

## Inhalational agents

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I have not provided notes on this topic as this is a large core pharmacology topic for all anaesthetists that requires detailed knowledge and understanding. I fear this cannot be provided in a summary of a few pages. I would direct you to a comprehensive chapter I have written on the topic that can be found in:

*Applied Pharmacology for Anaesthesiology and Critical Care.*

Edited by Analee Milner and Ernest Welch.

Published by Medpharm publishers in 2012.

Available from [www.milnerandwelch.co](http://www.milnerandwelch.co)

I think that the areas that need to be covered and understood on this topic are:

1. A history of the development of the agents we use today, and how they have been improved over time.
2. A classification of the agents
3. The mechanisms of action that have been proposed for the inhalational agents.
4. The relationship between the structure and function of all the agents.
  - you must know how to draw these agents' chemical structures.
  - Isomerism, chirality and enantiomers
5. The pharmacokinetic principles of these agents which are unique as they are not administered via conventional routes.
  - These principles include
    - Uptake into the alveolus
    - The establishment of concentration gradients between lung, blood and brain.
    - Metabolism and elimination
    - The principle and application of MAC and its derivatives.
6. The pharmacodynamic principles and normal effects on organ systems of all the agents.
7. The side effects and special circumstances associated with these agents in particular those unique to anaesthesia:
  - Malignant hyperthermia
  - Halothane hepatitis
  - Renal failure
8. The technique and principles of low-flow anaesthesia
9. The principles of what an ideal agent would represent.
10. The properties of all the individual inhalational agents: (even those you may not have used in routine clinical practice)
  - Halothane
  - Enflurane
  - Isoflurane
  - Desflurane
  - Sevoflurane
  - Nitrous oxide
  - Ether
  - Methoxyflurane
  - Xenon

**Notes page**