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      - Literature
      - Multimedia Guide CD
      - Basics of Karl Fischer Titration**
      - One-component Reagents
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      - Aldehydes & Ketones
      - Additional Reagents
      - Water Standards
      - KF Oven Reagents

HYDRANAL®

**Basics of Karl Fischer Titration**

**Introduction**

*Sigma-Aldrich is a pioneer in the supply of safe, reliable and easy-to-use pyridine-free Karl Fischer reagents.*

Water can affect product quality, texture, shelf life, chemical stability and reactivity. The Karl Fischer titration is a universally acknowledged method for measuring water content in all types of substances including chemicals, oils, pharmaceuticals and food. In 1979, researcher Dr. Eugen Scholz improved the Karl Fischer titration by replacing noxious pyridine with imidazole.

This innovation became the foundation of HYDRANAL®, the world's leading pyridine-free reagents for Karl Fischer titration. Since Dr. Scholz's pioneering research and with a spirit of ongoing product improvement, Sigma-Aldrich has launched a wide range of Karl Fischer reagents for both volumetric and coulometric titrations for nearly all types of samples.

**Advantages of HYDRANAL® reagents:**

- High-speed titrations
- Stable end points
- Accurate results
- No unpleasant odor
- Long shelf life
- Wide applicability

In the following chapters, you will find the basic principles and possibilities of Karl Fischer titration.

Additional technical information can be obtained by requesting our HYDRANAL®-Manual, Multimedia Guide CD, Literature or Applications. For personal assistance, please feel free to contact our [Karl Fischer helpline](#)s.

**Chapter 1 Basic principles of Karl Fischer titration**

- HYDRANAL® reagents
- Standard procedures for Karl Fischer titration
- Chemical fundamentals behind Karl Fischer titration (working medium, pH value)

**Chapter 2 Basic forms of Karl Fischer titration**

- Volumetric titration with one-component reagents
- Volumetric titration with two-component reagents
- Coulometric titration

**Chapter 3 Variations of Karl Fischer titration**

- Overview of variations of Karl Fischer titration
- Reagents for aldehydes and ketones
- Reagents for non-polar substances
- Reagents for polar substances
- Reagents for acids and bases
- Reagents for Karl Fischer Oven

**Literature**

[1] Eugen Scholz "Karl-Fischer-Titration" Springer-Verlag, Berlin, Heidelberg, New York, Tokyo (1984), 140 pages  
 ISBN 3-540-12846-8 German Edition  
 ISBN 3-540-13734-3 English Edition

Volumetric Titration  
Complexometric Titration  
pH Electrodes  
Non-aqueous Titration

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