

# Karl Fischer Water Titration



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Water contamination is a primary concern for many types of industries. In some climates and operating environments, water can be a more severe culprit than solid particulate contaminants and wear metals. For specific components in these environments, small amounts of moisture can have damaging effects resulting in costly downtime and loss of productivity.

Often triggered by the basic water contamination test in the Fluid Life Series 1 testing package, the Karl Fischer Water Titration method provides a quantitative determination of the actual water content down to <math>< 10\text{ ppm}</math>. Results are usually reported in %.



KF Water Titration is an excellent test for:

- Hydraulics
- Compressors
- Gas Turbines
- Steam Turbines
- Bearings
- Paper Machine Oil

For lubricating oils, the presence of moisture can promote:

- Rapid oxidation, corrosion and wear.
- Formation of acidic by-products.
- Diminished effectiveness of essential oil additives.
- Premature clogging of filter elements.
- An increase in debris thus compromising lubrication.
- Noxious bacterial growth.

# Fluid Life

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Named for the inventor, Karl Fischer Titration is a widely used analytical method for quantifying water content in used oil samples. Titration is the process of determining the quantity of a particular target substance (water) by adding a liquid reagent of known strength and measuring the volume necessary to convert the target substance to another form.

Water Content %	Severity
< 0.05%	NORMAL (ACCEPTABLE)
> 0.05% < 0.15%	ABNORMAL (CAUTION)
> 0.15%	SEVERE (CRITICAL)

The table (left) is an indicator of the small amount of the water that needs to be present to indicate a critical maintenance concern. Some OEMs set flagging limits even lower than those indicated. Water is rightfully being recognized as potentially damaging as solid particles.

With the ability to measure moisture at such low levels, our customers gain the benefit of having the earliest indicator of water ingress. Dissolved water can be detected using Karl Fischer Titration which would not be detected by basic testing methods.

### Benefits of Water Testing

- Reduction in component wear.
- Increased equipment reliability.
- Reduction in costly down time.



### Maintenance Solutions

If an elevated level of water is present, a maintenance professional could deploy:

- ✓ Hygroscopic breathers
- ✓ Auxiliary filtration
- ✓ Vacuum dehydration

*...because what happens on the inside really counts*



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