PIPELINE INSPECTION
CHEMICAL KIT – FLUIDS

USER INSTRUCTIONS – CHEMICAL TESTING

SPECIAL NOTE: Before using this Chemical Test Kit, **READ ALL INSTRUCTIONS**. This kit only contains enough materials for one (1) test.

CHEMICAL PARAMETERS

This kit will test for the following parameters:

pH	Iron	Sulfide	Nitrite	Chloride
Carbonate	Calcium	Nitrate	Manganese	Sulfate

CHEMICAL TESTING

The testing is performed by using the tubes, test strips, and droppers displayed in the foam block. Note that extra items (i.e., test strips) are furnished - it is not necessary to use all of these, but they are provided if you should have a problem with a sample collection or testing procedure, or if you should desire to repeat the analysis for pH, carbonate, iron, calcium, nitrate, nitrite, manganese, chloride or sulfate. An additional lead-acetate paper strip is also provided. The following instructions provide the procedures for the testing of fluids, where the pH is between 4 and 8.

SAMPLE COLLECTION

The fluid to be tested should be drained or captured in the supplied cube container. Fill the cube container no more than half full. Place the cube container with the collected sample on a stable surface. Place the spigot cap on the cube container, making sure the spigot is closed. With the spigot cap in place and closed, invert the cube container, placing the spigot on the bottom. Allow to remain undisturbed until the fluids separate. The fluids to be tested should be as free as possible of hydrocarbons, compressor oils, etc. With the cube container inverted and the spigot on the bottom, the lighter fluids will rise to the top and the heavier fluids will collect on the bottom of the container. These are the fluids to be tested.

INSTRUCTIONS

Step 1. The fluid to be tested is to be drained from the collected fluid in the cube container into the 30 ml sample cup.

Step 2. Immerse the water finding test paper strip into the fluid in the sample cup.

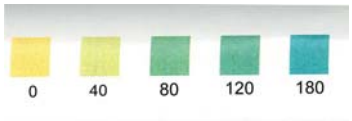
Step 3. If the water finding test paper strip DOES NOT change color, then the fluids are hydrocarbons. Record this information on the enclosed Chemical Testing Reporting Form. No further testing can be performed upon this fluid sample.

Step 4. If the water finding test paper strip DOES change immediately to a lavender color upon immersion in the fluid, then proceed to Step 5.

Step 5. **pH Test.** Remove a pH strip from the plastic bag and fold the strip in half. Place the folded edge only of the pH strip into the liquid in the sample cup, making sure to wet only the tip of this folded area (will be the wide, non-numbered, yellow color bar of the pH strip). Remove the pH strip from the liquid and compare the color in the fold of the strip to the color chart on the pH strip. Record the pH reading that matches the wet area. If there is not an exact color match with this scale, then estimate an intermediate value.

pH _____(Standard Units)

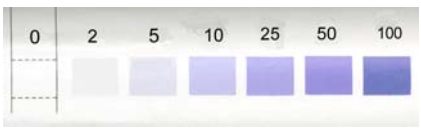
Step 6. **The next test is for the presence of carbonate.** To test for carbonate, take a test strip from the tube marked "Carbonate" and dip the yellow portion of the strip into the sample cup. Stir for 5 seconds. Remove the strip, do not shake off the excess liquid. After 10 seconds compare the color change on the test strip to the color chart below. Record the result of the carbonate test below. If there is not an exact match with this color scale, then estimate an intermediate value. If the color indicated is darker than the highest value below, then record your result as "180 plus".



Carbonate _____ mg/l

Step 7. **The next test is for the presence of sulfide.** To test for sulfide, use one of the supplied 1 ml droppers to add 1 ml of test fluid (from the sample cup) into the yellow cap tube. Do so by grabbing the large bulb end of the dropper between the thumb and forefinger and squeeze until the thumb and forefinger touch. Place the dropper into the test fluid (sample cup) and allow liquid to flow into the dropper by opening the thumb and forefinger. The test fluid should fill the large bulb end ½ to ¾ full. Leave the yellow cap tube containing hydrochloric acid in the foam holder, but remove its cap and set it aside. Do not pour the acid out. Add the contents of the dropper directly into this tube by squeezing the dropper tightly between your thumb and forefinger. Dispose of the dropper - do not re-use. Take the test cap (gray cap, with the lead-acetate paper) and a single strip of the (white) lead-acetate paper from the sealed plastic bag. Drape the paper strip over the opening of the yellow capped tube containing the acid and the test fluid, then loosely cover the paper and the tube with the gray test cap (see inset). Allow the tube, cap, and paper to remain undisturbed in the foam holder during Steps 8 and 9.

Step 8. **The next test is for the presence of iron.** To test for iron, use one of the supplied test strips from the tube marked "Iron" and dip the white portion of the strip in the sample cup for 5 seconds. Remove, shake the excess liquid off, wait 20 seconds, then compare the indicator patch to the color chart below and record the result below. If there is not an exact color match with this scale, then estimate an intermediate value. If the color indicated is darker than the highest value below, then record your result as "100 plus".



Iron _____ mg/l

Step 9. **The next test is for the presence of calcium.** To test for calcium, take a test strip from the tube marked "Calcium" and dip the green portion of the strip into the sample cup for 5 seconds. Remove, shake the excess fluid off, wait 15 seconds, then compare the color change to the color chart below and record the result below. If there is not an exact color match with this scale, then estimate an intermediate value. If the color indicated is lighter than the highest value below, then record your result as "425 plus".

Calcium _____ mg/l

Step 10. **Complete test for presence of sulfide.** Remove the test cap and lead acetate paper (from Step 7) from the top of the yellow cap tube. Turn the paper over. If the underside of the paper has turned black/ brown, than sulfide is present at greater than or equal to 5 mg/l. If there is no color change, then sulfide is less than 5 mg/l. Securely fix the yellow cap back on the tube, then record the sulfide result below.

Sulfide _____ mg/l

Step 11. **The next test is for the presence of nitrate.** Remove the test strip from the tube marked "Nitrate" and dip the white portion of the strip into the sample cup for 30 seconds. Remove, shake the excess liquid off, let set for 30 seconds, then compare the color change to the color chart below and record the results below. If there is not an exact color match with this scale, then estimate an intermediate value. If the color indicated is darker than the highest value below, then record your result as "500 plus".

Nitrate _____ mg/l

Step 12. **The next test is for the presence of nitrite.** Remove the test strip from the tube marked "Nitrite" and dip the white portion of the strip into the sample cup for 30 seconds. Remove, shake the excess liquid off, let set for 30 seconds, then compare the color change to the color chart below and record the results below. If there is not an exact color match with this scale, then estimate an intermediate value. If the color indicated is darker than the highest value below, then record your result as "80 plus".

Nitrite _____ mg/l

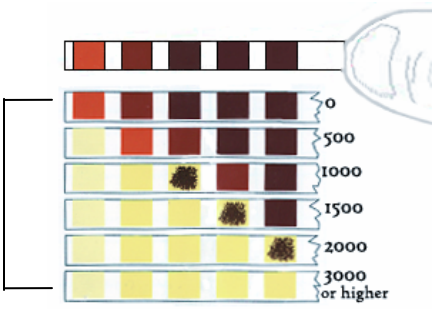
Step 13. **The next test is for the presence of manganese.** Remove a test strip from the tube marked "Manganese". Dip the yellow portion of the strip in the sample cup. Remove, shake off the excess liquid, then dip the strip in the white top tube ("Reagent No. 1"). Remove, shake off the excess liquid, wait for 15 seconds, then dip into the red top tube ("Reagent No. 2"). Remove, shake off the excess liquid, wait for 60 seconds, then compare the color change to the color chart below and record the result below. If there is not an exact color match with this scale, then estimate an intermediate value. If the color indicated is darker than the highest value below, then record your result as "100 plus".

Manganese _____ mg/l

Step 14. **The next test is for the presence of Chloride.** Remove the test strip from the tube marked "Chloride". Immerse the test strip with all five (5) reaction zones in the Sample cup. Make sure that all five (5) reaction zones are immersed in the fluid in the Sample cup for one (1) second. Remove the test strip and shake off any excess liquid from the test strip. Wait for sixty (60) seconds, then compare the color pattern of the five (5) reaction zones with the color rows on the chart below. Determine which row the five (5) reaction zones color pattern matches most exactly and record the value for that row listed on the right side of the chart and record this value below. If an exact color match cannot be made with the rows in the chart, then estimate an intermediate value. If the five (5) reaction zones match the color pattern of the last row of the chart below, record the result as "3000 plus".

5 Reaction Zones

Color Rows

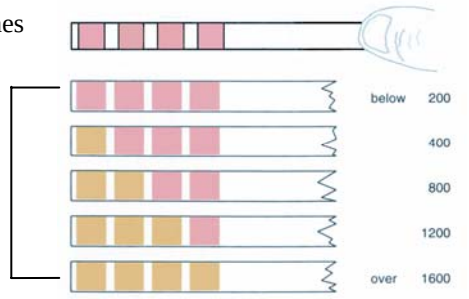


Chloride _____ mg/l

Step 15. T**he next test is for the presence of Sulfate.** Remove the test strip from the tube marked "Sulfate". Immerse the test strip with all four (4) reaction zones in the Sample cup. Make sure that all four (4) reaction zones are immersed in the fluid in the Sample cup for one (1) second. Remove the test strip and shake off any excess liquid from the test strip. Wait for two (2) minutes then compare the color pattern of the four (4) reaction zones with the color rows on the chart below. Determine which row the four (4) reaction zones color pattern matches most exactly and record the value for that row listed on the right side of the chart and record this value below. If an exact color match cannot be made with the rows in the chart, then estimate an intermediate value. If the four (4) reaction zones match the color pattern of the last row of the chart below, record the result as "1600 plus".

4 Reaction Zones

Color Rows



Sulfate _____ mg/l

Step 16. After completing all the tests, fill out the enclosed Chemical Testing Reporting Form by transferring the results recorded for each of the above steps onto the appropriate spaces of the Form. Also fill out all other appropriate information as indicated on the Reporting Form. Alternately, you may elect to transfer your results onto your own company's reporting form.

Step 17. After the completion of the chemical testing, the testing materials can be discarded in the trash. No toxic or hazardous chemicals exist.

_____

(Company)

_____

(Location)

CHEMICAL TESTING REPORTING FORM

Storage Field	Line Number	
Bell Hole Number	Well Number	Drip Name and Number
Township/District	County	State
Comments		
Sample Location		Sample Number
Sample Collection Date	Sample Collection Time ☐ - AM ☐ - PM	Sampler
SAMPLE DESCRIPTION Color _____ Odor _____ Comment _____		
Fluid Test Hydrocarbons _____ Water _____	Fluid Test pH _____	WEATHER CONDITIONS Air Temperature _____ Conditions _____ _____
Comments		

CHEMICAL TESTING - FLUID RESULTS

Test	mg/l
Carbonate	
Iron	
Calcium	
Sulfide	
Nitrate	
Nitrite	
Manganese	
Chloride	
Sulfate	

TESTED BY	DATE
COMMENTS	