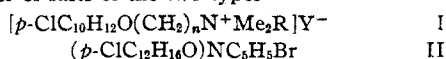


### Some Quaternary Salts Containing Aryloxyethyl and Aryloxypropyl Groups

A number of salts of the two types



have been prepared by the following general procedure. Thymol and *p*-chlorothymol, reacting as the sodium salts with ethylene and trimethylene bromohydrins, gave ether alcohols which were transformed into bromides by phosphorus tribromide in the usual manner and the bromides were allowed to react with dimethylamine in methanol at 120–125°. The resulting tertiary amines on treatment with appropriate alkyl halides produced the quaternary salts of type I. As a variant chlorocycloxyethyl bromide was allowed to act on pyridine and 2,4-dimethylthiazole, yielding the members of type II. The quaternary salts were purified by crystallization from absolute alcohol with addition of ether or ethyl acetate.

salts from the interaction of indium salt solutions with those of soluble salicylates.

**Basic Indium Salicylate Tri-hydrate.**—To 2.0000 g. of anhydrous indium sulfate dissolved in 50 ml. of water was added 25 ml. of a solution containing 4.5553 g. of sodium salicylate (mole ratio of 1 to 3). The resulting finely divided white precipitate was removed by filtration, washed until sulfate and sodium free, and air dried by suction. The product consists of microcrystalline needles which are very slightly soluble in water, ethanol and methanol, insoluble in benzene and toluene, but readily soluble in hot dilute acids. On ignition, the solid chars and is converted quantitatively to indium oxide. Prolonged drying at 110° yields the anhydrous compound.

*Anal.* Calcd. for  $\text{In}(\text{C}_7\text{H}_5\text{O}_3)_2\text{OH}\cdot 3\text{H}_2\text{O}$ : In, 24.95. Found: In (by ignition), 24.83.

**Anhydrous Basic Indium Salicylate.**—Two grams of the trihydrate was dehydrated by boiling with absolute meth-

R	Y	n	M. p., °C.	Formula	Analyses, %			
					Calcd.		Found	
					C	H	C	H
$[p\text{-ClC}_{10}\text{H}_{12}\text{O}(\text{CH}_2)_n\text{N}^+\text{Me}_2\text{R}]\text{Y}^-$								
CH <sub>3</sub> <sup>a</sup>	I	2	176	C <sub>15</sub> H <sub>26</sub> ONI	49.57	7.22	49.45	7.41
CH <sub>3</sub>	I	2	228	C <sub>16</sub> H <sub>28</sub> ONCl	45.27	6.34	45.21	6.50
C <sub>6</sub> H <sub>5</sub> CH <sub>2</sub>	Cl	2	194	C <sub>21</sub> H <sub>29</sub> ONCl <sub>2</sub>	65.95	7.65	65.86	7.90
<i>p</i> -ClC <sub>6</sub> H <sub>4</sub> CH <sub>2</sub>	Cl	2	216	C <sub>21</sub> H <sub>28</sub> ONCl <sub>3</sub>	60.49	6.77	60.62	6.99
<i>o</i> -ClC <sub>6</sub> H <sub>4</sub> CH <sub>2</sub>	Cl	2	175	C <sub>21</sub> H <sub>28</sub> ONCl <sub>3</sub>	60.49	6.77	60.28	6.89
CH <sub>3</sub>	I	3	229	C <sub>16</sub> H <sub>27</sub> ONCl	46.65	6.61	46.50	6.61
<i>p</i> -ClC <sub>6</sub> H <sub>4</sub> CH <sub>2</sub>	Cl	3	204	C <sub>22</sub> H <sub>30</sub> ONCl <sub>3</sub>	61.31	7.02	61.37	7.13
<i>p</i> -BrC <sub>6</sub> H <sub>4</sub> CH <sub>2</sub>	Cl	3	191	C <sub>22</sub> H <sub>30</sub> ONCl <sub>2</sub> Br	55.57	6.37	55.71	6.62
<i>p</i> -ClC <sub>10</sub> H <sub>12</sub> O(CH <sub>2</sub> ) <sub>3</sub>	Cl	3	184–187	C <sub>23</sub> H <sub>42</sub> O <sub>2</sub> NCl <sub>2</sub> Br	58.41	7.36	58.67	7.52
$p\text{-ClC}_{10}\text{H}_{12}\text{OCH}_2\text{CH}_2\text{RBr}$								
N-Pyridyl			119–120	C <sub>17</sub> H <sub>21</sub> ONClBr	55.05	5.72	55.18	6.00
N-2,4-Dimethylthiazolyl			214	C <sub>17</sub> H <sub>23</sub> ONSClBr	50.42	5.73	50.53	6.03

<sup>a</sup> Nuclear Cl replaced by H.

BURROUGHS WELLCOME AND CO., U. S. A.  
EXPERIMENTAL RESEARCH LABORATORIES  
TUCKAHOE, NEW YORK

WALTER S. IDE  
RICHARD BALTZLY  
JOHANNES S. BUCK

RECEIVED MAY 18, 1942

#### Basic Indium Salicylates

Insoluble basic indium salicylate analogous to the basic indium salts reported for a number of organic acids<sup>1</sup> re-

(1) Ekeley and Johnson, *THIS JOURNAL*, **57**, 773 (1935).

anol. The residue was washed successively with methanol and ether and dried for one hour at 110°. In appearance and behavior it resembles the hydrate.

*Anal.* Calcd. for  $\text{In}(\text{C}_7\text{H}_5\text{O}_3)_2\text{OH}$ : In, 28.27; salicylate, 67.54. Found: In, 28.23; salicylate (bromate titration), 67.64.

NOYES CHEMICAL LABORATORY  
UNIVERSITY OF ILLINOIS  
URBANA, ILLINOIS

THERALD MOELLER

RECEIVED JUNE 29, 1942