

### Exp 1. Lithium metal properties. Air-free technique.

IN THE GLOVE BOX:

Tear a piece about 5x5mm (10-20mg) of Lithium ribbon, and weight it in 10mL beaker. Label the beaker with your initials or names. Put beaker on a hot plate. Leave for a week in the glove box.

SECOND WEEK:

Weight, and carefully remove from the Glove box your sample in the beaker. Dissolve the content in about 100mL water in another 300mL or 400mL beaker. Titrate the solution with standardized HCl. Calculate moles of base produced. Calculate moles of Li used. Determine the ratio: moles of base vs moles of Li. Derive the molecular formula of the reaction product,  $\text{Li} + \text{N}_2 \rightarrow ?$

$\text{Li} + \text{N}_2 \rightarrow \text{product?}$

$\text{Product} + \text{H}_2\text{O} \rightarrow \text{LiOH} + \text{NH}_3$

$\text{LiOH} + \text{HCl} \rightarrow$

$\text{NH}_3 + \text{HCl} \rightarrow$

Balance above reactions. Draw the molecular formula of the product. Prove it with your calculations.