

# Oxidation Testing by NMR in Complex Matrices

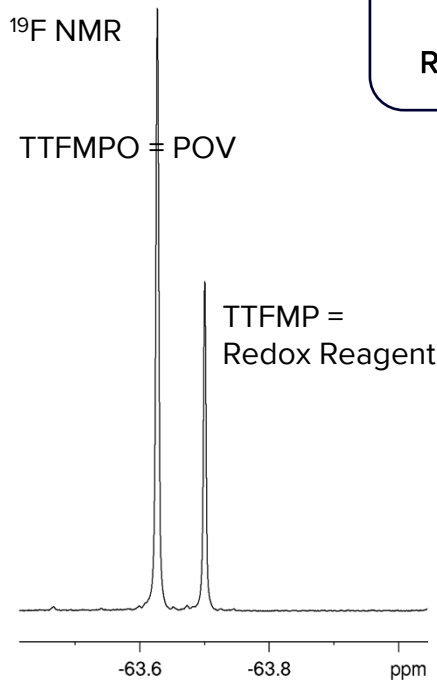
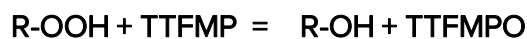
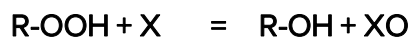
## Precise & Robust:

NMR Analysis of Primary Oxidation Products in Edible Oils, Lecithin, Emulsions and Formulations.

Traditional Titration Method according to Wheeler (DGF Method C-VI 6a) delivers vague or conflicting results when applied to complex matrices. It is not selective for hydroperoxides – diverse reducible ingredients can be detected. **Titration is a kind of black box.**



The Principle of POV Redox Reactions:



## NMR replaces the Iodometric Titration Method !

- **Hydroperoxide values** can be directly calculated from OOH-signals in the  $^1\text{H}$  NMR spectra in mol%.
- **Tagging** using fluorinated reagents such as TTFMP -> oxidized by hydroperoxides to TTFMPO - enables the determination of **POV values < 0.1 meq O<sub>2</sub>/kg** by  $^{19}\text{F}$  NMR analysis.
- **Selective Analysis** as TTFMP as redox reagent selectively reacts with OOH-molecules in complex matrices.
- **100x More Sensitive** than the Titration Method.
- Detection is **not affected by the intrinsic color** of the matrix.
- **More than oxidation:** Additional lipid parameters such as free fatty acids, phospholipids, sterols, triglycerides, fatty acid distribution, tocopherols, and additives – **all measurable in one analysis.**

## ✓ Take Control of Product Quality !

Contact us now to learn how NMR-based oxidation analysis can **Protect your Brand and Boost Consumer Trust.**

