



SpinCount

- Quantification of EPR Signals with Magnettech ESR5000

High precision and reference free

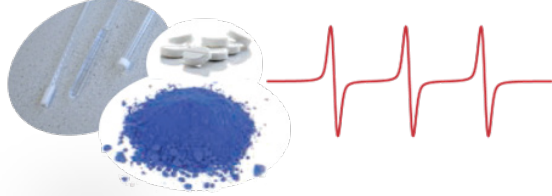
Quantification of the EPR active species (free radicals and transition metals) is a critical aspect in research, development and process/quality control. These species play an important role in many processes such as oxidation and reduction, catalysis, polymerization and photosynthesis. Additionally, these species can act as redox agents that cause damage to tissues, cells, pharmaceuticals, foods, beverages and materials such as solar cells and polymers.

SpinCount is a software option for EPR quantification on Bruker's Magnettech ESR5000 benchtop spectrometer.

With **SpinCount**, the task of quantifying EPR species is both straightforward and precise:

- **Easy-to-use** interface allows on-the-fly conversion of the measured EPR signal to the concentration of radicals or transition metals in the sample
- Comprehensive **report** that contains absolute number of spins and concentration (mol/L or spins/mg)
- **Reference-free** without the need to record a calibration curve
- Supports **1D- and 2D-data**
- One-time factory calibration of the spectrometer

Spectrum Acquisition



- Automatic storage of all experimental parameters, including temperature
- Acquisition of multi-dimensional experiments

SpinCount



Easy and precise sample positioning with a **cavity template**

Quantification

SpinCount

Sample information

Height: mm

Diameter: mm

Mass: mg

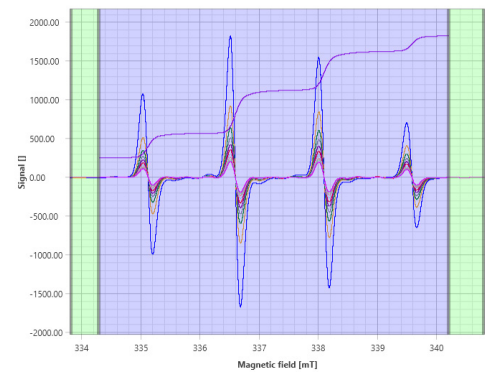
Electron spin:

Temperature: °C

Result preview

Spins:

Spin conc.: M



SpinCount window with user input and Result preview

EPR spin-trapping data of DMPO-OH radical adduct generated via the Fenton reaction

Calculate

- Intuitive qualifier regions for baseline correction and calculation of Double Integral
- Result preview with on-the-fly update

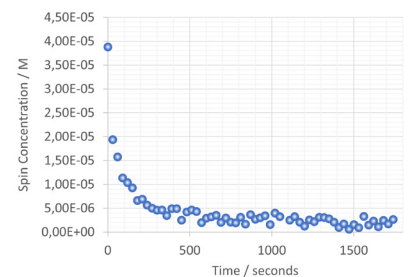
SpinCount Report

Data name	Time [s]	Height [mm]	Diameter [mm]	Volume [ml]	X start [mT]	X end [mT]	Spins	Spin conc. [M]
Fenton-DMPO_001	0.000	23	1	0.018	334.290	340.466	4.222e+014	3.881e-005
Fenton-DMPO_002	30.012	23	1	0.018	334.290	340.466	2.105e+014	1.935e-005
Fenton-DMPO_003	60.013	23	1	0.018	334.290	340.466	1.715e+014	1.576e-005
Fenton-DMPO_004	90.002	23	1	0.018	334.290	340.466	1.237e+014	1.137e-005
Fenton-DMPO_005	120.013	23	1	0.018	334.290	340.466	1.127e+014	1.036e-005
Fenton-DMPO_006	150.005	23	1	0.018	334.290	340.466	1.007e+014	9.253e-006
Fenton-DMPO_007	180.000	23	1	0.018	334.290	340.466	7.210e+013	6.628e-006
Fenton-DMPO_008	210.013	23	1	0.018	334.290	340.466	7.513e+013	6.907e-006

Time dependent SpinCount results

- Reports sample dimensions, quantified region, absolute number of spins and concentration (mol/L or spins/mg)
- Easy export as ASCII text for further processing

Analysis



Kinetics of DMPO-OH radical adduct generated via the Fenton reaction using SpinCount concentrations

● Bruker BioSpin

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