

Testing the pH of Various Chemicals

Aim: To measure the pH of various household chemicals using a pH meter and universal indicator paper.

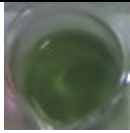


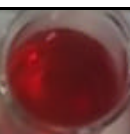

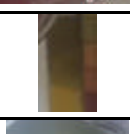
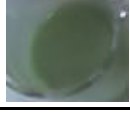
Equipment:

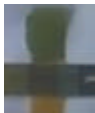

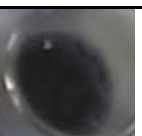
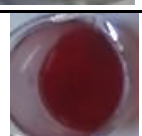
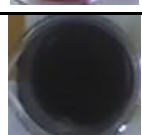
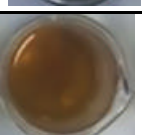
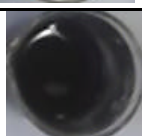
- 15 small beakers
- Universal indicator solution
- Safety glasses
- Universal indicator paper
- 14 different common household chemicals
- Distilled water

Method:

1. Put on safety glasses.
2. Pour approximately 2-3 cm of a chemical solution into a beaker.
3. Use pH probe to measure pH. Record value.
4. Add a few drops of universal indicator. Use colour chart to determine pH. Record colour & pH. (In cases of opaque or dark solutions use universal indicator paper instead of solution)
5. Determine hydrogen ion concentration.
6. Repeat steps 2 to 5 for each chemical and distilled water (control).

Results:

Substance	Probe pH	UI colour	UI picture	UI pH	H ⁺ ion Conc.
Distilled Water	7.3	Green		7	5.012×10^{-8}
H ₂ SO ₄	1.1	Red		= 3	7.943×10^{-2}
MgSO ₄	6.7	Green		7	1.995×10^{-7}
Vinegar	3.2	Red		= 3	6.310×10^{-4}
HCl	2.3	Red		= 3	5.012×10^{-3}
Soy Sauce	5.4	Brown*		5	3.981×10^{-6}
Hand Lotion	7.3	Green		7	5.012×10^{-8}

Lab glass cleaner	7.9	Green*		8	1.259×10^{-8}
NaOH	11.1	Purple		= 11	7.943×10^{-12}
Cream of tartar	3.9	Light red		4	1.259×10^{-4}
Washing Powder	10.8	Purple		= 11	1.585×10^{-11}
Salvital	3.9	Light red		4	1.259×10^{-4}
Limewater	11.4	Purple		= 11	3.981×10^{-12}
Seltzer	5.8	Orange		5	1.585×10^{-6}
NaCO ₃	10.2	Purple		10	6.310×10^{-11}

Conclusion: The chemicals were tested successfully and their pH's determined.

Evaluation: The probe appeared dodgy at best.