Safety: Wear safety glasses and goggles when working in the lab

Purpose: **pH DETERMINATION**

Procedure:
Background Information

Epsom Salt in the dry crystal form is sold, USP or Technical, with a pH between 9.0 and 5.2. The same is generally true for magnesium sulfate produced and shipped in aqueous solution, although some customers may have special requirements with respect to pH. Determination of pH of various samples from in process to finished product therefore becomes a matter of importance.

Scope :

Two methods are employed for determining pH in the laboratory:

Colorimetric:

pH is determined by using paper which has been impregnated with a pH sensitive dye.

Electronic:

For Final Product Determination:

A dilute solution of either crystal or liquid product is prepared and the pH determined using a laboratory instrument according to the method described below.

Equipment :

Colorimetric:

Supply of ACCUTINT Indicator Papers -- pH 1 to 14 Wide Range B
(Thomas Scientific)

Electronic:

VWR SB-20 pH System

Weighing Balance -- B440 Sartorius

Supply of De-Ionized

150-mL Pyrex Glass Beaker

Supply of Buffer Solutions -- pH 4.00, 7.00 and 10.00 -- RICCA

Magnetic Stirring Plate -- Thermoline Cimarec 2

Magnetic Stirring Bars -- 1” length

Sheet of 8 ½“ x 11” office letter paper

De-ionized water -- VWR Scientific

Procedure :

Colorimetric Procedure:

1 A section of tape is torn from the plastic dispenser described above
2. The torn section is then dipped into the solution to be tested
3. The section is then compared to the color on the chart provided on the outside of the dispenser.
4. The color will correspond to the typical color of pH sensitive dye At levels from 1 to 12

The laboratory pH instrument can be used for more accurate determination

Electronic Procedure:

1. To determine the pH of crystalline sample :

a. Weigh approximately 5.00 grams of the crystalline sample on a piece of paper using the weigh balance
b. To a 150 - mL beaker add 100 mL of H_2O and a stirring bar.
c. Place the beaker on the magnetic stirring plate and add the crystalline sample
d. Turn stirring plate on (1/2 to 3/4 max. setting)
e. Remove protective cover from the probe tip and rinse the tip with de-ionized water and wipe with paper towel.
f. When the sample has completely dissolved, place the probe
g. in the solution and turn on the pH meter.
h. Record the pH value one minute later The level will have stabilized sufficiently in that interval.
i. Remove probe, rinse with de-ionized water, dry the probe and replace the protective cap

2. To determine the pH of liquid sample

a. Remove the protective cap from the probe tip
b. Rinse the tip with de-ionized water and wipe with Kleenex or paper towel.
c. Place the probe in the solution and turn on the pH meter.
d. Stir the solution with the pH probe to ensure and accurate reading
e. Record the pH value one minute later. The level will have
f. Stabilized sufficiently in that interval.
g. Remove probe, rinse with de-ionized water, dry the probe and replace the protective cap.

The instrument can be turned on and off with out losing its calibration. The meter should be calibrated regularly (once / twice a week) and anytime the meter shows an obviously erroneous reading.

TRAINING DOCUMENTATION

	EMPLOYEE	TITLE	SIGNATURE	DATE
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				

Revision Number	Revision Date	Revision Author	Revision Description
00	03/27/2006	CM	New Document
01	07/23/2009	SL	-3 Year Revision/ No Changes