

## Chemguide – questions

### AMINES: REACTIONS WITH NITROUS ACID

1. Nitrous acid is unstable and has to be produced in the same test tube as the reaction is happening in. If you were wanted to test an amine with nitrous acid, how would you do it?
2. Nitrous acid is used to distinguish between the various types of amine – primary, secondary or tertiary.
  - a) Describe what you would see if you carried out the test as you have described in Q1 with each of the three kinds of amine.
  - b) One of the many products of the reaction involving a primary amine is an alcohol. Write an equation for the reaction of nitrous acid with ethylamine showing this reaction.
  - c) Write the formula for the organic product of the reaction between the secondary amine dimethylamine and nitrous acid. Why would you have to take considerable care in carrying out this reaction?
  - d) Write the formula for the final organic species (molecule or ion) if you reacted trimethylamine with nitrous acid.