

Lab 5-1B: Properties of Acids and Bases

Observations

	magnesium ribbon	red litmus	blue litmus	bromothymol blue	indigo carmine	methyl orange
A	no reaction	red	blue (purple)	green	blue	yellow
B	no reaction	blue	blue	blue	blue	yellow
C	reaction: bubbles	red	red	yellow	blue	pink
D	no reaction	blue	blue	blue	yellow	yellow

Analyze

- List the solutions in order from most acidic to least acidic (most basic).

C, A, B, D

- Which solution do you think was neutral? Explain how you know.

Solution A: -litmus did not change colour
 -bromothymol blue was green \Rightarrow indicates pH between 6 and 7.5

- You used two bases. Explain how you know which solution was more alkaline (more basic).

The bases were B and D (from litmus test).
 D was more basic because indigo carmine turned yellow (indicating pH of ~ 14), compared to B, where indigo carmine was blue (indicating pH less than ~ 11).

- How can magnesium metal be used to distinguish between an acid and a base?

Magnesium reacts with acids but not bases.

Conclude and Apply

- 1.

- What colour would each of the five indicators be in a solution that is pH 3?

reaction / red / red / yellow / blue / red

- What colour would each of the five indicators be in a solution that is pH 10?

no reaction / blue / blue / blue / blue / yellow

- Suppose you are asked to put together a test kit to determine whether water taken from a factory waste drain is acidic, basic, or neutral. Your kit can contain only three tests. Which tests would your kit contain? Explain.

Litmus (acid vs base)
 Bromothymol blue (confirm neutrality)
 Answers may vary... Methyl Red and Phenolphthalein also good options.