

FHN Memorial Hospital
Measurement of pH of Eye Procedure

Intended Use

Measure of pH level of eye fluid

Method

Manual

Principle

pH is the measure of hydrogen ion activity in a sample. Determination of eye fluid pH is useful as a screening test to determine need and success of irrigation after chemical exposure.

- Goal: Return eye pH to neutral of 7.0 – 7.3
- Neutral: yellow-green color
- Acidic: red to orange color
- Alkaline: green to blue color

Specimen

Eye fluid tested with Nitrazine or pH paper before, during and after eye irrigation attempts

Supplies

- pH paper, also known as Nitrazine paper (Hydrion Jumbo Dispenser 0-13) Cat. HJ613
- Quality Control calibration buffer set cat #CC-471V
- Buffers at pH 4.00, 7.00, and 10.00 (Micro Essential Laboratory)
- Color chart included on container
- Irrigation fluid per physician order:
 - Lactated Ringers or Normal Saline
- Irrigation equipment per FHN procedure

Storage Requirements

pH (Nitrazine) paper has a shelf life of 3 years when stored at room temperature in original container dry and protected from sunlight. See expiration date.

Quality Control

QC done on initiation of use of supply, every 3 months, and prior to use for patient testing. Buffer solution discard date to be marked per product instruction.

QC Procedure

Purpose: test range of pH paper by challenging against buffers at pH of 4, 7, and 10.

1. Tear off pH paper 1 to 2 inches in length.
2. Apply 1 drop of selected control level buffer and shake off excess fluid.
3. Immediately match strip color to strip container color chart
 - pH 4 = orange
 - pH 7 = yellow-green

- pH 10 = blue-green
- 4. Record date, lot number of strips and control, expiration date, results of test and testing personnel initials.
- 5. If color of strip does not match expected pH range color printed on the container, the QC result is not acceptable. Review technique and repeat test.
- 6. If QC fails on repeat test, do not use for patient testing and replace supply.
- 7. Document corrective action.

Test Procedure

1. Prepare patient for assessment and irrigation procedure per FHN protocol.
2. Wash hands and apply gloves.
3. Tear off piece of pH paper to desired length.
4. Apply paper tip to pooled ocular fluid in conjunctival sac.
5. Compare color to color chart on container immediately.
6. Continue irrigation procedures and re-test pH until target range reached (usually 7.0-7.3)

Notes

- If exposure to alkaline agent: Repeat pH testing every 15 to 30 minutes and continue irrigation until pH of eye maintained in target range during post irrigation period.
- Common fluid volume required: 2000 mL
- Eye irrigation solution of choice: Normal saline or Lactated Ringers
- Alternative if preferred agents unavailable: sterile water, eyewash station or equivalent clean water supply.
- Exposure to acid agent: Usually requires minimum 1000 mL irrigant to eye. Usual irrigation duration: 30 minute minimum to one hour.
- pH test should be repeated 20 minutes after irrigation is discontinued to confirm maintenance of neutral pH level (7 to 7.3).

Results

Interpretation of Results

Color	pH
Red	1
Red	1
Orange/red	3
Orange	4
Orange	5
Light orange	6
Yellow-green	7
Light green	8
Green	9
Blue-green	10
Blue	11
Blue-black	12

- Document all test results and times, irrigant solution and volume used, as well as duration of irrigation per charting policy in medical record.
- Document lot number and expiration date on log for irrigation solution, pH strip, and QC test buffer materials.
- Forward pH log monthly to Point of Care for review and signature.
- Department to retain QC records for minimum period of 3 years after signed and returned by POC Coordinator.

Limitations

- Personnel who are color blind should not perform test.
- Result must be read immediately after sampling for accurate interpretation of pH level.
- Following contact with eye fluid, the pH paper should be managed with usual body fluid precautions.
- Contamination of test paper during procedure may occur. In the event of suspected contamination, replace pH paper and perform QC testing prior to patient testing.
- Test papers should not be re-used for testing. Dispose of test papers per standard precautions immediately after test is performed.
- pH paper is to be used externally only and not used internally.
- Caution when performing color comparison under fluorescent light

References

www.fpnotebook.com/eye/procedure/eyirgtn.htm

Micro Essential Laboratory Safety information statement

Micro Essential Laboratory Quality Control statement

Micro Essential Laboratory Inc., Brooklyn, NY

ClinicalKey for Nursing: Irrigation of the Eye 5/14/17

1/17/22

pH Test Log - Eye

FHN
 1045 W. Stephenson St.
 Freeport, IL 61032

QC must be performed:
 On initial use
 Every 3 months
 Prior to patient testing

Strip Lot _____ Exp Date _____
 Buffer Lot - pH 4 _____ Exp Date _____
 Buffer Lot - pH 7 _____ Exp Date _____
 Buffer Lot - pH 10 _____ Exp Date _____

Discard Date _____
 Discard Date _____
 Discard Date _____

Date	Time	PATIENT LABEL WITH F NUMBER	Test Result	QC4	QC7	QC10	Irrigant	Lot #	Exp Date	Initials

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