Components:

#153-14	Graduated Cylinder, 50 × 1 mL, Glass
#153-34	Pipette, 1 mL × 1/100 mL, Glass
#153-36	Pipette, 2 mL × 1/10 mL, Glass
#153-38	Pipette, 5 mL × 1/10 mL, Glass
#153-50-1	Erlenmeyer Flask, 125 mL, Glass
#153-60	Disposable Syringe, 3 mL
#154-75	Brass Scoop

Reagents:

#145-551	Starch Indicator Solution, 2 oz (60 mL)
#206-01	Deionized Water, 8 oz (250 mL)
#144-941	*Bromine Water, 16 oz (500 mL) **UN1744**
#144-942	*Orthophosphoric Acid, 20% Solution, 8 oz (250 mL) **UN1805**
#144-943	*Phenol Solution, 5%, 8 oz (250 mL) **UN2821**
#144-944	Potassium Iodide Crystals, 50 grams
#262-05	Sodium Thiosulfate Solution, 0.01N, 8 oz (250 mL)

Case:

#134-36-1	Red Knob
#144-35	Diagonal Design Case, Stainless Steel
#163-28	Large Clip

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Thiocyanate (SCN-) Ion Test Kit

Item# 144-94

Instruction Manual

Updated 12/3/2012
Ver. 1.5

OFI Testing Equipment, Inc.

Introduction:

Thiocyanate ion (SCN-) is used as a tracer in water based drilling fluids. This test kit provides all of the necessary supplies and reagents to determine the amount of Thiocyanate ion in a drill stem test fluid or mud filtrate. For colored filtrates, it is necessary to also prepare a blank sample which is helpful in determining the color of the end point.

Safety:

The chemicals used in this kit (Starch Indicator Solution, Bromine Water, Orthophosphoric Acid, Phenol Solution, Potassium Iodide Crystals, and Sodium Thiosulfate Solution, can cause hazard to the user's health by direct contact, inhalation, ingestion, explosion or fire. Read all warnings, precautions, and hazard classifications (flammability, health, and reactivity) on the container label. For in depth information on handling reactivity with other substances, storage, and other safety related information, refer to the "Material Safety Data Sheet (MSDS) for each chemical. If personal contact or an environmental accident occur, use the counteractive measures outlines on the MSDS sheet.

As preventive measures:

1. Never pipette any chemical by mouth.
2. Avoid contact with skin. Wear impervious protective clothing, including boots, apron, gloves, lab coat or coveralls, as appropriate, to prevent skin contact.
3. Do not inhale vapors or take internally.
4. Use chemical safety goggles and/or full face shield where splashing is possible. Maintain an eye wash fountain and quick drench facilities in the work area.

Procedure:

1. Pipette 5 mL of filtrate into a 125 mL Erlenmeyer Flask and add about 45 mL of Deionized Water.
2. Pipette 5 mL of 20% Orthophosphoric Acid solution and mix by swirling the contents.
3. Add Bromine Water dropwise while mixing until a deep yellow color persists. Allow the mixture to stand for 5 minutes.
4. Add 2 mL of 5% Phenol solution and mix until the deep yellow color disappears.

   Note: Add all of the 5% Phenol solution at once.
5. Add one full scoop of Potassium Iodide crystals and mix until dissolved.
6. Allow the mixture to stand for 5 minutes.
7. Add 10 - 20 drops of Starch Indicator solution.
8. Titrate with 0.01N Sodium Thiosulfate solution to a colorless end point.

   Note: Colored filtrates require the preparation of a blank sample to determine the color of the end point. Omit steps 5 - 8 of the procedure for the blank sample and titrate the test sample to the same end point color as the color of the blank sample after step 4.

Calculation:

The concentration of Thiocyanate (g/L) can be calculated by:

$$SCN^- = T \times 58$$

Where T is the volume (mL) of Sodium Thiosulfate used in the titration.