

A10

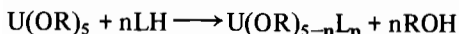
Recent Development on Alkoxides and Silyloxides of Uranium

R. N. KAPOOR

Department of Chemistry, University of Delhi, Delhi-110007, India

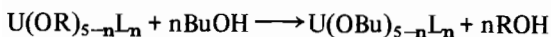
Preparation and characterization of alkoxides and silyloxides of uranium in different oxidation states mainly U(IV), U(V) and U(VI) have been described. Reactions of alkoxides of quinquevalent state of uranium with different ligands such as β -diketoesters, β -diketones, acids, thio acids, glycols, thioglycols and esters have been carried out and characterized by usual techniques which include elemental analyses, molecular weight, conductance and IR and UV spectral data.

These reactions were carried out in different stoichiometric ratios in benzene and the products of the type $U(OR)_{5-n}L_n$ have been obtained:



where LH is β -diketones, ketoesters, carboxylic acid, thio acid, glycol and this glycols.

Alcoholysis reactions have also been carried out by using excess of t-butanol:



A11

Development of Fluorescent Stains Containing a Lanthanide Chelate as the Light-emitting Center

M. BASSETTI, L. DE COLA, B. FLORIS and L. M. VALLARINO*

Department of Chemistry, Virginia Commonwealth University, 1001 West Main St., Richmond, Va., U.S.A.

The objective of this work is to develop a series of fluorescent stains suitable for the simultaneous multiple labelling of cytological specimens for flow analysis. While these stains are primarily intended for cancer screening and detection, their usefulness extends to any area of cytology where multiple fluorescent staining might be advantageous. The key requisites of these stains are high fluorescence intensity, very narrow emission bands, and chemical stability in aqueous media.

Two lanthanide ions, europium(III) and terbium(III), are known to exhibit monochromatic light-excited luminescence in the visible region. This luminescence is sensitized when the metal ions are coordinated to rigidly chelating π -bonded O-donor and N-donor ligands, such as the anions of β -diketones and 1,10-phenanthroline. To take advantage of this effect and to enhance the stability of the fluorochromes in solution through the formation of fused polychelated species, various tris- β -diketones (LH_3) containing a benzene bridgehead have been synthesized. Depending on the reaction conditions, these ligands yield either monomeric or polymeric complexes with the Eu(III) and Tb(III) ions; the polymeric species, $\{ML_3\}_n$, are anhydrous and do not show any tendency to bind additional O-donor or N-donor hetero-ligands.

The absorption, emission, and excitation spectral properties of the complexes have been investigated; the unusual features observed for the excitation spectra of these and other tris- β -diketonato complexes will be discussed.