

Saturation Index Calculations
Champion Technologies, Inc.
(Based on the Tomson-Oddo Model)

Site Information

Company	Conoco
Field	Warren Unit
Point	#8
Date	3/4/98

Water Analysis (mg/L)

Calcium	7,418
Magnesium	1,822
Barium	0
Strontium	0
Sodium*	45738
Bicarbonate Alkalinity	146
Sulfate	1,191
Chloride	88,000

* - Calculated Value

Appended Data

Dissolved CO2	175 mg/L	Well head pH	6.67 value
Dissolved O2	N/A PPM		
H2S	1.0 mg/L		
Iron	19.0 mg/L		
Resistivity	N/A value		
Specific Gravity	1.103 value		
TDS	144419 mg/L		
Total Hardness	26000 mg/L		

Physical Properties

Ionic Strength*	2.78
pH*	6.01
Temperature	100°F
Pressure	100 psia

* - Calculated Value

Calcite Calculation Information

Calculation Method	Value
CO2 in Brine	175 mg/L
Bicarbonate Alkalinity Correction(s)	Value
None Used	---

SI & PTB Results

Scale Type	SI	PTB
Calcite (Calcium Carbonate)	-0.89	N/A
Gypsum (Calcium Sulfate)	-0.22	N/A
Hemihydrate (Calcium Sulfate)	-0.25	N/A
Anhydrite (Calcium Sulfate)	-0.17	N/A
Barite (Barium Sulfate)	N/A	N/A
Celestite (Strontium Sulfate)	N/A	N/A