



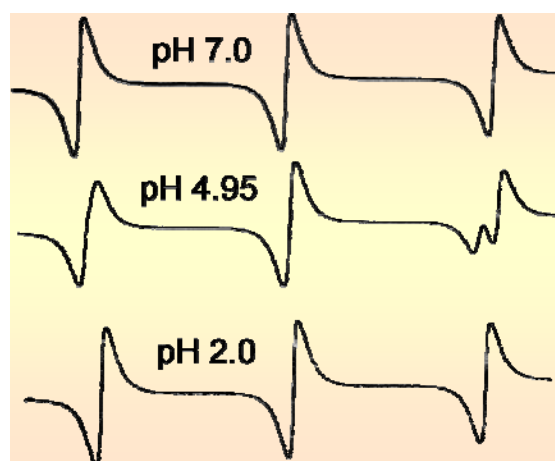
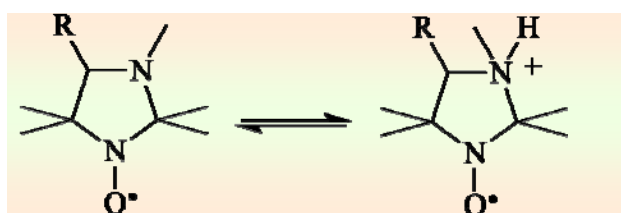
IMIDAZOLINE pH-SENSITIVE SPIN PROBES AND LABELS FOR SCIENTIFIC RESEARCHES

Characteristic

«Spin probes» is a term for a paramagnetic chemical substances used for investigation of various molecular systems using EPR spectroscopy. Changes in EPR spectra of the compounds provide unique information about molecular interactions and dynamics of the macromolecules and about properties of various molecular systems.

The Novosibirsk Institute of Organic Chemistry SB RAS has developed the original spin probes of a new type. The EPR spectra of certain derivatives of the imidazoline and imidazolidine nitroxides are highly sensitive to changes of pH of the media (Fig.).

These compounds are widely used in biophysical and biomedical researches, in investigation of polyelectrolites, zeolites, etc. The methods for synthesis of wide variety of the pH-sensitive spin probes have been developed. **The pH-sensitive spin probes monitoring with EPR technique is well suitable for determination of pH in non-transparent media, in heterogeneous systems and even in animals *in vivo*.** The probes available permit measurements within pH range 0-14 with accuracy up to 0.05 pH units.



Technical and Economical Advantages

The pH-sensitive spin probes - the derivatives of imidazoline and imidazolidine nitroxides are original developments of the Novosibirsk Institute of Organic Chemistry SB RAS and the institute is the only producer of these compounds in the world. The variety of the pH-sensitive spin probes, which we could supply is increasing each year. The world demand for the compounds is expected to increase due to development of biomedical research.

Application Area

In biophysical and biomedical research: local pH monitoring in liposome's, studies of transmembrane transport processes and surface potential of membranes and proteins, *in vivo* estimation of efficacy of drug-delivery systems, e.g. biodegradable polymers, and studies of pH-changes upon drugs degradation *in vivo*, *in vivo* pH monitoring in stomach and other organs, etc.

In multiphase systems: pH monitoring in non-transparent «water-in-oil» systems, studies of surface properties of polyelectrolites, pH-measurements in mesopores of ceolites, etc.

Level and Place of Practical Usage

The compounds are synthesized in Laboratory of Nitrogen Compounds of the Novosibirsk Institute of Organic Chemistry SB RAS on request.

License Protection

The institute owns the know-how on preparation of the whole variety of the spin probes and possesses the information on application of the probes in various investigations.

Commercial Offers

Institute provides an advice on selection of the pH-probe to meet requirements of the customer and supplies the compound on request.

Offers for joint development of new applications are welcome.

We will consider any offers on distributor/dealer services.

Approximate Cost

The prices of the pH-sensitive spin probes are contractual

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