

Proposal:	TEST-2317	Council:	10/2012	
Title:	Lithium- graphite intercalate			
This proposal is a new proposal				
Research Area:				
Main proposer: WHITE John W.				
Experimental Team: WHITE John W.				
Local Contact: FABELO ROSA Oscar Ramon				
Samples: LiC6N2C6H12				
Instrument	Req. Days	All. Days	From	To
D1B	1	1	26/07/2013	27/07/2013
Abstract:				

*lithium- N,N,N',N'-tetramethyl-ethane-1,2-diamine intercalated
graphite LiC₆N₂C₆H₁₂*

In a recent paper we have reported the preparation of a new ternary graphite intercalation compound. (Henderson, M. J., Nishimura, T. and White, J.W. An X-ray diffraction study of oriented lithium- N,N,N',N'-tetramethyl-ethane-1,2-diamine intercalated graphite CARBON, June 2013 DOI information: 10.1016/j.carbon.2013.05.034)

A test experiment at the Australia Nuclear Science and technology Bragg Institute revealed clear correspondence in the diffraction with that done by x-rays but the low angle neutron data could not be accessed there. (Figure 1)

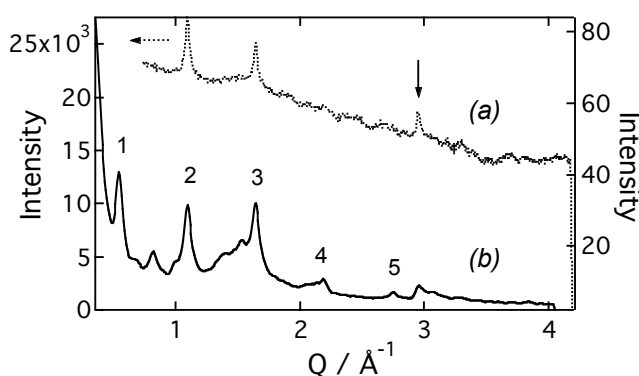


Figure 1. (a) Neutron diffraction displayed as I vs Q and (b) X-ray diffraction displayed as I vs Q of Li-tmeda-graphite powder prepared by refluxing C₆Li powder with tmeda for 5 hours. The (00ℓ) reflections of the 11.5 Å ternary compound are numbered and the $\sqrt{3}a_0$ distance of the unit cell of the lithium-tmeda-graphite ternary indicated by the solid arrow. $\lambda = 2.79$ Å (neutrons) and 1.54 Å (X-rays).

The D1B experiment on Sample #2 with Dr Sax Mason and Dr Oscar Fabelo showed the value of D1B for accessing low Q peaks but revealed that the sample had disproportionated to graphite (Figure2)

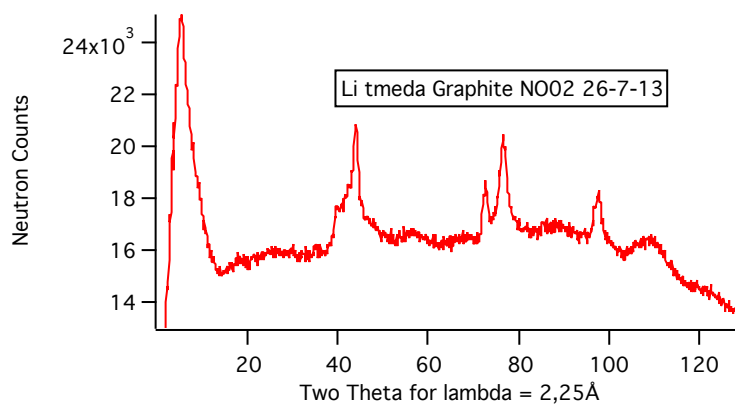


Figure 2 Diffraction pattern for sample ND02 on D1B 25-7-13

We thank Dr Fabelo and Dr Mason for their help.