SUPPORTING INFORMATION

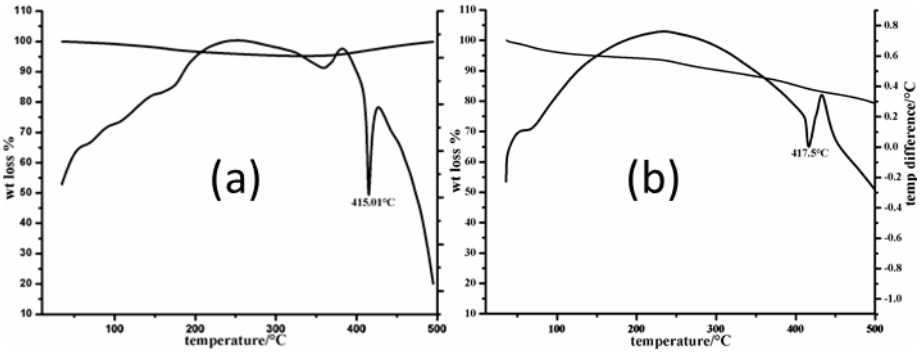

Figure S1: TG – DTA curves of (a) Zn-NPs (b) Zn – PVP – NPs.

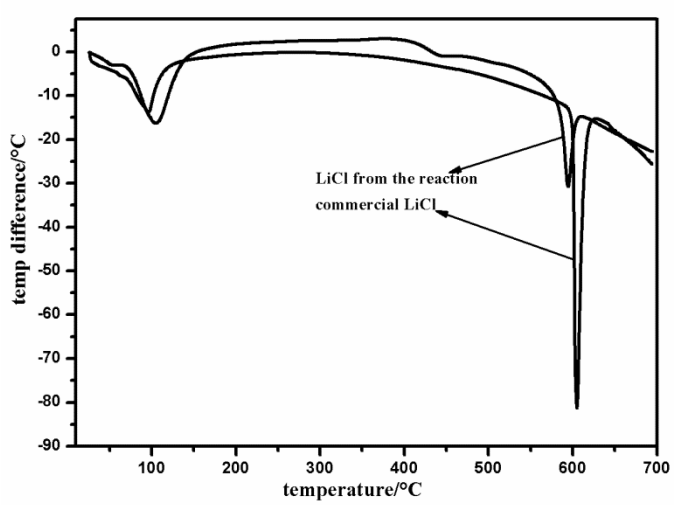

Figure S2: Differential thermal analysis (DTA) curve of LiCl formed in the reaction as a side product.

A slight loss (approximately 5%) followed a gain in weight was observed in TGA of uncoated Zn-NPs. This behavior probably due to loss of adsorbed solvent and further reaction of Zn – NPs with nitrogen.[14] The weight loss in the Zn – NPs/PVP sample was due to decomposition of PVP present in the sample.[11]

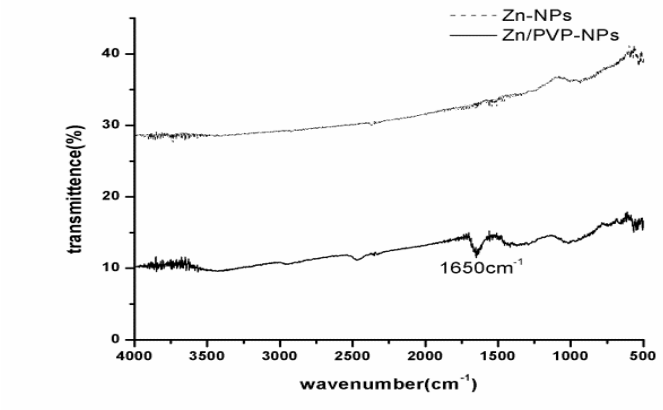

Figure S3: FT-IR spectrum of Zn-NPs and Zn/PVP-NPs

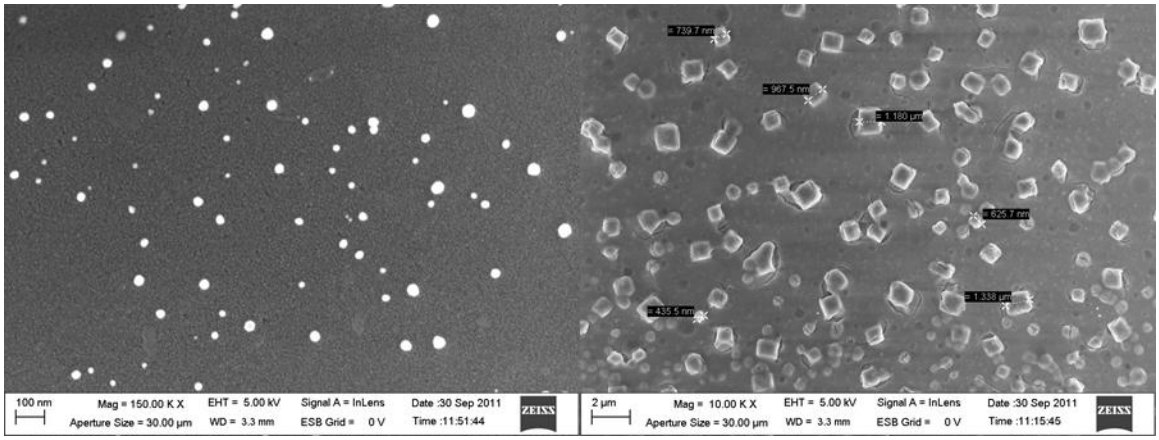

Figure S4: FESEM images of uncoated Zn – NPs immediately after the reaction (left side) and after few days of the reaction

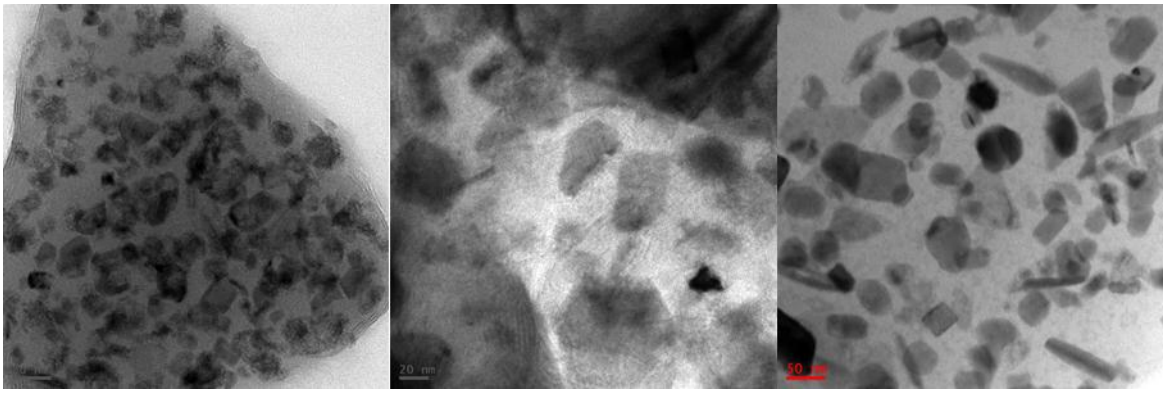

Figure S5: TEM images of Zn - NPs coated with polymer (PVP)

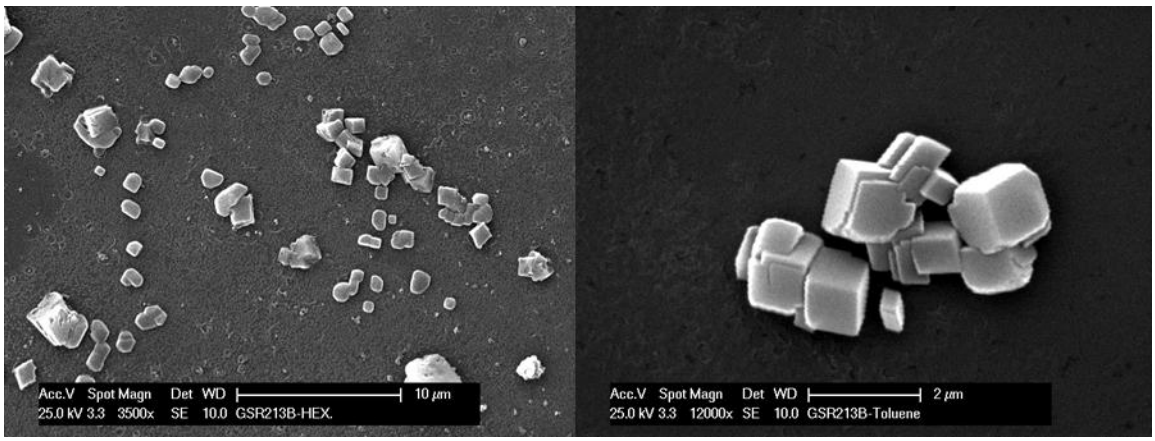

Figure S6: SEM image of Zn-NPs without polymer

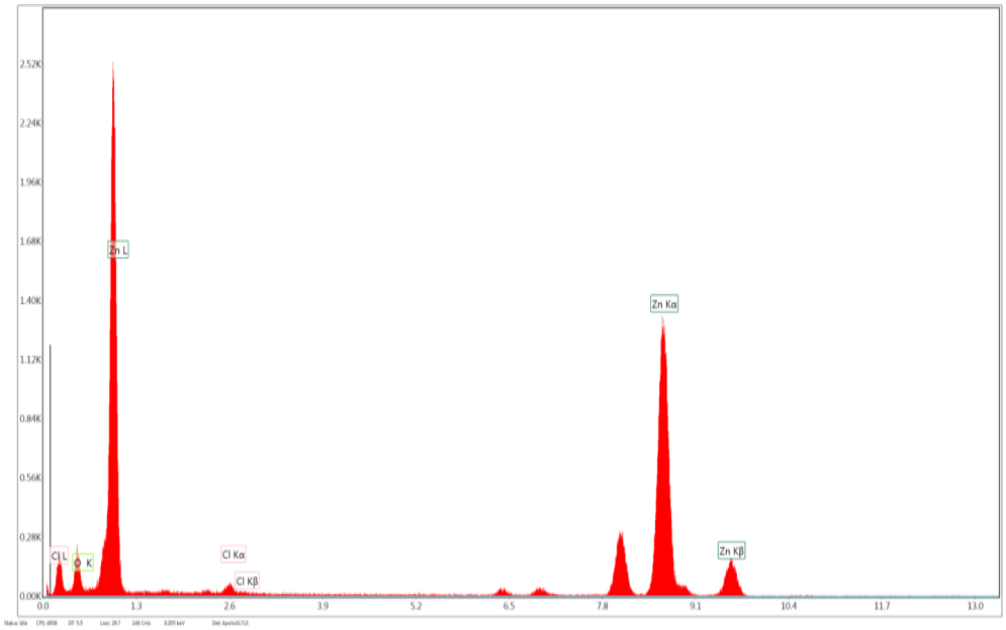

Figure S7: TEM-EDX spectrum of Zn-PVP-NPs.

A trace amount of chlorine observed in EDX spectra was due to the presence of trace quantities of unreacted $ZnCl_2$ and LiCl. Peaks corresponding to C and O seen in the spectra were probably from polymer.

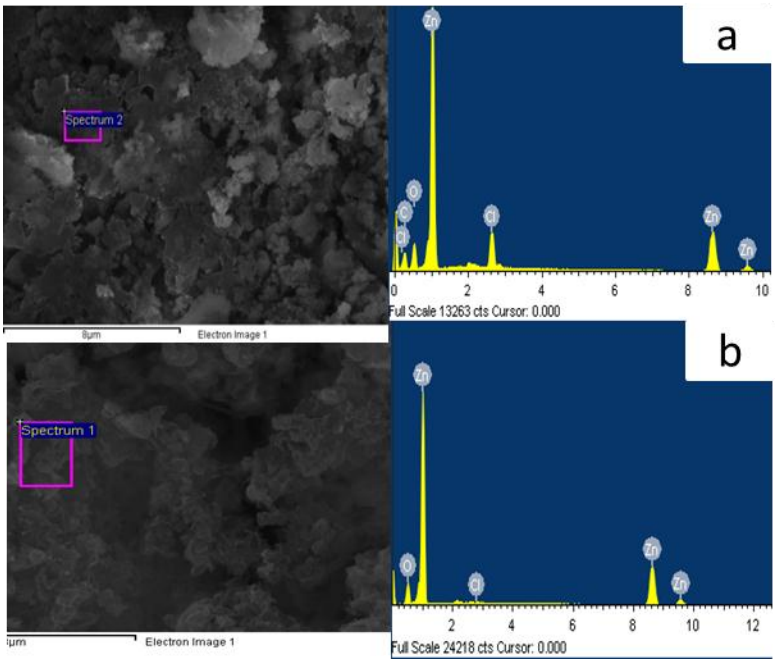

Figure S8: FESEM – EDX spectrum of (a) Zn-PVP – NPs (b) Zn – NPs without polymer.

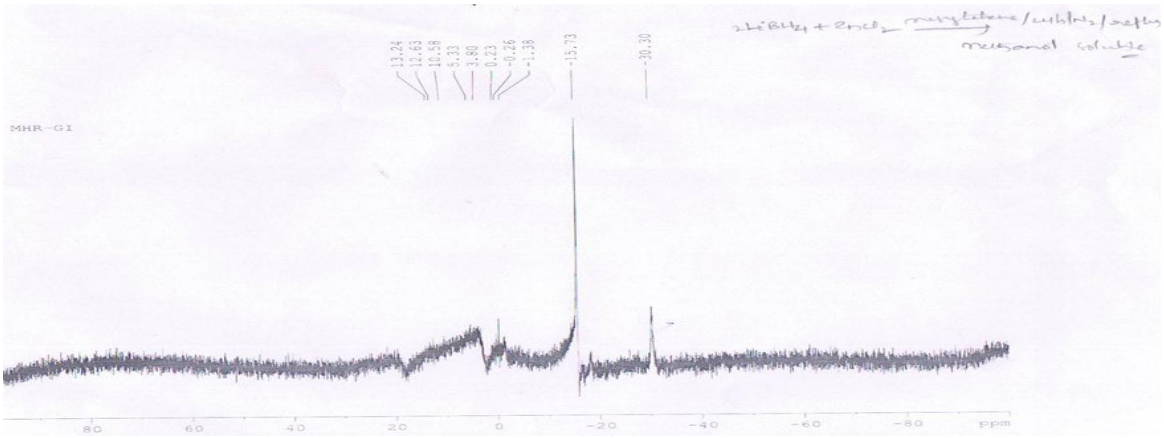

Figure S9: $^{11}B\{^{1}H\}$ – NMR of reaction mixture containing $(B_{12}H_{12})^{2-}$ and other boranes

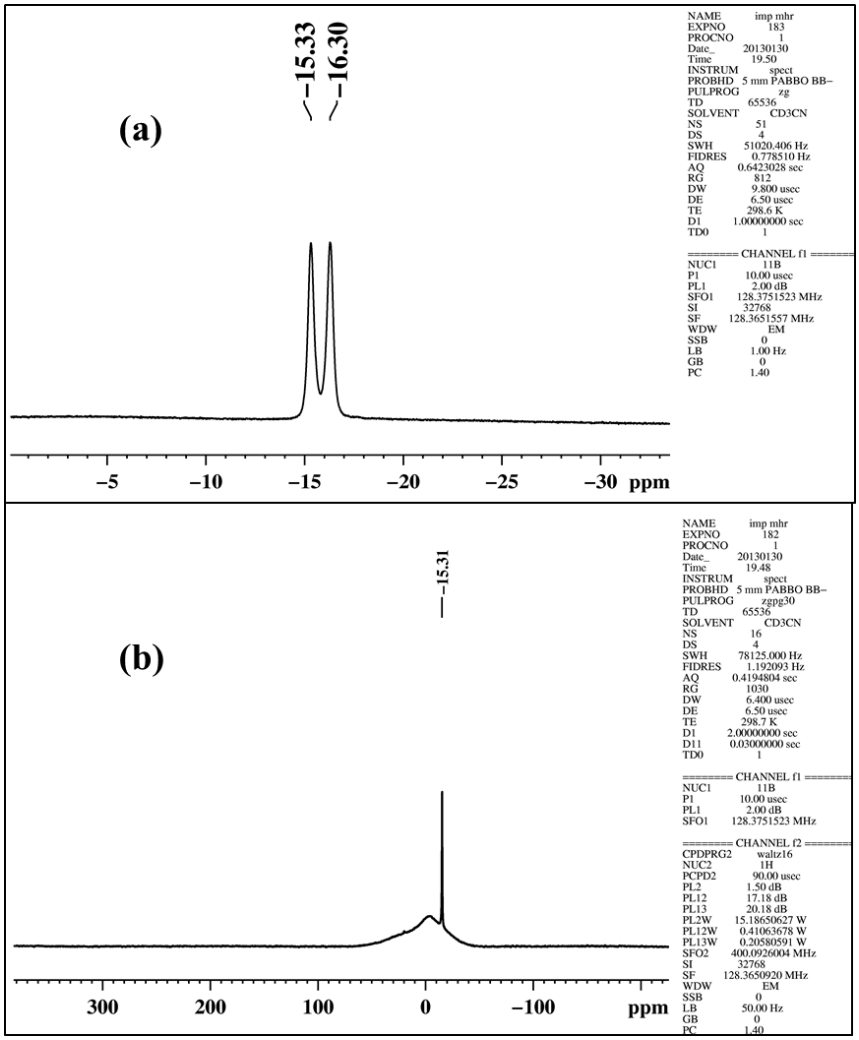

Figure S10: (a) ^{11}B and (b) $^{11}B\{^{1}H\}$ – NMR spectra of $(B_{12}H_{12})(HNEt_3)_2$.

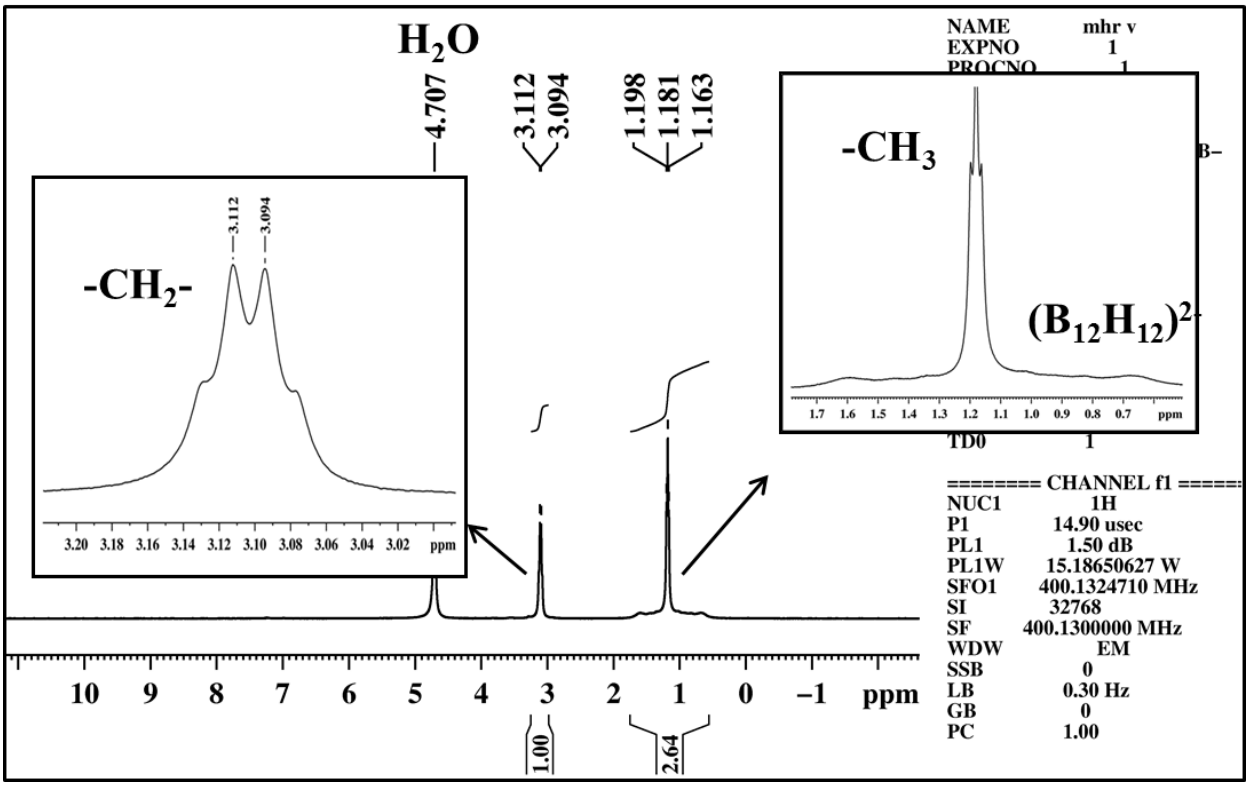

Figure S11: ^{1}H – NMR spectra of $(B_{12}H_{12})(HNEt_3)_2$.

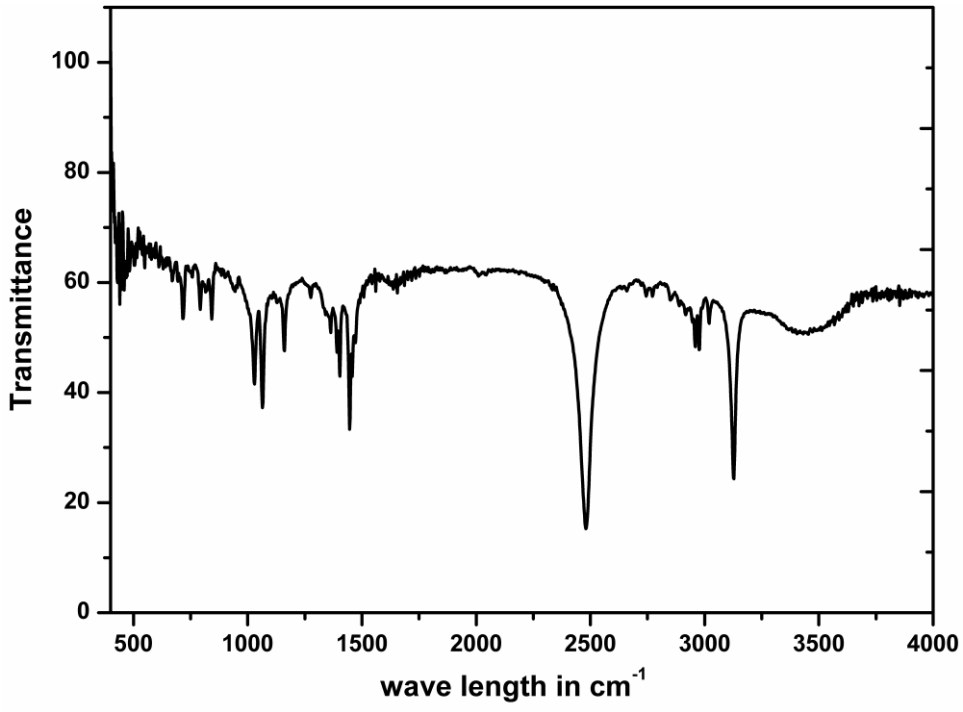

Figure S12: FT – IR spectrum of $(B_{12}H_{12})(HNEt_3)_2$

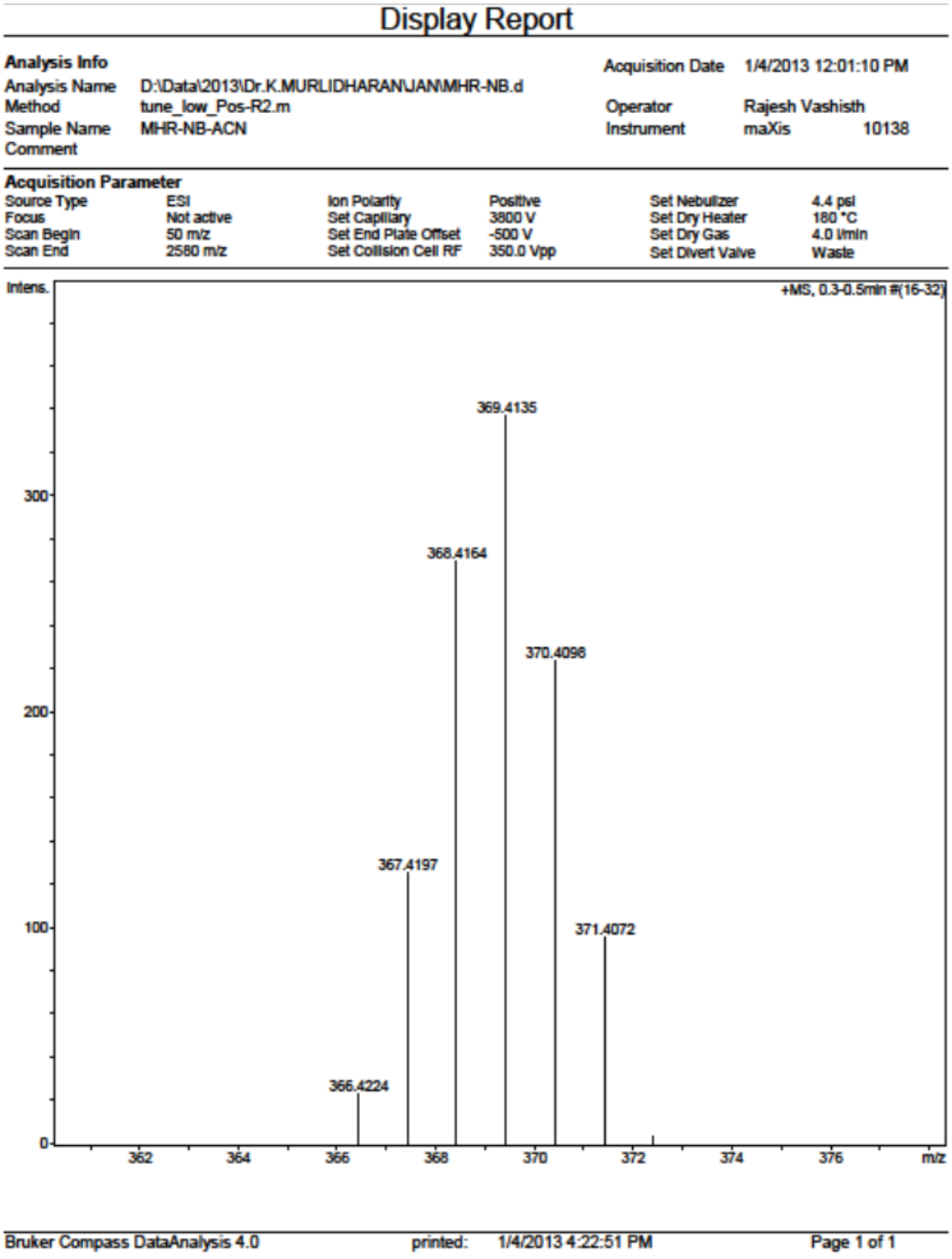

Figure S13: HR – MS spectra of $(B_{12}H_{12})$ $(HNEt_3)_2$

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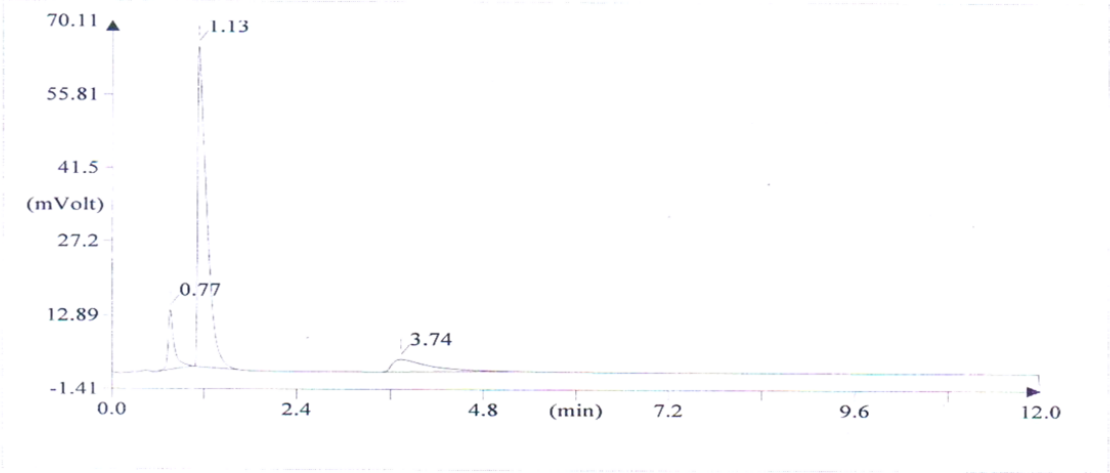
Method filename:	C:\Program Files\Thermo Finnigan\Eager 300 for EA1112\DATA\Sys_data_ex
Sample ID:	MHR-01 (# 12)
Analysis type:	UnkNown
Chromatogram filename:	UNK-22012013-12.dat
Sample weight:	1.315



Element Name	Element %	Ret. Time
Nitrogen	8. 16	0. 77
Carbon	41. 52	1. 13
Hydrogen	12. 76	3. 74

Figure S14: Elemental analysis of $(B_{12}H_{12})$ $(HNEt_3)_2$

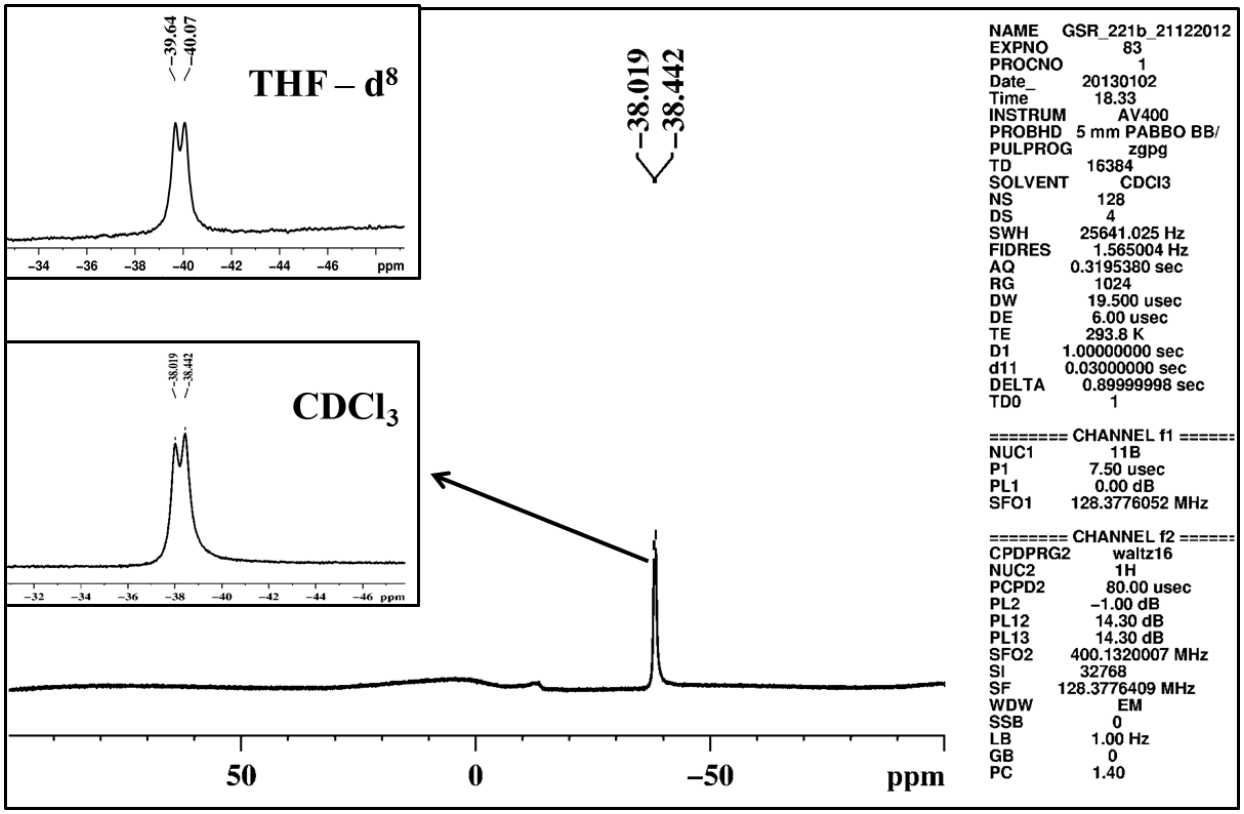


Figure S15: $^{11}B\{^{1}H\}$ - NMR of phosphine-borane (PPh_3:BH_3) adduct

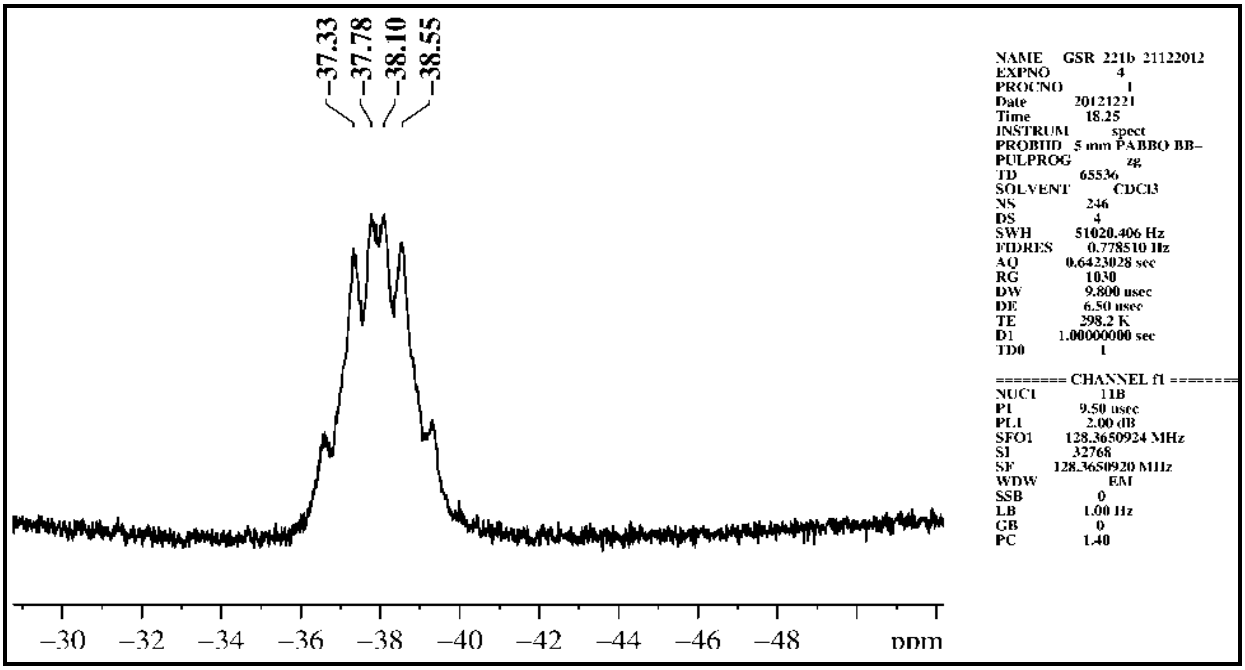


Figure S16: ^{11}B - NMR of phosphine-borane (PPh_3:BH_3) adduct

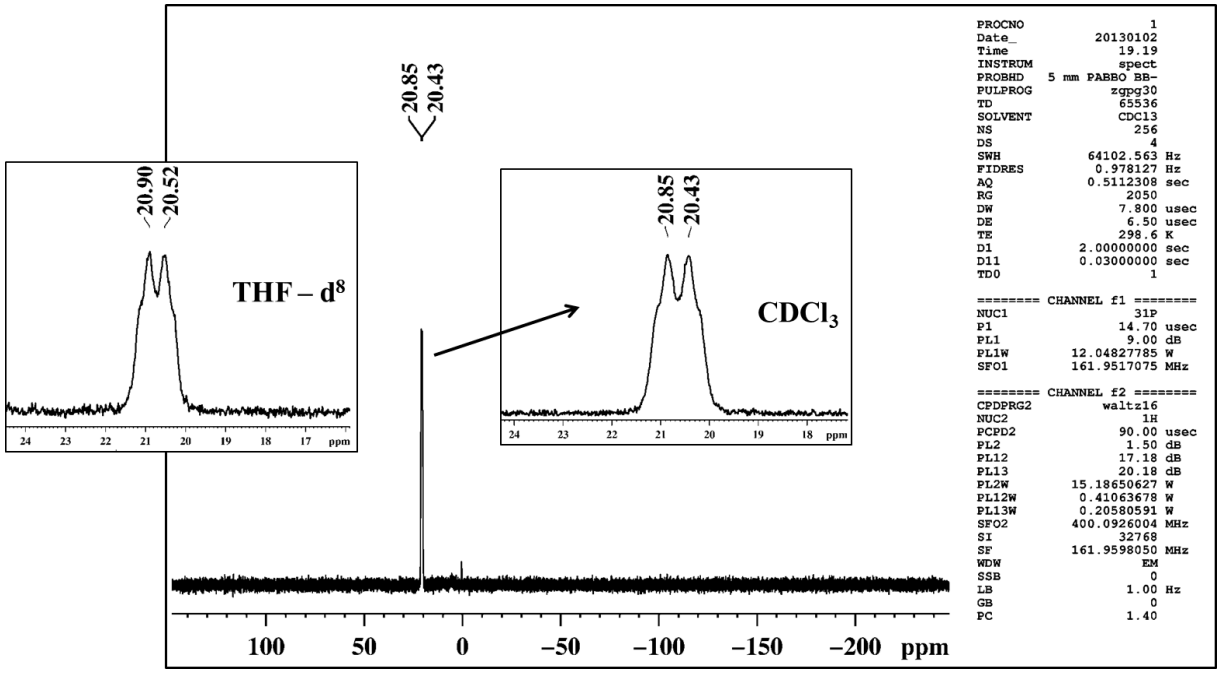


Figure S17: $^{31}P\{^{1}H\}$ - NMR spectrum of phosphine-borane (PPh_3:BH_3) adduct in $CDCl_3$ and THF-D8

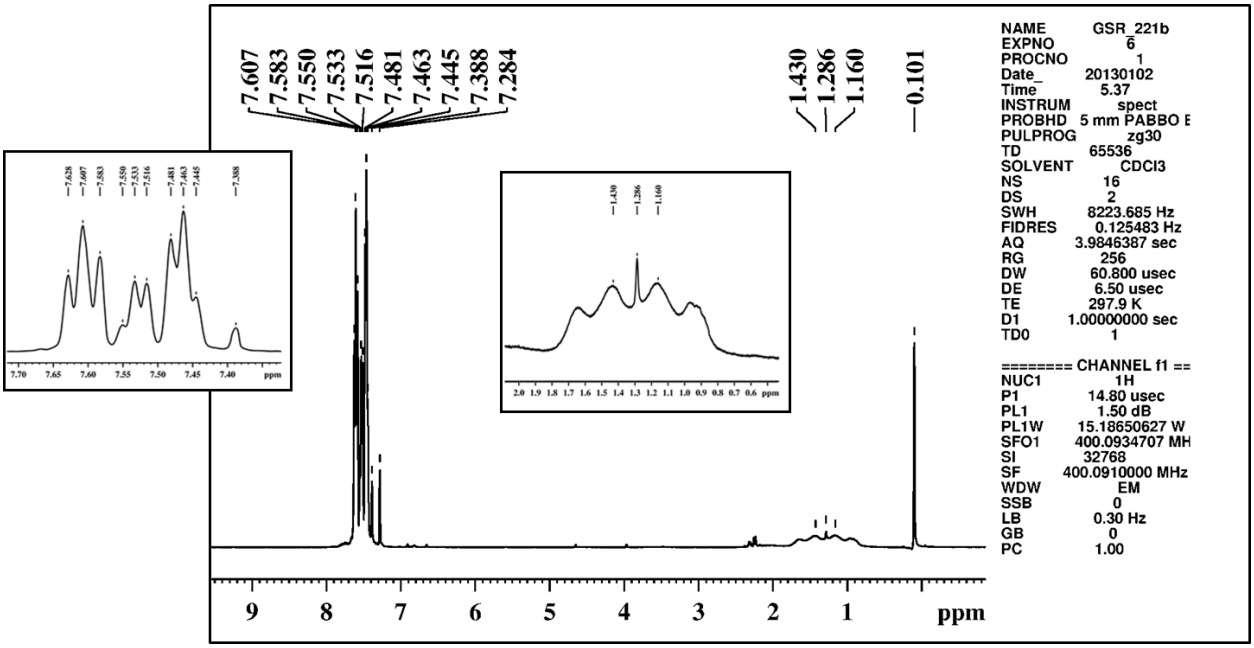


Figure S18: ^{1}H – NMR spectra of triphenylphosphine – borane (PPh_3:BH_3) adduct.

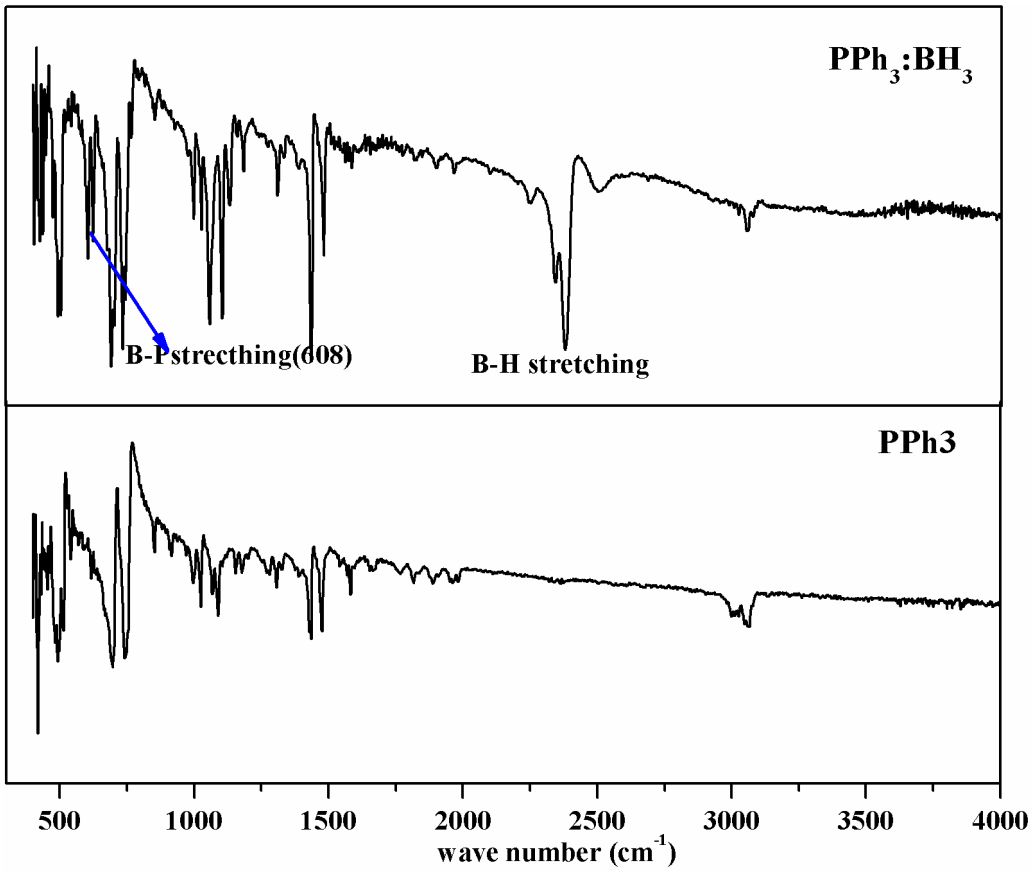


Figure S19: FT – IR spectrum of pure triphenylphosphine (PPh_3) and triphenylphosphine – borane (PPh_3:BH_3) adduct.

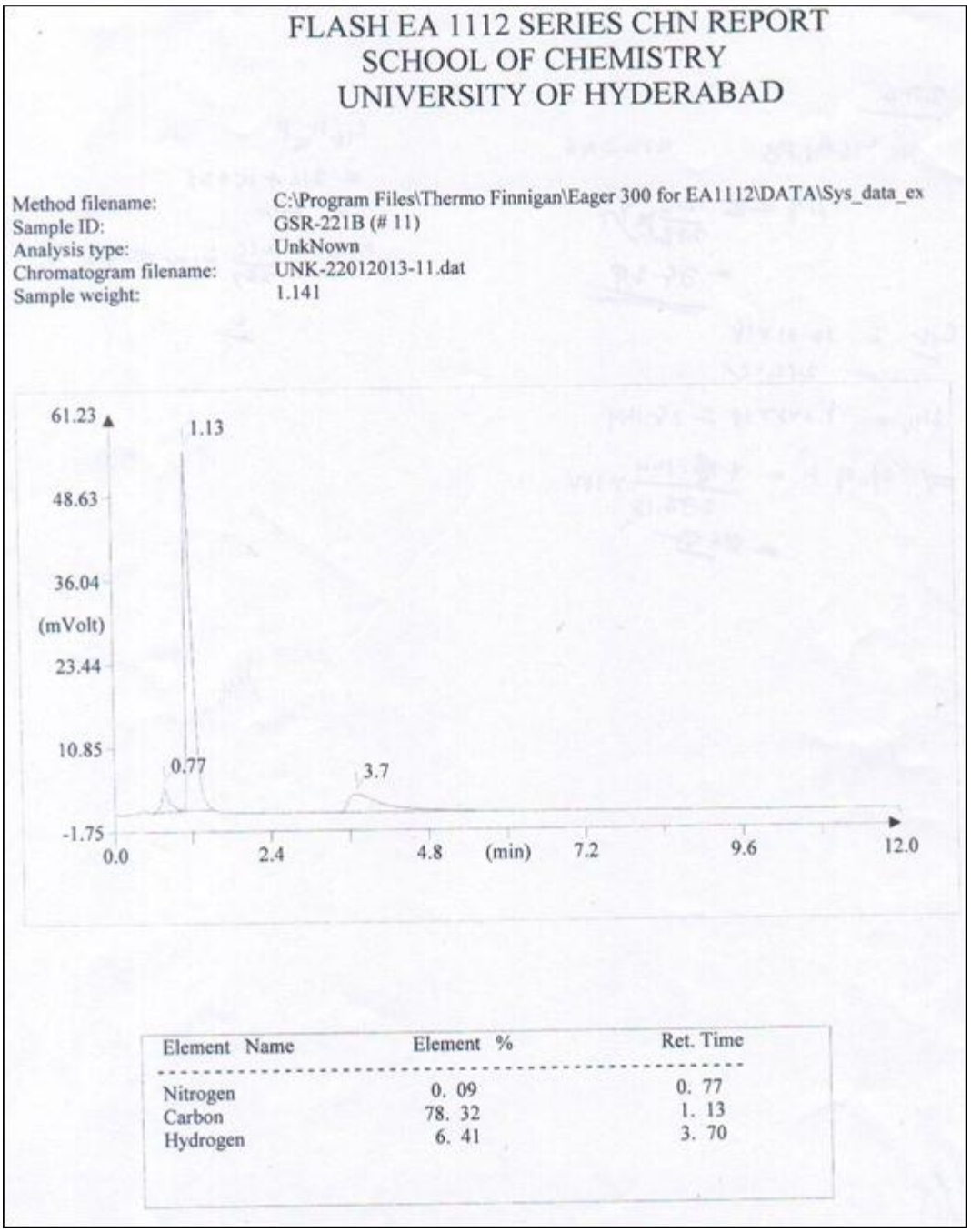


Figure S20: Elemental analysis of phosphine-borane (PPh_3:BH_3) adduct

Table 1: Crystal data and structural refinement details for the PPh_3:BH_3 crystal

Formula	$C_{18}H_{18}BP$
Formula weight	276.10
Space group	P-1
Crystal System	triclinic
a (Å)	9.685(4)
b (Å)	11.135(5)
c (Å)	15.110(7)
α (°)	89.311(7)
β (°)	80.685(7)
γ (°)	77.774(7)
V (Å)3	1571.2(12)
Z	4
D_{calcd} (g/cm3)	1.167
μ (mm^{-1})	0.162
Temp (K)	298(2)
F(000)	584
θ range (°)	1.37 to 25.02
No. of reflns	14165
Unique	5486 R_{int} = 0.0339
Goodness-of-fit on F2	1.025
Final R indices [I>2σ(I)]	R1 = 0.0795, wR2 = 0.2007
R indices (all data)	R1 = 0.0982, wR2 = 0.2179
Largest diff. peak / hole (e Å–3)	1.610/ -0.206