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Synthesis, Structure, and Reactivity of $\{\eta^3$-HB(3-Bu^{t}pz)$_3\}$BeCH$_3$, a Terminal Beryllium Alkyl Complex Supported by Tris(3-*tert*-butylpyrazolyl)hydroborato Ligation

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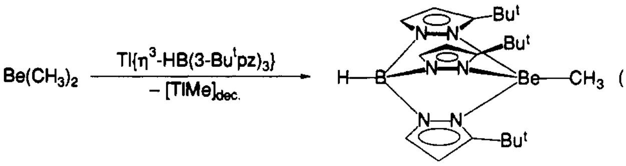
Introduction

We recently described the use of the sterically-demanding tris(3-*tert*-butylpyrazolyl)hydroborato ligand, [HB(3-Bu^{t}pz)$_3$]$^-$ (3-Bu^{t}pz = 3-C$_3$N$_2$Bu^{t}H$_2$)[1] to provide a well-defined coordination environment for stabilizing monomeric alkyl and hydride derivatives of the s- and p-block metals.[2-5] One such example is $\{\eta^3$-HB(3-Bu^{t}pz)$_3\}$BeH, the first terminal beryllium hydride complex to be structurally characterized by X-ray diffraction.[6] In this paper we report the synthesis, structure, and reactivity of the related beryllium methyl derivative, $\{\eta^3$-HB(3-Bu^{t}pz)$_3\}$BeCH$_3$.

Results

The [tris(pyrazolyl)hydroborato]beryllium methyl complex, $\{\eta^3$-HB(3-Bu^{t}pz)$_3\}$BeCH$_3$, is readily prepared by the reaction of Tl$\{\eta^3$-HB(3-Bu^{t}pz)$_3\}$ with Be(CH$_3$)$_2$ (eq 1). The molecular



(1)

structure of $\{\eta^3$-HB(3-Bu^{t}pz)$_3\}$BeCH$_3$ has been determined by X-ray diffraction, as shown in Figure 1. Selected bond lengths and angles are presented in Tables I and II, and atomic coordinates, in Table III. $\{\eta^3$-HB(3-Bu^{t}pz)$_3\}$BeCH$_3$ reacts (i) with H$_2$S to give $\{\eta^3$-HB(3-Bu^{t}pz)$_3\}$BeSH and CH$_4$ and (ii) with I$_2$ to give $\{\eta^3$-HB(3-Bu^{t}pz)$_3\}$BeI and CH$_3$I, as illustrated in Scheme I. However, $\{\eta^3$-HB(3-Bu^{t}pz)$_3\}$BeCH$_3$ does not react with CH$_3$I at 100 °C.

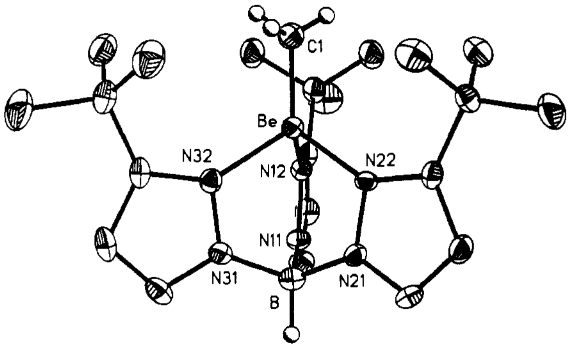


Figure 1. Molecular structure of $\{\eta^3$-HB(3-Bu^{t}pz)$_3\}$BeCH$_3$.

Table I. Selected Bond Lengths (Å)

Be–C(1)	1.708(6)	Be–N(12)	1.860(5)
Be–N(22)	1.855(6)	Be–N(32)	1.882(4)
N(11)–N(12)	1.382(6)	N(11)–B	1.526(7)
N(21)–N(22)	1.369(5)	N(21)–B	1.524(7)
N(31)–N(32)	1.360(6)	N(31)–B	1.529(7)

Table II. Selected Bond Angles (deg)

C(1)–Be–N(12)	120.1(4)	C(1)–Be–N(22)	120.3(3)
C(1)–Be–N(32)	118.8(2)	N(12)–Be–N(22)	96.8(2)
N(12)–Be–N(32)	98.2(2)	N(22)–Be–N(32)	97.7(3)
N(12)–N(11)–B	119.0(4)	Be–N(12)–N(11)	111.7(3)
N(22)–N(21)–B	120.4(4)	Be–N(22)–N(21)	110.9(3)
N(32)–N(31)–B	119.7(3)	Be–N(32)–N(31)	111.4(3)
N(11)–B–N(21)	108.1(4)	N(11)–B–N(31)	106.6(4)
N(21)–B–N(31)	107.8(4)		

Table III. Atom Coordinates (×10^4) and Temperature Factors (Å^2 × 10^3)

atom	*x*	*y*	*z*	*U*[a]
Be	1960	2386(4)	7510	41(2)
C(1)	62(6)	2130(3)	7742(5)	61(2)
N(11)	4633(5)	1912(2)	6561(4)	47(1)
N(12)	3101(5)	1608(2)	6596(4)	41(1)
N(21)	3909(5)	3473(2)	6472(4)	43(1)
N(22)	2303(4)	3367(2)	6480(4)	38(1)
N(31)	5021(4)	2764(2)	8754(4)	46(1)
N(32)	3572(5)	2602(2)	9118(4)	44(1)
C(11)	5429(6)	1324(3)	5951(5)	55(2)
C(12)	4451(7)	629(3)	5555(5)	62(2)
C(13)	2987(6)	815(3)	5949(4)	48(2)
C(14)	1512(7)	244(3)	5693(5)	60(2)
C(15)	1177(8)	–71(4)	7105(6)	89(3)
C(16)	1813(9)	–557(4)	4810(8)	111(3)
C(17)	88(7)	733(4)	4864(6)	81(2)
C(21)	4142(6)	4187(3)	5762(5)	54(2)
C(22)	2680(6)	4571(3)	5275(5)	55(2)
C(23)	1531(6)	4049(3)	5720(4)	45(2)
C(24)	–263(6)	4188(3)	5474(5)	50(2)
C(25)	–1167(7)	3401(4)	4740(6)	71(2)
C(26)	–766(7)	4385(4)	6899(6)	73(2)
C(27)	–714(7)	4964(4)	4481(6)	83(2)
C(31)	6148(6)	2860(3)	9920(5)	58(2)
C(32)	5481(7)	2763(3)	11064(5)	63(2)
C(33)	3836(7)	2611(3)	10555(5)	50(2)
C(34)	2520(7)	2495(3)	11417(5)	62(2)
C(35)	3274(9)	2589(5)	12993(6)	104(3)
C(36)	1269(8)	3199(4)	11046(6)	86(3)
C(37)	1821(8)	1583(4)	11208(6)	82(3)
B	5138(7)	2806(4)	7190(6)	52(2)

[a] Equivalent isotropic *U* defined as one-third of the trace of the orthogonalized U$_{ij}$ tensor.

Discussion

Our recent studies have described the synthesis of a series of tris(3-*tert*-butylpyrazolyl)hydroborato half-sandwich beryllium complexes $\{\eta^3$-HB(3-Bu^{t}pz)$_3\}$BeX (X = H, Cl, Br, I, SH),[6] which complements the cyclopentadienyl and pentamethylcyclopentadienyl series (C$_5$H$_5$)BeX (X = F, Cl, Br, I, H, R, BH$_4$)[7] and (C$_5$Me$_5$)BeX (X = H,[8] Cl,[9] PBu$^t_2$[10]). However, although the hydride derivative $\{\eta^3$-HB(3-Bu^{t}pz)$_3\}$BeH was readily obtained by the reaction of $\{\eta^3$-HB(3-Bu^{t}pz)$_3\}$BeX (X = Cl, Br) with LiAlH$_4$, we were unable to synthesize the corresponding methyl derivative $\{\eta^3$-HB(3-Bu^{t}pz)$_3\}$BeCH$_3$ by the related reaction with CH$_3$Li. Nevertheless, we have now found that the methyl derivative $\{\eta^3$-HB(3-Bu^{t}pz)$_3\}$BeCH$_3$ can be synthesized cleanly by the direct reaction of Be(CH$_3$)$_2$ with the thallium reagent Tl$\{\eta^3$-HB(3-Bu^{t}pz)$_3\}$ (eq 1). The reaction is similar to those used previously to prepare magnesium and zinc alkyl derivatives $\{\eta^3$-

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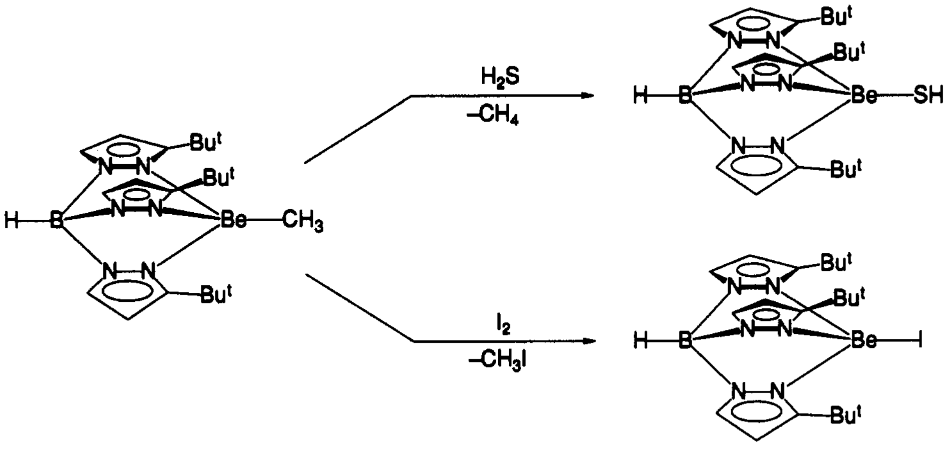
Scheme I



HB(3-Bu^{t}pz)$_3\}$MR, in which the deposition of Tl due to decomposition of unstable [TlR] provides an effective driving force for the reaction.[2-5,11]

The molecular structure of $\{\eta^3$-HB(3-Bu^{t}pz)$_3\}$BeCH$_3$ has been determined by X-ray diffraction (Figure 1), confirming both the monomeric nature of the complex and the η^3-coordination mode of the tris(pyrazolyl)hydroborato ligand. In this regard it is interesting to note that the beryllium derivatives $\{\eta^2$-B(pz)$_4\}_2$Be and $[\{\eta^2$-HB(pz)$_3\}$Be(μ-OH)]$_3$ were recently reported, but in these complexes the poly(pyrazolyl)borate ligands adopt only an η^2-coordination mode.[12] The trigonally distorted tetrahedral coordination environment about beryllium in $\{\eta^3$-HB(3-Bu^{t}pz)$_3\}$BeCH$_3$ is similar to those in the derivatives $\{\eta^3$-HB(3-Bu^{t}pz)$_3\}$BeH and $\{\eta^3$-HB(3-Bu^{t}pz)$_3\}$BeBr. However, the average Be–N bond length [1.86(2) Å] in $\{\eta^3$-HB(3-Bu^{t}pz)$_3\}$BeCH$_3$ is longer than those in both $\{\eta^3$-HB(3-Bu^{t}pz)$_3\}$BeH [1.778(4) Å] and $\{\eta^3$-HB(3-Bu^{t}pz)$_3\}$BeBr [1.80(2) Å] and is presumably a reflection of increased steric interactions between the Be-methyl group and the *tert*-butyl substituents of the tris(3-*tert*-butylpyrazolyl)hydroborato ligand. Indeed, the van der Waals radius of CH$_3$ (2.0 Å) is greater than those of Br (1.95 Å) and H (1.2 Å).[13]

The Be–CH$_3$ bond length in $\{\eta^3$-HB(3-Bu^{t}pz)$_3\}$BeCH$_3$ [1.708(6) Å] is similar to the sum of the covalent radii of Be and C (1.66 Å)[13] and also compares well with that of the cyclopentadienyl analogue (C$_5$H$_5$)BeCH$_3$ [1.706(3) Å] measured in the gas phase by electron diffraction.[14] However, the Be–C bond length in $\{\eta^3$-HB(3-Bu^{t}pz)$_3\}$BeCH$_3$ is substantially shorter than those in (i) "ate" derivatives such as Li$_2$Be(CH$_3$)$_4$ [1.84(10) Å][15] and (ii) bridging methyl derivatives such as solid [(CH$_3$)$_2$Be]$_n$ [1.93(2) Å].[16] For reference, a selection of Be–C bond lengths is presented in Table IV, indicating a relatively large range of Be–CH$_3$ bond lengths from 1.698(5) Å, in gaseous (CH$_3$)$_2$Be, to 1.93(2) Å, in solid [(CH$_3$)$_2$Be]$_n$.

The beryllium methyl group in $\{\eta^3$-HB(3-Bu^{t}pz)$_3\}$BeCH$_3$ has also been characterized by ^{1}H, ^{13}C, and ^{9}Be NMR spectroscopies, as summarized in Table V. Notably, the ^{1}H NMR resonance of the beryllium methyl group is observed as a relatively sharp singlet at δ 0.57 ppm (Figure 2), whereas the ^{13}C NMR resonance at δ 4.7 ppm is broadened considerably as a result of quadrupolar relaxation by the beryllium nucleus (Figure 3). The ^{9}Be NMR resonance of $\{\eta^3$-HB(3-Bu^{t}pz)$_3\}$BeCH$_3$ is observed at δ 5.2 ppm (relative to [Be(H$_2$O)$_4$]$^{2+}$), close to the range δ 1–4 ppm established previously for the four-coordinate beryllium complexes $\{\eta^3$-HB(3-Bu^{t}pz)$_3\}$BeX (X = H, Cl, Br, I, SH)[6] but substantially different from that for the cyclopentadienyl derivative (C$_5$H$_5$)BeCH$_3$ (δ –20.4 ppm).[17]

Table IV. Be–C Bond Lengths

compound	method[a]	d(Be–C), Å	ref
(CH$_3$)$_2$Be	ED	1.698(5)	*d*
Bu$^t_2$Be	ED	1.699(3)	*e*
(C$_5$H$_5$)BeCH$_3$	ED	1.706(3)[b]	*f*
$\{\eta^3$-HB(3-Bu^{t}pz)$_3\}$BeCH$_3$	XD	1.708(6)	this work
[(CH$_3$)Be(μ-OSiMe$_3$)]$_4$	XD	1.71(2)	*g*
[CH$_3$Be(μ-CCMe)(NMe$_3$)]$_2$	XD	1.748(7)[c]	*h*
[Na(OEt$_2$)][(CH$_2$CH$_3$)$_2$Be(μ-H)]$_2$	XD	1.766(8) 1.810(8)	*i*
(CH$_3$)$_2$Be(quinuclidine)$_2$	XD	1.81 1.85	*j*
Li$_2$Be(CH$_3$)$_4$	XD	1.84(10)	*k*
LiBeBu$^t_3$	XD	1.812(4) 1.854(4) 1.864(3)	*l*
[(CH$_3$)$_2$Be]$_n$	XD	1.93(2)	*m*

[a] ED = electron diffraction; XD = X-ray diffraction. [b] The Be–cyclopentadienyl bond lengths are 1.923(3) Å. [c] The Be(μ-CCMe)$_2$B bond lengths are 1.852(6) and 1.890(6) Å. [d] Almenningen, A.; Haaland, A.; Morgan, G. L. *Acta Chem. Scand.* **1969**, *23*, 2921–2922. [e] Almenningen, A.; Haaland, A.; Nilsson, J. E. *Acta Chem. Scand.* **1968**, *22*, 972–976. [f] Drew, D. A.; Haaland, A. *Acta Chem. Scand.* **1972**, *26*, 3079–3084. [g] Mootz, D.; Zinnius, A.; Böttcher, B. *Angew. Chem., Int. Ed. Engl.* **1969**, *8*, 378–379. [h] Morosin, B.; Howatson, J. *J. Organomet. Chem.* **1971**, *29*, 7–14. [i] Adamson, G. W.; Bell, N. A.; Shearer, H. M. M. *Acta Crystallogr.* **1981**, *B37*, 68–71. [j] Whitt, C. D.; Atwood, J. L. *J. Organomet. Chem.* **1971**, *32*, 17–25. [k] Weiss, E.; Wolfrum, R. *J. Organomet. Chem.* **1968**, *12*, 257–262. [l] Wermer, J. R.; Gaines, D. F.; Harris, H. A. *Organometallics* **1988**, *7*, 2421–2422. [m] Snow, A. I.; Rundle, R. E. *Acta Crystallogr.* **1951**, *4*, 348–352.

Table V. ^{1}H, ^{13}C, and ^{9}Be NMR Parameters for the Be–CH$_3$ Group in $\{\eta^3$-HB(3-Bu^{t}pz)$_3\}$BeCH$_3$

nucleus	δ	nucleus	δ	nucleus	δ
^{1}H	0.56	^{9}Be	5.2	^{13}C	4.7

The reactivity of the methyl complex $\{\eta^3$-HB(3-Bu^{t}pz)$_3\}$BeCH$_3$ toward H$_2$S and I$_2$ (Scheme I) is analogous to that of the hydride derivative $\{\eta^3$-HB(3-Bu^{t}pz)$_3\}$BeH.[6] Thus, the Be–C bond is cleaved by H$_2$S to give the thiol derivative $\{\eta^3$-HB(3-Bu^{t}pz)$_3\}$BeSH and CH$_4$, while I$_2$ cleaves the Be–CH$_3$ bond giving $\{\eta^3$-HB(3-Bu^{t}pz)$_3\}$BeI and CH$_3$I. However, whereas the hydride derivative $\{\eta^3$-HB(3-Bu^{t}pz)$_3\}$BeH reacts with CH$_3$I at room temperature, to give $\{\eta^3$-HB(3-Bu^{t}pz)$_3\}$BeI, the methyl derivative $\{\eta^3$-HB(3-Bu^{t}pz)$_3\}$BeCH$_3$ does not react with CH$_3$I at 100°C and is stable under these conditions.

Experimental Section

General Considerations. All manipulations were performed using a combination of glovebox, high-vacuum, and Schlenk techniques.[18]

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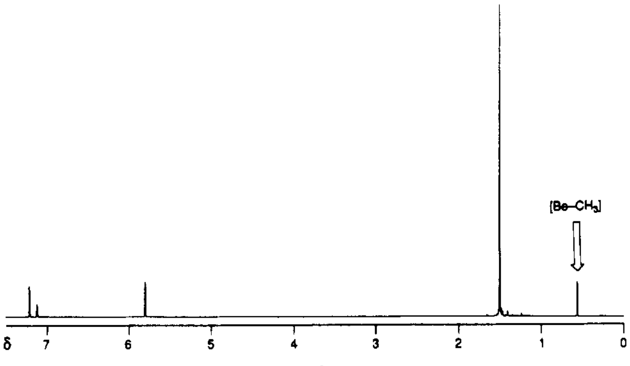

Figure 2. ^{1}H NMR spectrum of {η^3-HB(3-Bu^{t}pz)$_3$}BeCH$_3$ in C$_6$D$_6$ (δ 7.15).

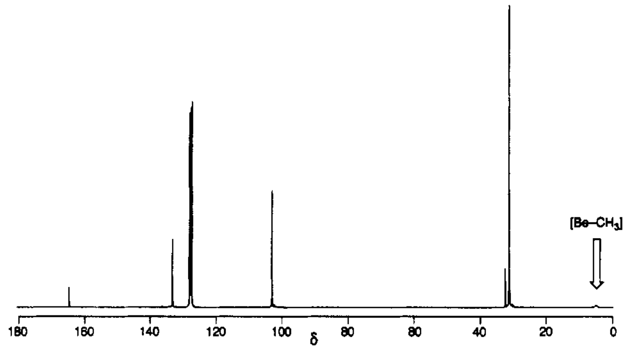

Figure 3. ^{13}C{^{1}H} NMR spectrum of {η^3-HB(3-Bu^{t}pz)$_3$}BeCH$_3$ in C$_6$D$_6$ (δ 128).

Solvents were purified and degassed by standard procedures. ^{1}H and ^{13}C NMR spectra were obtained on Varian VXR 200, 300, and 400 spectrometers, and ^{9}Be NMR spectra, on a Varian VXR 300 spectrometer at 42.16 MHz. All J values are reported in hertz. IR spectra were recorded as Nujol mulls between KBr disks on a Perkin-Elmer 1420 spectrophotometer and are reported in cm^{-1}. Mass spectra were obtained on a Nermag R10-10 mass spectrometer using chemical ionization (NH$_3$ or CH$_4$) techniques. Elemental analyses were obtained by using a Perkin-Elmer 2400 CHN elemental analyzer. Be(CH$_3$)$_2$[19] and Tl{η^3-HB(3-Bu^{t}pz)$_3$}[1] were prepared by the literature methods. ***Caution:*** Beryllium and thallium complexes are extremely toxic and should be handled with due care.

Synthesis of {η^3-HB(3-Bu^{t}pz)$_3$}BeCH$_3$. Be(CH$_3$)$_2$ (40 mg, 1.0 mmol) was added to a solution of Tl{η^3-HB(3-Bu^{t}pz)$_3$} (580 mg, 1.0 mmol) in benzene (*ca.* 40 mL), resulting in the immediate formation of a black deposit of Tl metal. The mixture was filtered after 20 min at room temperature and the solvent removed under reduced pressure, giving {η^3-HB(3-Bu^{t}pz)$_3$}BeCH$_3$ as a white solid (350 mg, 85%). Anal. Calcd for {η^3-HB(3-Bu^{t}pz)$_3$}BeCH$_3$: C, 65.2; H, 9.2; N, 20.7. Found: C, 64.6; H, 9.3; N, 20.1. IR data: 2524 (ν_{B-H}). MS: *m/z* 406 (M$^+$ + 1). ^{1}H NMR (C$_6$D$_6$): δ 1.51 [27H, s, {η^3-HB{C$_3$N$_2$H$_2$C(CH_3)$_3$}$_3$], 5.82 [3H, d, $^3J_{H-H}$ = 2.2, η^3-HB{C$_3$N$_2$$H_2$C(CH$_3$)$_3$}], 7.24 [3H, d, $^3J_{H-H}$ = 2.2, η^3-HB{C$_3$N$_2$$H_2$C(CH$_3$)$_3$}$_3$], 0.57 [3H, s, BeC$H_3$]. ^{13}C NMR (C$_6D_6$): δ 31.2 [q, $^1J_{C-H}$ = 126, spt (partial res), $^3J_{C-H}$ = 4, η^3-HB{C$_3$N$_2$H$_2$C(CH$_3$)$_3$}$_3$], 32.4 [dct (partial res), $^2J_{C-H}$ = 4, η^3-HB{C$_3$N$_2$H$_2$$C$(CH$_3$)$_3$}$_3$], 103.3 [d, $^1J_{C-H}$ = 176, d, $^2J_{C-H}$ = 9, η^3-HB{C_3N$_2$H$_2$C(CH$_3$)$_3$}$_3$], 133.6 [d, $^1J_{C-H}$ = 185, d, $^2J_{C-H}$ = 7, η^3-HB{C_3N$_2$H$_2$C(CH$_3$)$_3$}$_3$], 165.1 [s, η^3-HB{C_3N$_2$H$_2$C(CH$_3$)$_3$}$_3$], 4.7 [q, $^1J_{C-H}$ = 112, BeCH$_3$]. ^{9}Be NMR (C$_6$D$_6$; relative to [Be(H$_2$O)$_4$]$^{2+}$ in aqueous Be(NO$_3$)$_2$): δ 5.2 ($W_{1/2}$ = 64 Hz).

Reaction of {η^3-HB(3-Bu^{t}pz)$_3$}BeCH$_3$ with H$_2$S. A solution of {η^3-HB(3-Bu^{t}pz)$_3$}BeCH$_3$ (20 mg, 0.05 mmol) in benzene-d_6 (0.7 mL) in a 5-mm NMR tube was treated with H$_2$S (1 atm), and the mixture was heated at 70°C for 3 days. The reaction was monitored by ^{1}H NMR spectroscopy, which demonstrated the complete formation of {η^3-HB(3-Bu^{t}pz)$_3$}BeSH[6] and CH$_4$.

Reaction of {η^3-HB(3-Bu^{t}pz)$_3$}BeCH$_3$ with I$_2$. A solution of {η^3-HB(3-Bu^{t}pz)$_3$}BeCH$_3$ (20 mg, 0.05 mmol) in benzene-d_6 (0.7 mL) in a 5-mm NMR tube was treated with I$_2$ (15 mg, 0.06 mmol) at room temperature. The reaction was monitored by ^{1}H NMR spectroscopy, which demonstrated the immediate formation of {η^3-HB(3-Bu^{t}pz)$_3$}BeI[6] and CH$_3$I.

Table VI. Crystal and Intensity Collection Data

formula	C$_{22}$H$_{37}$N$_6$BBe	Z	2
fw	405.4	radiation ((λ, Å)	Mo Kα (0.710 73)
lattice	monoclinic	space group	Pn (No. 7)
a, Å	8.453(4)	ρ(calcd), g cm^{-3}	1.10
b, Å	15.335(5)	μ(Mo Kα), cm^{-1}	0.7
c, Å	9.626(3)	goodness of fit	1.112
β, deg	101.21(3)	R	0.0518
V, Å^3	1224(1)	R_w[a]	0.0505

[a] Weighting scheme: w = [$\sigma^2(F) + gF^2$]$^{-1}$.

Attempted Reaction of {η^3-HB(3-Bu^{t}pz)$_3$}BeCH$_3$ with CH$_3$I. A solution of {η^3-HB(3-Bu^{t}pz)$_3$}BeCH$_3$ (20 mg, 0.05 mmol) in benzene-d_6 (0.7 mL) in a 5-mm NMR tube was treated with CH$_3$I (4 μL, 0.06 mmol), and the mixture was heated at 100°C for 2 days. The sample was monitored by ^{1}H NMR spectroscopy, which demonstrated that no reaction had occurred.

X-ray Structure Determination of {η^3-HB(3-Bu^{t}pz)$_3$}BeCH$_3$. Crystal data and data collection and refinement parameters are summarized in Table VI. A single crystal of {η^3-HB(3-Bu^{t}pz)$_3$}BeCH$_3$ grown from benzene was mounted in a glass capillary and placed on a Nicolet R3m diffractometer. The unit cell was determined by the automatic indexing of 25 centered reflections and confirmed by examination of the axial photographs. Intensity data were collected using graphite-monochromated Mo Kα X-radiation (λ = 0.710 73 Å). Check reflections were measured every 100 reflections, and the data were scaled accordingly and corrected for Lorentz and polarization effects. The structure was solved using preliminary coordinates for the [{η^3-HB(3-Bu^{t}pz)$_3$}Be] moiety derived for the isomorphous {η^3-HB(3-Bu^{t}pz)$_3$}BeBr derivative, followed by standard difference map techniques on a Data General NOVA 4 computer using SHELXTL.[20] Systematic absences were consistent with the space groups Pn and $P2/n$, but consideration of the E value statistics and the molecular symmetry suggested the choice Pn (No. 7). All non-hydrogen atoms were refined anisotropically. Most of the hydrogen atoms were located in the difference map after all the non-hydrogen atoms were located. However, only the hydrogen atoms of the Be–CH$_3$ and B–H groups were freely refined isotropically, while other hydrogen atoms were refined in calculated positions (d_{C-H} = 0.96 Å; U_{iso}(H) = 1.2U_{iso}(C)). Block-diagonal least-squares refinement converged to R = 0.0518 (R_w = 0.0505). Inversion of configuration indicated the correct choice of enantiomorph. Atomic coordinates and thermal parameters for non-hydrogen atoms are listed in Table III, and selected bond distances and angles are listed in Tables I and II.

Conclusion

In summary, the terminal beryllium methyl complex {η^3-HB(3-Bu^{t}pz)$_3$}BeCH$_3$ has been synthesized by the reaction of Tl{η^3-HB(3-Bu^{t}pz)$_3$} with Be(CH$_3$)$_2$. The molecular structure of {η^3-HB(3-Bu^{t}pz)$_3$}BeCH$_3$ has been determined by X-ray diffraction, from which a value of 1.708(6) Å was obtained for the Be–CH$_3$ bond length. The complex {η^3-HB(3-Bu^{t}pz)$_3$}BeCH$_3$ is also characterized by a ^{9}Be NMR resonance at δ 5.2 ppm (relative to [Be(H$_2$O)$_4$]$^{2+}$). The reactions of {η^3-HB(3-Bu^{t}pz)$_3$}BeCH$_3$ with H$_2$S and I$_2$, giving {η^3-HB(3-Bu^{t}pz)$_3$}BeSH and {η^3-HB(3-Bu^{t}pz)$_3$}BeI, respectively, are similar to those of the hydride derivative {η^3-HB(3-Bu^{t}pz)$_3$}BeH, whereas the absence of reaction with CH$_3$I indicates that the hydride derivative is substantially more reactive.

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Supplementary Material Available: Tables SI–SVI, listing crystal and intensity collection data, atomic coordinates, bond distances and angles, and anisotropic displacement parameters for {η^3-HB(3-Bu^{t}pz)$_3$}BeCH$_3$ (7 pages). Ordering information is given on any current masthead page.

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