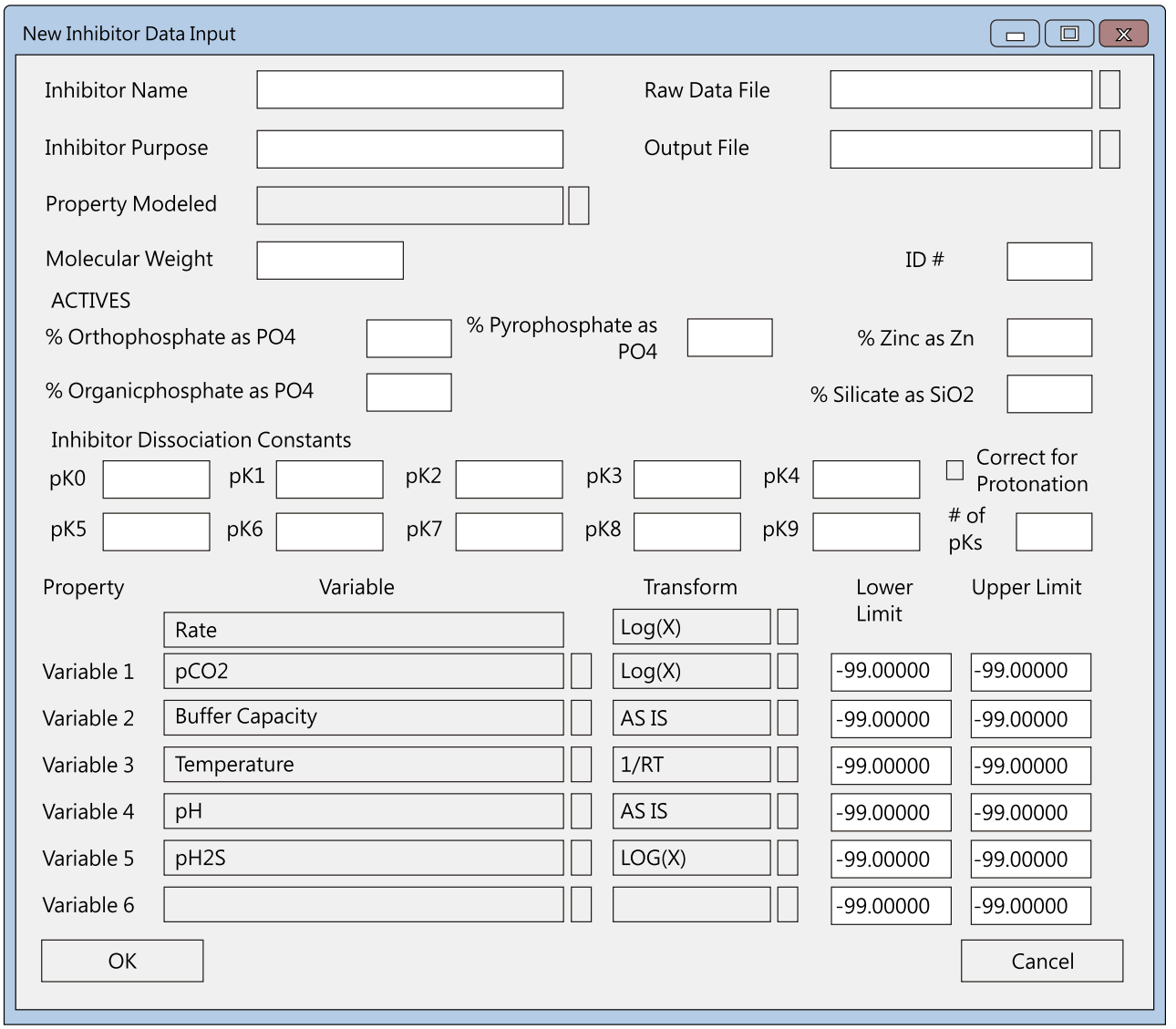
Choose corrosion rate model development and the initial parameters to model (you can revise the model and parameters at any time).

You can select any parameters that are:

- input into the program (like pCO2, temperature)
- calculated by the program (like Calcite saturation, buffer capacity).
- Or optional inputs (like corrosion inhibitor dosages).

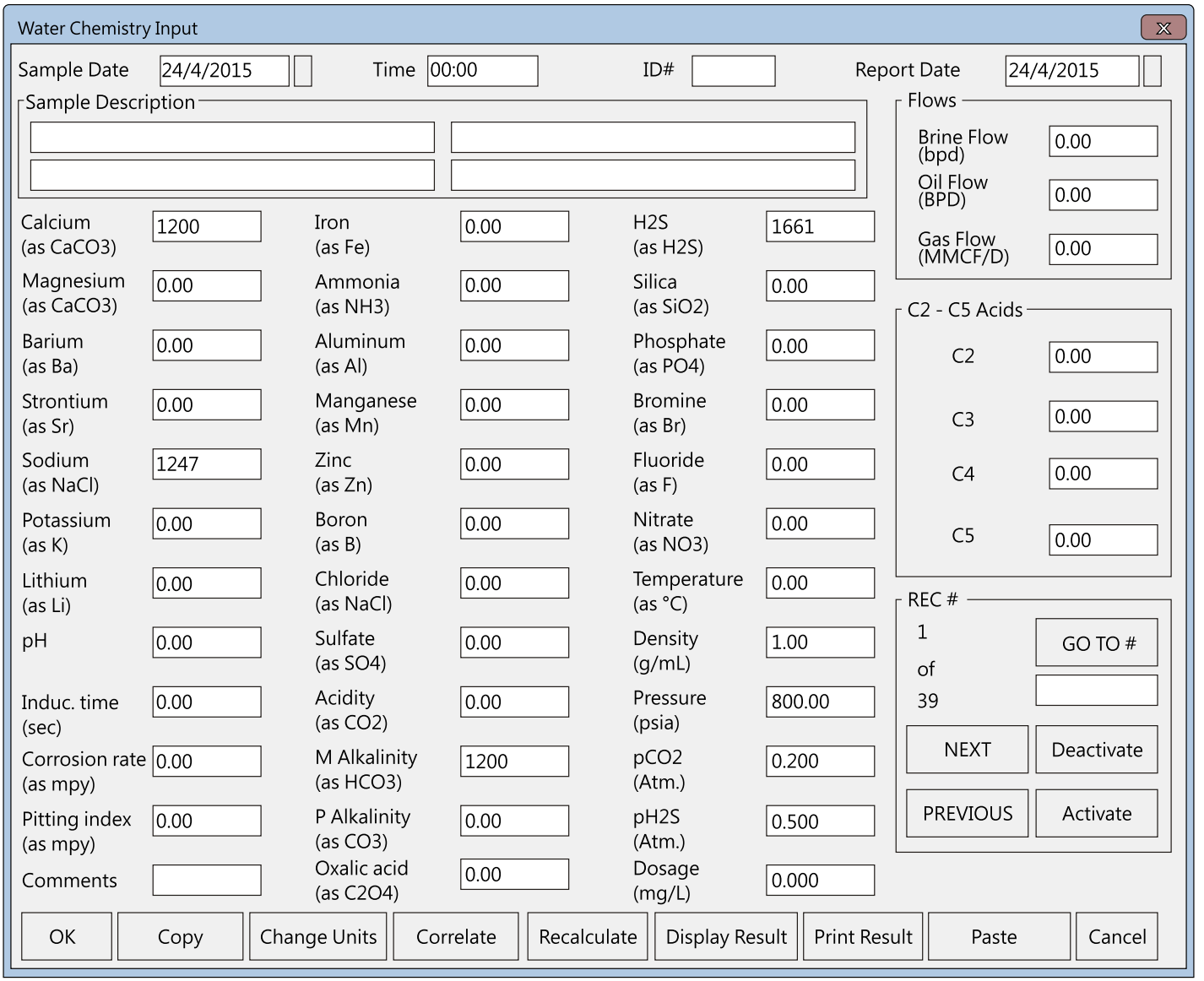
Entering Data

History and corrosion modeling can increase your confidence in evaluating and choosing metallurgy for a new well in an existing field. DownHole SAT provides an easy, straight forward method for organizing existing corrosion data for different metalluriges into a field or well specific model.



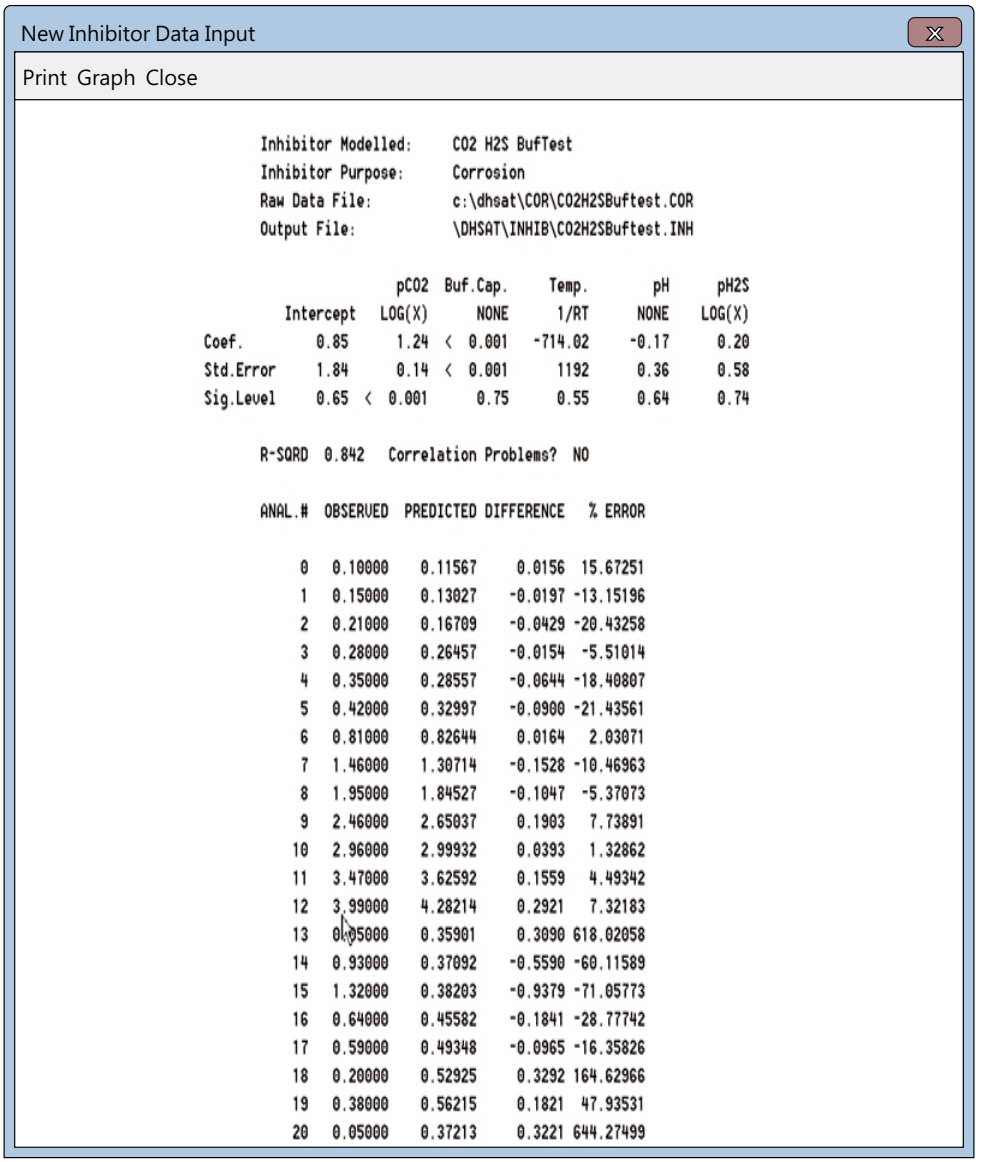
Enter the Brine Chemistry, Corrosion Rate Data

Enter multiple analysis (similar to MULTI-MIX)



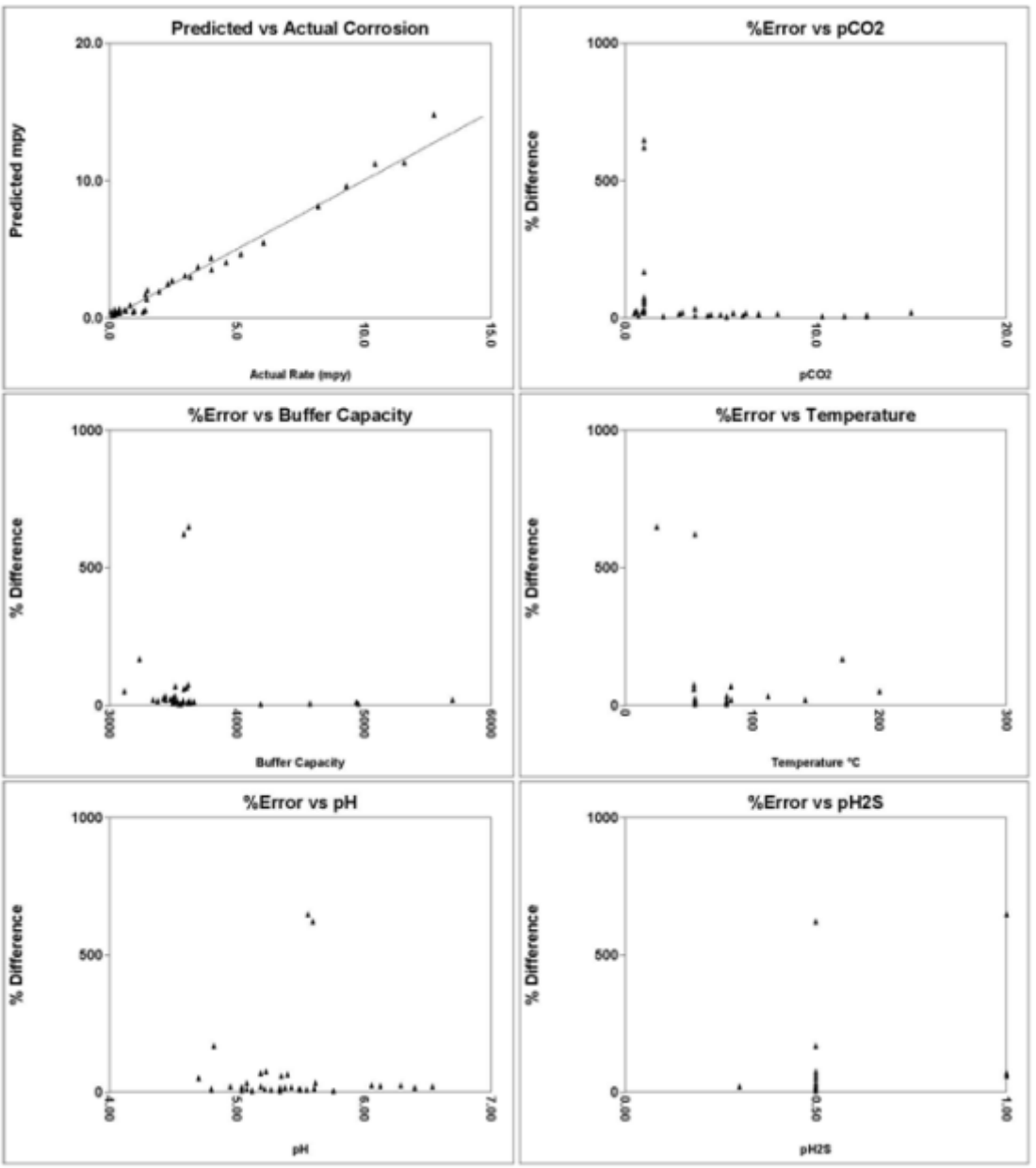
Press CORRELATE

After entering brines and data, press the Correlate button.



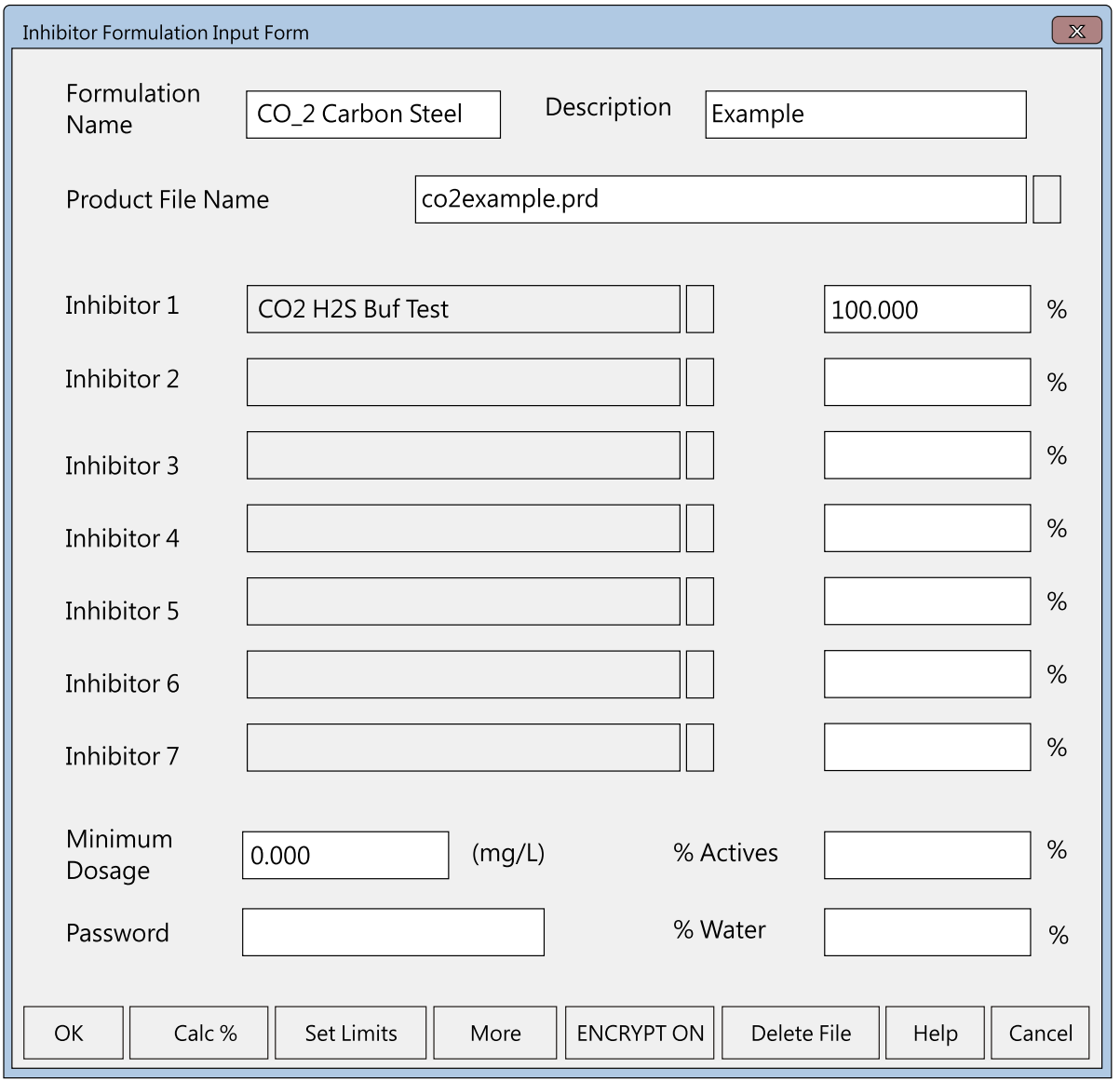
Significance Levels

Check significance levels for each parameter. If desired go back to the spec sheet to change the parameters modeled.



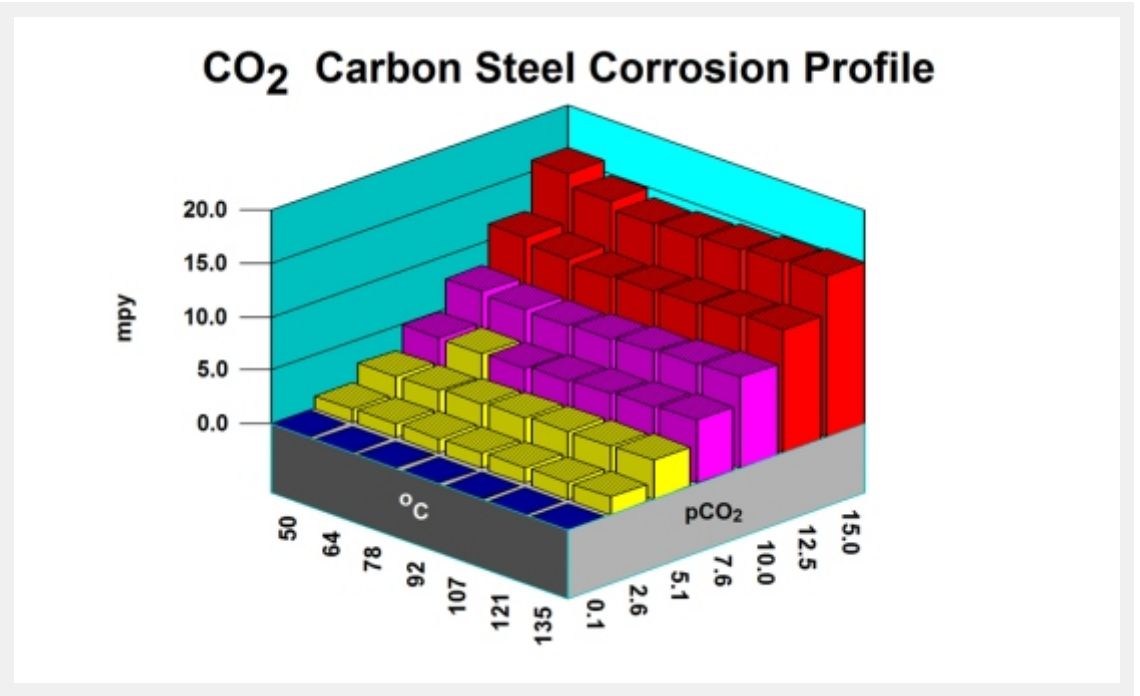
Prepare Metallurgy File (Product File Format)

Prepare a metallurgy file in the Input Product / Input Metallurgy form.



Modeling

Evaluate the model in the Source Water, Waterflood, or Multi-Mix modules by selecting the appropriate Product/Metallurgy Model file. Predictions output as graphs and in tables.



You can compare TREATED versus UNTREATED profiles when corrosion inhibitor dosage data is used to develop the models.

There are ultra-expensive general models available which include parameters to make models applicable to a very broad range of wells. These can be difficult to use, require unavailable specifications and data, may or may not accurately. Modeling a specific well or field eliminates the need for many of the variables that expand a model form a specific, to a general model.

The DownHole SAT Laboratory Edition provides an alternative and allows increased accuracy in many cases. Similar models can be used for inhibitor modelling, when data is available. View the Video Tutorial: http://www.frenchcreeksoftware.com/tutorial/create-oilfield-corrosion-model/

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