

SOP Title: HACH Free Chlorine Tests
SOP Number: 22125
Revision: 03

TABLE OF CONTENTS

1. PURPOSE	1
2. SCOPE	1
3. RESPONSIBILITIES	1
4. MATERIALS AND REAGENTS.....	2
5. EQUIPMENT	2
6. SAFETY.....	2
7. PREPARATIONS AND PRECAUTIONS.....	2
8. PROCEDURE.....	2
9. REFERENCES AND RELATED DOCUMENTS.....	3

1. PURPOSE

This procedure describes how free chlorine concentration in a solution can be measured with the Hach Free Chlorine Test Kit.

2. SCOPE

This procedure is to be performed by members of the Process Analytics (PA) lab.

3. RESPONSIBILITIES

3.1 Head, Process Analytics (PA)

- Defines the procedure.

3.2 PA personnel

- Performs the procedure.

3.3 Biopharmaceutical Quality Assurance (BQA)

- Provides Quality oversight.

SOP Title: HACH Free Chlorine Tests

SOP Number: 22125

Revision: 03

4. MATERIALS AND REAGENTS

Part Number	Description	BDP Approved Substitution Permitted?
30460	Water Test Kit (Chlorine, Hardness, Iron, pH)	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
30459	DPD Free Chlorine Reagent	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
30505	DPD Free Chlorine Reagent Standard	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
N/A	Purified Water	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO

5. EQUIPMENT

- Glassware

6. SAFETY

The chemicals in this kit may be hazardous to the health and safety of the user if inappropriately handled.

7. PREPARATIONS AND PRECAUTIONS

- 7.1 High concentrations of monochloramine combined with chlorine will interfere in the free chlorine determination. This does not apply to the total chlorine test.
- 7.2 Glassware should be rinsed with purified water after each test. Contamination from previous chlorine tests may cause errors in subsequent chlorine tests.
- 7.3 Failure to clean the sample cells after each test may result in a brown film on the glass surface. This can be removed with a damp, soft cloth and a mild detergent, followed by a clean-water rinse. Tubes may be cleaned best with a brush and soapy water.

8. PROCEDURE

- 8.1 Obtain Water Testing Kit with DPD Total Chlorine Reagent packages, color comparison box, chlorine color disk, and two sample tubes.

BIOPHARMACEUTICAL DEVELOPMENT PROGRAM

SOP Title: HACH Free Chlorine Tests

SOP Number: 22125

Revision: 03

- 8.2 Insert the chlorine color disk into the black color comparison box. The disk should be placed on the center pin with the numbers facing the lid of the box.
- 8.3 Rinse both tubes and fill them both to the first line (5 mL) with sample water.
- 8.4 Insert one tube into the left circular opening of the color comparison box.
- 8.5 Add one packet of DPD Total Chlorine Reagent powder to the other tube. Swirl the sample to mix. After the reagent has dissolved, set a timer for 3 minutes.
- 8.6 After 3 minutes, insert the second tube containing sample mixed with DPD Total Chlorine Reagent powder into the right hole of the color comparison box. Hold the comparison box so that a light source is directly behind it and match the color of the unaltered sample tube to the color of the sample tube with DPD Total Chlorine Reagent powder mixed in.
- 8.7 Observe the number from the wheel once a match is found and report the results as mg/L. If the color match is between two values, use the middle value as the result.
- 8.8 Record the test results in the Water Systems Technician Logbook).
- 8.9 If the results are over the maximum value (3.4 mg/L), contact the Area Supervisor for further action.

9. REFERENCES AND RELATED DOCUMENTS

Document Number	Title
N/A	Pocket Colorimeter Analysis System (Chlorine) Manual. HACH Company.