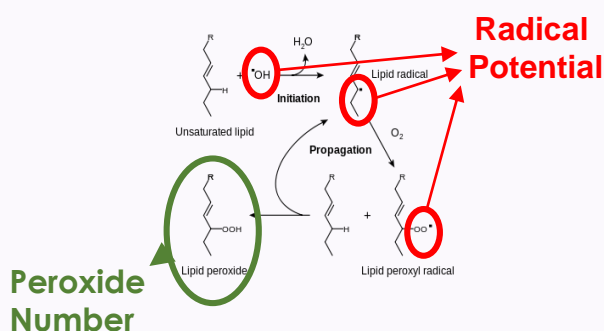


# RP

## Radical Potential

- ❑ Measures free radicals generated by UV radiation inside a formulation depending on its pro- and antioxidant ingredients.
- ❑ All generated radicals and products of radical chain reactions during an entire rancidification process can be determined in formulation.
- ❑ Initial radical generation triggers radical chain reactions, lipid peroxidation and rancidity and can reduce the stability of UV-filters and the formulation.
- ❑ Antioxidants can neutralize these free radicals and help to stabilize the product.
- ❑ ESR (Electron Spin Resonance) spectroscopy specifically quantifies the amount of free radicals (FR) generated.
- ❑ Fats, oils, emulsions, flavours, among others can be analysed by the RP method.

### radical chain reaction products



### Balance of Antioxidants and Radicals

Antioxidant performance



Rancidity / oxidation

#### Test Products:

Cosmetic formulations containing UV filters, perfumes, unsaturated fatty acids, others  
Nota Bene: a placebo formulation is required.

#### Principle:

ESR spin probing technique in formulations.

#### Conditions:

Measurements are performed at RT. *In vitro* method  
Kinetic measurements 0-10 min.

Concentration: t.q.

UV-radiation: 300 W Newport-Oriel UV- sun simulator  
(23,5 W/cm<sup>2</sup> UVB, 180 W/cm<sup>2</sup> UVA)