

SIXTH YEAR

Reading Comprehension



1) Fill in the blank with a word from the box

ammonia	amount	base	basic	boiling	decomposition	determining	Digestion	Distillation
endure	gas	inorganic	ions	mixture	solution	sulphate	three	Titration

WHAT IS THE KJELDAHL METHOD?

The Kjeldahl method is a means of _____ ⁽¹⁾ the nitrogen content of organic and _____ ⁽²⁾ substances.

Although the technique and apparatus have been altered considerably over the past 100 years, the _____ ⁽³⁾ principles introduced by Johan Kjeldahl _____ ⁽⁴⁾ today.

The Kjeldahl method may be broken down into _____ ⁽⁵⁾ main steps:

_____ ⁽⁶⁾- the _____ ⁽⁷⁾ of nitrogen in organic samples utilizing a concentrated acid solution. This is accomplished by _____ ⁽⁸⁾ a homogeneous sample in concentrated sulfuric acid. The end result is an ammonium _____ ⁽⁹⁾ solution.

_____ ⁽¹⁰⁾- adding excess _____ ⁽¹¹⁾ to the acid digestion _____ ⁽¹²⁾ to convert NH_4^+ to NH_3 , followed by boiling and condensation of the NH_3 _____ ⁽¹³⁾ in a receiving solution.

_____ ⁽¹⁴⁾- to quantify the amount of _____ ⁽¹⁵⁾ in the receiving solution.

The _____ ⁽¹⁶⁾ of nitrogen in a sample can be calculated from the quantified amount of ammonia _____ ⁽¹⁷⁾ in the receiving _____ ⁽¹⁸⁾.

2) Put the sequence in the correct order:

The Kjeldahl method of nitrogen analysis is the worldwide standard for calculating the protein content in a wide variety of materials ranging from human and animal food, fertilizer, waste water and fossil fuels.

The Kjeldahl method consists of three steps, which have to be carefully carried out in sequence:

First,
Then,
Finally,

1. the amount of the ammonia that has been trapped is determined by titration with a standard solution, and a calculation made.
2. the ammonium ions are then converted into ammonia gas, heated and distilled. The ammonia gas is led into a trapping solution where it dissolves and becomes an ammonium ion once again.
3. the sample is digested in strong sulfuric acid in the presence of a catalyst, which helps in the conversion of the amine nitrogen to ammonium ions.