

### Preliminary communication

## THE SYNTHESIS OF CYCLOPENTADIENE DERIVATIVES OF LANTHANIDES BY THE REACTION OF DICYCLOPENTADIENYL-MERCURY WITH LANTHANIDES(0)

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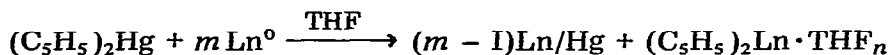
### Summary

The interaction of  $(C_5H_5)_2Hg$  with activated  $Ln^0$ , where  $Ln = La, Sm, Eu, Tm, Yb$ , in THF was shown to give either divalent or trivalent cyclopentadienyl derivatives of these metals, depending on the reaction conditions and reagents ratio.

The first representatives of organic derivatives of di- and tri-valent lanthanides were their cyclopentadienyl derivatives [1].

Mercury salts  $HgX_2$  ( $X = Cl, Br, I$ ) [2] and some organomercury compounds  $R_2Hg$  ( $R = C_6H_5, C_6F_4H, C_6F_5, C_6H_5C\equiv C$ ) are known to react with  $Ln^0$  to give salts or organic derivatives, respectively, of these metals [3]. Organomercury salts  $RHgX$  ( $R = Ar, Alk, X = I$ ) react with  $Ln^0$  to give bimetallic derivatives of  $Ln^{II}$  [4].

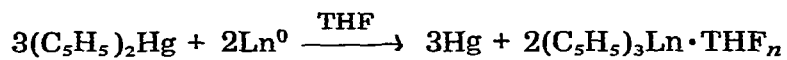
We have shown that  $(C_5H_5)_2Hg$  reacts with activated\*  $Ln^0$  in THF with reagents ratio  $R_2Hg:Ln^0 = 1:4(5)$  to give dicyclopentadienyllanthanide compounds in 30–42% yield:



$Ln^0 = Sm, Eu, Yb. n = 2-4, m = 4-5.$

With a 1:1 reagent ratio the reaction leads to tricyclopentadienyllanthanides in 50–60% yield:

\*The metal had been activated previously with  $HgCl_2$  to give the amalgam.



$\text{Ln}^0 = \text{La, Sm, Eu, Tm, Yb}, n = 2-4$

## References

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