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Wöhler's Urea and the End of Vital Force

1. The old belief

Before 1828, chemists believed organic compounds could be made only by living things. They needed a **vital force**, a special power of life. The famous chemist **Berzelius** held this view.

2. The experiment

In **1828**, **Friedrich Wöhler** heated **ammonium cyanate**, an inorganic salt, and obtained **urea**, a compound found in urine.



Both have the same atoms (CH_4N_2O). Only the **arrangement** changed.

3. What followed

Year	Chemist	Made
1828	Wöhler	Urea
1845	Kolbe	Acetic acid
1856	Berthelot	Methane

The vital force idea faded gradually. Organic compounds follow the same rules as all chemistry.

Solved example

Q. Show that ammonium cyanate and urea have the same atoms.
A. NH_4CNO has 1 C, 4 H, 2 N, 1 O. NH_2CONH_2 has 1 C, 4 H, 2 N, 1 O. Both are **CH_4N_2O**.

Practice questions

1. (MCQ) Wöhler made urea from (a) methane (b) ammonium cyanate (c) acetic acid (d) sodium chloride
2. (Very short) In which year was urea first made in the lab?
3. (Short) What was the vital force theory?
4. (Very short) Who synthesised acetic acid?
5. (Very short) Who synthesised methane?
6. (Short) Why was Wöhler's result surprising?

Answer key

1. (b).
2. 1828.
3. Organic compounds need a special power found only in living things.
4. Kolbe.
5. Berthelot.
6. An organic compound was made from an inorganic salt, with no living thing involved.

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