

**Table S1.** Crystallographic Experimental Details for  
 $[\text{Sm}\{\text{C}(\text{Ph}_2\text{P}=\text{NSiMe}_3)_2-\kappa^3\text{C},\text{N},\text{N}'\}(\text{NCy}_2)(\text{THF})]\cdot 0.5\text{PhMe}$

*A. Crystal Data*

formula	$\text{C}_{50.5}\text{H}_{72}\text{N}_3\text{OP}_2\text{Si}_2\text{Sm}$
formula weight	1005.58
crystal dimensions (mm)	$0.30 \times 0.23 \times 0.20$
crystal system	triclinic
space group	$P\bar{1}$ (No. 2)
unit cell parameters <sup>a</sup>	
<i>a</i> (Å)	10.7169 (6)
<i>b</i> (Å)	11.3464 (6)
<i>c</i> (Å)	21.6988 (12)
α (deg)	81.0950 (10)
β (deg)	82.1520 (10)
γ (deg)	84.7740 (10)
<i>V</i> (Å <sup>3</sup> )	2575.7 (2)
<i>Z</i>	2
$\rho_{\text{calcd}}$ (g cm <sup>-3</sup> )	1.297
$\mu$ (mm <sup>-1</sup> )	1.286

*B. Data Collection and Refinement Conditions*

diffractometer	Bruker P4/RA/SMART 1000 CCD <sup>b</sup>
radiation ( $\lambda$ [Å])	graphite-monochromated Mo K $\alpha$ (0.71073)
temperature (°C)	-80
scan type	$\phi$ rotations (0.3°) / $\omega$ scans (0.3°) (20 s exposures)
data collection $2\theta$ limit (deg)	51.48

(continued)

**Table S1.** Crystallographic Experimental Details for

[Sm{C(Ph<sub>2</sub>P=NSiMe<sub>3</sub>)<sub>2</sub>-κ<sup>3</sup>C,N,N'}(NCy<sub>2</sub>)(THF)]•0.5PhMe (continued)

total data collected	16418 (-12 ≤ <i>h</i> ≤ 13, -12 ≤ <i>k</i> ≤ 13, -26 ≤ <i>l</i> ≤ 26)
independent reflections	9731
number of observations ( <i>NO</i> )	8085 [ $F_o^2 \geq 2\sigma(F_o^2)$ ]
structure solution method	direct methods/fragment search ( <i>DIRDIF-96</i> <sup>c</sup> )
refinement method	full-matrix least-squares on $F^2$ ( <i>SHELXL-93</i> <sup>d</sup> )
absorption correction method	Gaussian integration (face-indexed)
range of transmission factors	0.7918–0.6991
data/restraints/parameters	9731 [ $F_o^2 \geq -3\sigma(F_o^2)$ ] / 16 <sup>e</sup> / 539
goodness-of-fit ( <i>S</i> ) <sup>f</sup>	1.007 [ $F_o^2 \geq -3\sigma(F_o^2)$ ]
final <i>R</i> indices <sup>g</sup>	
<i>R</i> <sub>1</sub> [ $F_o^2 \geq 2\sigma(F_o^2)$ ]	0.0457
<i>wR</i> <sub>2</sub> [ $F_o^2 \geq -3\sigma(F_o^2)$ ]	0.1220
largest difference peak and hole	1.671 and -1.988 e Å <sup>-3</sup>

<sup>a</sup>Obtained from least-squares refinement of 8192 centered reflections.

<sup>b</sup>Programs for diffractometer operation, data collection, data reduction and absorption correction were those supplied by Bruker.

<sup>c</sup>Beurskens, P. T.; Beurskens, G.; Bosman, W. P.; de Gelder, R.; Garcia Granda, S.; Gould, R. O.; Israel, R.; Smits, J. M. M. (1996). The *DIRDIF-96* program system. Crystallography Laboratory, University of Nijmegen, The Netherlands.

(continued)

**Table S1.** Crystallographic Experimental Details for[Sm{C(Ph<sub>2</sub>P=NSiMe<sub>3</sub>)<sub>2</sub>-κ<sup>3</sup>C,N,N'}(NCy<sub>2</sub>)(THF)]•0.5PhMe (continued)

<sup>d</sup>Sheldrick, G. M. *SHELXL-93*. Program for crystal structure determination. University of Göttingen, Germany, 1993. Refinement on  $F_o^2$  for all reflections (all of these having  $F_o^2 \geq -3\sigma(F_o^2)$ ). Weighted  $R$ -factors  $wR_2$  and all goodnesses of fit  $S$  are based on  $F_o^2$ ; conventional  $R$ -factors  $R_1$  are based on  $F_o$ , with  $F_o$  set to zero for negative  $F_o^2$ . The observed criterion of  $F_o^2 > 2\sigma(F_o^2)$  is used only for calculating  $R_1$ , and is not relevant to the choice of reflections for refinement.  $R$ -factors based on  $F_o^2$  are statistically about twice as large as those based on  $F_o$ , and  $R$ -factors based on ALL data will be even larger.

<sup>e</sup>Restraints were applied to impose an idealized geometry upon the inversion-disordered solvent toluene molecule:  $d(C90-C91) = d(C91-C92) = d(C91-C92') = d(C92-C93) = d(C93-C90') = d(C90'-C94) = d(C94-C92') = 1.42 \text{ \AA}$ ;  $d(C90 \cdots C92) = d(C90 \cdots C92') = d(C91 \cdots C93) = d(C91 \cdots C94) = d(C92 \cdots C92') = d(C93 \cdots C94) = 2.46 \text{ \AA}$ ;  $d(C91 \cdots C90') = d(C92 \cdots C94) = d(C93 \cdots C92') = 2.84 \text{ \AA}$  (primed atoms are related to unprimed ones via the crystallographic inversion center (0, 0, 0)).

$fS = [\sum w(F_o^2 - F_c^2)^2 / (n - p)]^{1/2}$  ( $n$  = number of data;  $p$  = number of parameters varied;  $w = [\sigma^2(F_o^2) + (0.0758P)^2]^{-1}$  where  $P = [\text{Max}(F_o^2, 0) + 2F_c^2]/3$ ).

$gR_1 = \sum |F_o| - |F_c| / \sum |F_o|$ ;  $wR_2 = [\sum w(F_o^2 - F_c^2)^2 / \sum w(F_o^4)]^{1/2}$ .

**Table S2.** Atomic Coordinates and Equivalent Isotropic Displacement Parameters for  
 $[\text{Sm}\{\text{C}(\text{Ph}_2\text{P}=\text{NSiMe}_3)_2-\kappa^3\text{C},\text{N},\text{N}'\}(\text{NCy}_2)(\text{THF})]\cdot 0.5\text{PhMe}$

(a) atoms of  $[\text{Sm}\{\text{C}(\text{Ph}_2\text{P}=\text{NSiMe}_3)_2-\kappa^3\text{C},\text{N},\text{N}'\}(\text{NCy}_2)(\text{THF})]\cdot 0.5\text{PhMe}$

Atom	x	y	z	$U_{\text{eq}}, \text{\AA}^2$
Sm	0.13339(2)	0.414878(18)	0.276022(10)	0.02440(9)*
P(1)	0.33851(10)	0.21990(9)	0.29835(5)	0.0231(2)*
P(2)	0.36153(10)	0.40845(9)	0.17742(5)	0.0250(2)*
Si(1)	0.12375(12)	0.16045(11)	0.40617(6)	0.0325(3)*
Si(2)	0.15505(12)	0.56011(12)	0.10748(6)	0.0322(3)*
O	-0.0615(3)	0.3314(3)	0.25703(18)	0.0432(9)*
N(1)	0.1958(3)	0.2267(3)	0.33571(17)	0.0271(8)*
N(2)	0.2206(4)	0.4657(3)	0.16568(18)	0.0317(8)*
N(3)	0.0959(3)	0.5658(3)	0.33127(18)	0.0315(9)*
C(1)	0.3592(4)	0.3515(3)	0.2530(2)	0.0241(9)*
C(2)	-0.0345(5)	0.2420(6)	0.4204(3)	0.0513(14)*
C(3)	0.2078(5)	0.1696(6)	0.4751(2)	0.0520(14)*
C(4)	0.1012(7)	-0.0003(5)	0.4062(3)	0.068(2)*
C(5)	0.2002(6)	0.7179(5)	0.1000(3)	0.0500(14)*
C(6)	0.1911(6)	0.5092(5)	0.0284(2)	0.0508(14)*
C(7)	-0.0201(5)	0.5637(6)	0.1285(3)	0.0545(15)*
C(11)	0.3635(4)	0.0903(4)	0.2569(2)	0.0267(9)*
C(12)	0.4840(4)	0.0516(4)	0.2316(2)	0.0339(10)*
C(13)	0.5019(5)	-0.0438(4)	0.1978(3)	0.0411(12)*
C(14)	0.3991(5)	-0.1011(4)	0.1873(3)	0.0435(13)*
C(15)	0.2792(5)	-0.0623(4)	0.2109(3)	0.0419(12)*
C(16)	0.2616(4)	0.0317(4)	0.2460(2)	0.0311(10)*
C(21)	0.4540(4)	0.1862(4)	0.3548(2)	0.0279(9)*

**Table S2.** Atomic Coordinates and Displacement Parameters for  
 $[\text{Sm}\{\text{C}(\text{Ph}_2\text{P}=\text{NSiMe}_3)_2-\kappa^3\text{C},\text{N},\text{N}'\}(\text{NCy}_2)(\text{THF})]\cdot 0.5\text{PhMe}$  (continued)

Atom	<i>x</i>	<i>y</i>	<i>z</i>	<i>U</i> <sub>eq</sub> , Å <sup>2</sup>
C(22)	0.5041(5)	0.2805(5)	0.3745(2)	0.0379(11)*
C(23)	0.5877(5)	0.2598(5)	0.4186(3)	0.0485(14)*
C(24)	0.6226(5)	0.1450(6)	0.4435(3)	0.0531(15)*
C(25)	0.5740(5)	0.0487(5)	0.4238(2)	0.0462(13)*
C(26)	0.4893(5)	0.0696(4)	0.3802(2)	0.0365(11)*
C(31)	0.4753(4)	0.5241(4)	0.1570(2)	0.0297(10)*
C(32)	0.5337(4)	0.5575(4)	0.2044(2)	0.0352(11)*
C(33)	0.6194(5)	0.6457(4)	0.1898(3)	0.0441(13)*
C(34)	0.6513(5)	0.6956(5)	0.1291(3)	0.0523(16)*
C(35)	0.5950(5)	0.6642(5)	0.0820(3)	0.0520(16)*
C(36)	0.5069(5)	0.5779(5)	0.0959(2)	0.0425(12)*
C(41)	0.4214(4)	0.3034(4)	0.1220(2)	0.0304(10)*
C(42)	0.3416(5)	0.2257(4)	0.1061(2)	0.0371(11)*
C(43)	0.3901(6)	0.1372(5)	0.0705(2)	0.0473(13)*
C(44)	0.5184(6)	0.1249(5)	0.0492(3)	0.0539(15)*
C(45)	0.5976(6)	0.2019(5)	0.0641(3)	0.0514(14)*
C(46)	0.5510(5)	0.2894(4)	0.1007(2)	0.0390(11)*
C(51)	0.1736(4)	0.6144(4)	0.3711(2)	0.0370(11)*
C(52)	0.2086(6)	0.5201(6)	0.4244(3)	0.0558(16)*
C(53)	0.2961(6)	0.5625(7)	0.4660(3)	0.0676(19)*
C(54)	0.4131(5)	0.6116(5)	0.4273(3)	0.0525(15)*
C(55)	0.3787(6)	0.7086(6)	0.3741(3)	0.0641(18)*
C(56)	0.2921(5)	0.6637(5)	0.3339(3)	0.0505(14)*
C(61)	-0.0226(4)	0.6332(4)	0.3195(2)	0.0337(10)*

**Table S2.** Atomic Coordinates and Displacement Parameters for  
 [Sm{C(Ph<sub>2</sub>P=NSiMe<sub>3</sub>)<sub>2</sub>-κ<sup>3</sup>C,N,N'}(NCy<sub>2</sub>)(THF)]•0.5PhMe (continued)

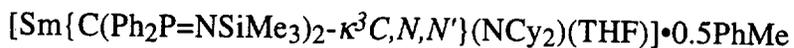
Atom	x	y	z	<i>U</i> <sub>eq</sub> , Å <sup>2</sup>
C(62)	-0.0096(5)	0.7609(4)	0.2841(3)	0.0435(12)*
C(63)	-0.1355(6)	0.8244(5)	0.2689(3)	0.0557(15)*
C(64)	-0.2298(6)	0.8253(6)	0.3279(3)	0.0687(19)*
C(65)	-0.2464(5)	0.7036(6)	0.3627(3)	0.0619(17)*
C(66)	-0.1199(5)	0.6367(5)	0.3784(3)	0.0460(13)*
C(71)	-0.1935(5)	0.3729(5)	0.2684(3)	0.0463(13)*
C(72)	-0.2639(6)	0.2852(8)	0.2446(4)	0.082(3)*
C(73a) <sup>a</sup>	-0.1997(14)	0.1859(13)	0.2457(11)	0.087(6)*
C(74a) <sup>a</sup>	-0.060(2)	0.212(2)	0.2443(11)	0.057(6)*
C(73b) <sup>a</sup>	-0.1731(11)	0.2288(14)	0.1971(7)	0.056(4)*
C(74b) <sup>a</sup>	-0.045(3)	0.238(3)	0.2146(11)	0.076(9)*

(b) solvent toluene atoms

Atom	x	y	z	<i>U</i> <sub>eq</sub> , Å <sup>2</sup>
C(90) <sup>b</sup>	0.0103(12)	0.1061(10)	0.0717(5)	0.163(3)
C(91) <sup>a,b</sup>	0.0060(11)	0.0332(10)	0.0246(3)	0.163(3)
C(92) <sup>b</sup>	-0.0818(8)	-0.0566(8)	0.0344(3)	0.163(3)
C(93) <sup>a,b</sup>	-0.0859(15)	-0.1296(11)	-0.0127(7)	0.163(3)
C(94) <sup>a,b</sup>	0.0705(16)	-0.0105(15)	-0.0833(3)	0.163(3)

Anisotropically-refined atoms are marked with an asterisk (\*). The form of the anisotropic displacement parameter is:  $\exp[-2\pi^2(h^2a^{*2}U_{11} + k^2b^{*2}U_{22} + l^2c^{*2}U_{33} + 2klb^{*c^*}U_{23} + 2hla^{*c^*}U_{13} + 2hka^{*b^*}U_{12})]$ . <sup>a</sup>Refined with an occupancy factor of 0.5. <sup>b</sup>Solvent toluene carbon atoms were refined with a common isotropic displacement parameter.

**Table S3.** Selected Interatomic Distances (Å) for



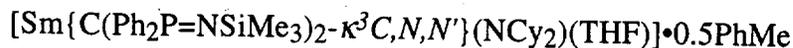
Atom 1	Atom 2	Distance	Atom 1	Atom 2	Distance
Sm	O	2.479(3)	N(3)	C(51)	1.474(6)
Sm	N(1)	2.409(4)	N(3)	C(61)	1.454(6)
Sm	N(2)	2.449(4)	C(11)	C(12)	1.392(6)
Sm	N(3)	2.216(4)	C(11)	C(16)	1.394(6)
Sm	C(1)	2.467(4)	C(12)	C(13)	1.384(6)
P(1)	N(1)	1.632(4)	C(13)	C(14)	1.390(7)
P(1)	C(1)	1.671(4)	C(14)	C(15)	1.376(7)
P(1)	C(11)	1.821(4)	C(15)	C(16)	1.390(6)
P(1)	C(21)	1.833(4)	C(21)	C(22)	1.388(6)
P(2)	N(2)	1.626(4)	C(21)	C(26)	1.391(6)
P(2)	C(1)	1.666(4)	C(22)	C(23)	1.379(7)
P(2)	C(31)	1.836(4)	C(23)	C(24)	1.370(8)
P(2)	C(41)	1.836(4)	C(24)	C(25)	1.399(8)
Si(1)	N(1)	1.711(4)	C(25)	C(26)	1.379(7)
Si(1)	C(2)	1.867(5)	C(31)	C(32)	1.391(7)
Si(1)	C(3)	1.869(6)	C(31)	C(36)	1.382(7)
Si(1)	C(4)	1.861(6)	C(32)	C(33)	1.392(6)
Si(2)	N(2)	1.709(4)	C(33)	C(34)	1.361(8)
Si(2)	C(5)	1.874(5)	C(34)	C(35)	1.363(9)
Si(2)	C(6)	1.875(5)	C(35)	C(36)	1.392(7)
Si(2)	C(7)	1.868(5)	C(41)	C(42)	1.393(6)
O	C(71)	1.449(6)	C(41)	C(46)	1.406(7)
O	C(74a)	1.42(3)	C(42)	C(43)	1.382(7)
O	C(74b)	1.50(3)	C(43)	C(44)	1.390(8)

**Table S3.** Selected Interatomic Distances for

[Sm{C(Ph<sub>2</sub>P=NSiMe<sub>3</sub>)<sub>2</sub>-κ<sup>3</sup>C,N,N'}(NCy<sub>2</sub>)(THF)]•0.5PhMe (continued)

Atom 1	Atom 2	Distance	Atom 1	Atom 2	Distance
C(44)	C(45)	1.373(8)	C(62)	C(63)	1.523(8)
C(45)	C(46)	1.382(7)	C(63)	C(64)	1.519(9)
C(51)	C(52)	1.512(8)	C(64)	C(65)	1.482(9)
C(51)	C(56)	1.512(7)	C(65)	C(66)	1.546(8)
C(52)	C(53)	1.540(7)	C(71)	C(72)	1.493(8)
C(53)	C(54)	1.511(8)	C(72)	C(73a)	1.264(15)
C(54)	C(55)	1.526(9)	C(72)	C(73b)	1.495(14)
C(55)	C(56)	1.525(8)	C(73a)	C(74a)	1.55(3)
C(61)	C(62)	1.539(7)	C(73b)	C(74b)	1.49(3)
C(61)	C(66)	1.538(7)			

**Table S4.** Selected Interatomic Angles (deg) for



Atom 1	Atom 2	Atom 3	Angle	Atom 1	Atom 2	Atom 3	Angle
O	Sm	N(1)	90.20(12)	N(1)	Si(1)	C(4)	112.6(2)
O	Sm	N(2)	97.17(12)	C(2)	Si(1)	C(3)	106.6(3)
O	Sm	N(3)	113.28(13)	C(2)	Si(1)	C(4)	108.7(3)
O	Sm	C(1)	132.29(12)	C(3)	Si(1)	C(4)	107.2(3)
N(1)	Sm	N(2)	120.58(12)	N(2)	Si(2)	C(5)	113.4(2)
N(1)	Sm	N(3)	114.39(13)	N(2)	Si(2)	C(6)	113.5(2)
N(1)	Sm	C(1)	66.22(13)	N(2)	Si(2)	C(7)	107.3(2)
N(2)	Sm	N(3)	115.97(13)	C(5)	Si(2)	C(6)	108.5(3)
N(2)	Sm	C(1)	65.84(13)	C(5)	Si(2)	C(7)	106.9(3)
N(3)	Sm	C(1)	114.20(13)	C(6)	Si(2)	C(7)	106.9(3)
N(1)	P(1)	C(1)	107.5(2)	Sm	O	C(71)	131.5(3)
N(1)	P(1)	C(11)	110.16(19)	Sm	O	C(74a)	121.0(10)
N(1)	P(1)	C(21)	109.95(19)	Sm	O	C(74b)	116.6(12)
C(1)	P(1)	C(11)	115.1(2)	C(71)	O	C(74a)	106.2(10)
C(1)	P(1)	C(21)	111.6(2)	C(71)	O	C(74b)	110.5(12)
C(11)	P(1)	C(21)	102.4(2)	C(74a)	O	C(74b)	26.4(15)
N(2)	P(2)	C(1)	108.5(2)	Sm	N(1)	P(1)	94.15(16)
N(2)	P(2)	C(31)	110.2(2)	Sm	N(1)	Si(1)	127.71(19)
N(2)	P(2)	C(41)	111.3(2)	P(1)	N(1)	Si(1)	135.2(2)
C(1)	P(2)	C(31)	109.6(2)	Sm	N(2)	P(2)	93.64(17)
C(1)	P(2)	C(41)	114.9(2)	Sm	N(2)	Si(2)	128.4(2)
C(31)	P(2)	C(41)	102.1(2)	P(2)	N(2)	Si(2)	136.2(2)
N(1)	Si(1)	C(2)	107.0(2)	Sm	N(3)	C(51)	131.8(3)
N(1)	Si(1)	C(3)	114.5(2)	Sm	N(3)	C(61)	111.3(3)

**Table S4.** Selected Interatomic Angles for

[Sm{C(Ph<sub>2</sub>P=NSiMe<sub>3</sub>)<sub>2</sub>-κ<sup>3</sup>C,N,N'}(NCy<sub>2</sub>)(THF)]•0.5PhMe (continued)

Atom 1	Atom 2	Atom 3	Angle	Atom 1	Atom 2	Atom 3	Angle
C(51)	N(3)	C(61)	116.6(4)	C(32)	C(33)	C(34)	120.7(5)
Sm	C(1)	P(1)	91.09(17)	C(33)	C(34)	C(35)	120.5(5)
Sm	C(1)	P(2)	92.00(18)	C(34)	C(35)	C(36)	119.6(5)
P(1)	C(1)	P(2)	138.0(3)	C(31)	C(36)	C(35)	120.9(5)
P(1)	C(11)	C(12)	121.1(3)	P(2)	C(41)	C(42)	120.5(4)
P(1)	C(11)	C(16)	120.8(3)	P(2)	C(41)	C(46)	120.8(3)
C(12)	C(11)	C(16)	118.0(4)	C(42)	C(41)	C(46)	118.3(4)
C(11)	C(12)	C(13)	120.9(4)	C(41)	C(42)	C(43)	120.2(5)
C(12)	C(13)	C(14)	120.4(5)	C(42)	C(43)	C(44)	121.0(5)
C(13)	C(14)	C(15)	119.5(4)	C(43)	C(44)	C(45)	119.2(5)
C(14)	C(15)	C(16)	120.1(4)	C(44)	C(45)	C(46)	120.6(5)
C(11)	C(16)	C(15)	121.2(4)	C(41)	C(46)	C(45)	120.7(5)
P(1)	C(21)	C(22)	118.7(4)	N(3)	C(51)	C(52)	110.9(4)
P(1)	C(21)	C(26)	122.2(3)	N(3)	C(51)	C(56)	112.1(4)
C(22)	C(21)	C(26)	119.1(4)	C(52)	C(51)	C(56)	109.6(4)
C(21)	C(22)	C(23)	120.8(5)	C(51)	C(52)	C(53)	113.8(5)
C(22)	C(23)	C(24)	120.1(5)	C(52)	C(53)	C(54)	111.5(5)
C(23)	C(24)	C(25)	119.9(5)	C(53)	C(54)	C(55)	111.0(5)
C(24)	C(25)	C(26)	119.9(5)	C(54)	C(55)	C(56)	111.3(5)
C(21)	C(26)	C(25)	120.2(5)	C(51)	C(56)	C(55)	113.7(5)
P(2)	C(31)	C(32)	119.0(3)	N(3)	C(61)	C(62)	115.1(4)
P(2)	C(31)	C(36)	122.4(4)	N(3)	C(61)	C(66)	114.2(4)
C(32)	C(31)	C(36)	118.6(4)	C(62)	C(61)	C(66)	109.5(4)
C(31)	C(32)	C(33)	119.6(5)	C(61)	C(62)	C(63)	113.0(4)

**Table S4.** Selected Interatomic Angles for

[Sm{C(Ph<sub>2</sub>P=NSiMe<sub>3</sub>)<sub>2</sub>-κ<sup>3</sup>C,N,N'}(NCy<sub>2</sub>)(THF)]•0.5PhMe (continued)

Atom 1	Atom 2	Atom 3	Angle	Atom 1	Atom 2	Atom 3	Angle
C(62)	C(63)	C(64)	111.1(5)	C(71)	C(72)	C(73b)	106.6(7)
C(63)	C(64)	C(65)	112.3(5)	C(73a)	C(72)	C(73b)	46.2(10)
C(64)	C(65)	C(66)	112.5(5)	C(72)	C(73a)	C(74a)	107.0(14)
C(61)	C(66)	C(65)	112.0(5)	O	C(74a)	C(73a)	106.0(15)
O	C(71)	C(72)	105.2(4)	C(72)	C(73b)	C(74b)	106.0(13)
C(71)	C(72)	C(73a)	109.8(8)	O	C(74b)	C(73b)	105.2(19)

**Table S5.** Torsional Angles (deg)for



Atom 1	Atom 2	Atom 3	Atom 4	Angle	Atom 1	Atom 2	Atom 3	Atom 4	Angle
N(1)	Sm	O	C(71)	125.9(4)	N(3)	Sm	N(2)	P(2)	105.70(17)
N(1)	Sm	O	C(74a)	-39.4(11)	N(3)	Sm	N(2)	Si(2)	-60.8(3)
N(1)	Sm	O	C(74b)	-69.2(13)	C(1)	Sm	N(2)	P(2)	-0.63(14)
N(2)	Sm	O	C(71)	-113.2(4)	C(1)	Sm	N(2)	Si(2)	-167.2(3)
N(2)	Sm	O	C(74a)	81.5(11)	O	Sm	N(3)	C(51)	156.0(4)
N(2)	Sm	O	C(74b)	51.6(13)	O	Sm	N(3)	C(61)	-30.9(3)
N(3)	Sm	O	C(71)	9.1(5)	N(1)	Sm	N(3)	C(51)	54.6(4)
N(3)	Sm	O	C(74a)	-156.2(11)	N(1)	Sm	N(3)	C(61)	-132.4(3)
N(3)	Sm	O	C(74b)	174.0(13)	N(2)	Sm	N(3)	C(51)	-92.8(4)
C(1)	Sm	O	C(71)	-176.9(4)	N(2)	Sm	N(3)	C(61)	80.2(3)
C(1)	Sm	O	C(74a)	17.8(12)	C(1)	Sm	N(3)	C(51)	-19.1(4)
C(1)	Sm	O	C(74b)	-12.0(13)	C(1)	Sm	N(3)	C(61)	153.9(3)
O	Sm	N(1)	P(1)	130.78(16)	O	Sm	C(1)	P(1)	-60.4(2)
O	Sm	N(1)	Si(1)	-66.4(2)	O	Sm	C(1)	P(2)	77.7(2)
N(2)	Sm	N(1)	P(1)	32.3(2)	N(1)	Sm	C(1)	P(1)	6.25(14)
N(2)	Sm	N(1)	Si(1)	-164.8(2)	N(1)	Sm	C(1)	P(2)	144.41(19)
N(3)	Sm	N(1)	P(1)	-113.40(16)	N(2)	Sm	C(1)	P(1)	-137.5(2)
N(3)	Sm	N(1)	Si(1)	49.4(3)	N(2)	Sm	C(1)	P(2)	0.61(14)
C(1)	Sm	N(1)	P(1)	-6.42(14)	N(3)	Sm	C(1)	P(1)	113.52(17)
C(1)	Sm	N(1)	Si(1)	156.4(3)	N(3)	Sm	C(1)	P(2)	-108.33(17)
O	Sm	N(2)	P(2)	-134.01(15)	C(1)	P(1)	N(1)	Sm	9.1(2)
O	Sm	N(2)	Si(2)	59.5(2)	C(1)	P(1)	N(1)	Si(1)	-151.5(3)
N(1)	Sm	N(2)	P(2)	-39.5(2)	C(11)	P(1)	N(1)	Sm	-117.09(17)
N(1)	Sm	N(2)	Si(2)	154.0(2)	C(11)	P(1)	N(1)	Si(1)	82.3(3)

**Table S5.** Torsional Angles for[Sm{C(Ph<sub>2</sub>P=NSiMe<sub>3</sub>)<sub>2</sub>-κ<sup>3</sup>C,N,N'}(NCy<sub>2</sub>)(THF)]•0.5PhMe (continued)

Atom 1	Atom 2	Atom 3	Atom 4	Angle	Atom 1	Atom 2	Atom 3	Atom 4	Angle
C(21)	P(1)	N(1)	Sm	130.82(17)	C(41)	P(2)	N(2)	Sm	128.29(17)
C(21)	P(1)	N(1)	Si(1)	-29.8(4)	C(41)	P(2)	N(2)	Si(2)	-67.0(4)
N(1)	P(1)	C(1)	Sm	-8.9(2)	N(2)	P(2)	C(1)	Sm	-0.9(2)
N(1)	P(1)	C(1)	P(2)	-103.1(4)	N(2)	P(2)	C(1)	P(1)	93.0(4)
C(11)	P(1)	C(1)	Sm	114.33(19)	C(31)	P(2)	C(1)	Sm	119.56(17)
C(11)	P(1)	C(1)	P(2)	20.1(5)	C(31)	P(2)	C(1)	P(1)	-146.6(4)
C(21)	P(1)	C(1)	Sm	-129.55(17)	C(41)	P(2)	C(1)	Sm	-126.16(18)
C(21)	P(1)	C(1)	P(2)	136.3(4)	C(41)	P(2)	C(1)	P(1)	-32.3(5)
N(1)	P(1)	C(11)	C(12)	-167.5(4)	N(2)	P(2)	C(31)	C(32)	113.6(4)
N(1)	P(1)	C(11)	C(16)	16.7(4)	N(2)	P(2)	C(31)	C(36)	-67.6(4)
C(1)	P(1)	C(11)	C(12)	70.6(4)	C(1)	P(2)	C(31)	C(32)	-5.8(4)
C(1)	P(1)	C(11)	C(16)	-105.1(4)	C(1)	P(2)	C(31)	C(36)	173.0(4)
C(21)	P(1)	C(11)	C(12)	-50.6(4)	C(41)	P(2)	C(31)	C(32)	-128.1(4)
C(21)	P(1)	C(11)	C(16)	133.6(4)	C(41)	P(2)	C(31)	C(36)	50.7(4)
N(1)	P(1)	C(21)	C(22)	-91.7(4)	N(2)	P(2)	C(41)	C(42)	-39.9(4)
N(1)	P(1)	C(21)	C(26)	85.7(4)	N(2)	P(2)	C(41)	C(46)	147.8(4)
C(1)	P(1)	C(21)	C(22)	27.5(4)	C(1)	P(2)	C(41)	C(42)	83.9(4)
C(1)	P(1)	C(21)	C(26)	-155.0(4)	C(1)	P(2)	C(41)	C(46)	-88.3(4)
C(11)	P(1)	C(21)	C(22)	151.2(4)	C(31)	P(2)	C(41)	C(42)	-157.5(4)
C(11)	P(1)	C(21)	C(26)	-31.3(4)	C(31)	P(2)	C(41)	C(46)	30.3(4)
C(1)	P(2)	N(2)	Sm	0.9(2)	C(2)	Si(1)	N(1)	Sm	13.1(3)
C(1)	P(2)	N(2)	Si(2)	165.6(3)	C(2)	Si(1)	N(1)	P(1)	168.4(3)
C(31)	P(2)	N(2)	Sm	-119.19(18)	C(3)	Si(1)	N(1)	Sm	-104.8(3)
C(31)	P(2)	N(2)	Si(2)	45.5(4)	C(3)	Si(1)	N(1)	P(1)	50.5(4)

**Table S5.** Torsional Angles for

[Sm{C(Ph<sub>2</sub>P=NSiMe<sub>3</sub>)<sub>2</sub>-κ<sup>3</sup>C,N,N'}(NCy<sub>2</sub>)(THF)]•0.5PhMe (continued)

Atom 1	Atom 2	Atom 3	Atom 4	Angle	Atom 1	Atom 2	Atom 3	Atom 4	Angle
C(4)	Si(1)	N(1)	Sm	132.4(3)	C(51)	N(3)	C(61)	C(66)	-65.7(5)
C(4)	Si(1)	N(1)	P(1)	-72.3(4)	P(1)	C(11)	C(12)	C(13)	-177.2(4)
C(5)	Si(2)	N(2)	Sm	91.1(3)	C(16)	C(11)	C(12)	C(13)	-1.4(7)
C(5)	Si(2)	N(2)	P(2)	-69.3(4)	P(1)	C(11)	C(16)	C(15)	175.8(4)
C(6)	Si(2)	N(2)	Sm	-144.5(3)	C(12)	C(11)	C(16)	C(15)	-0.1(7)
C(6)	Si(2)	N(2)	P(2)	55.1(4)	C(11)	C(12)	C(13)	C(14)	1.5(8)
C(7)	Si(2)	N(2)	Sm	-26.6(3)	C(12)	C(13)	C(14)	C(15)	-0.1(8)
C(7)	Si(2)	N(2)	P(2)	173.0(4)	C(13)	C(14)	C(15)	C(16)	-1.4(8)
Sm	O	C(71)	C(72)	178.0(5)	C(14)	C(15)	C(16)	C(11)	1.5(8)
C(74a)	O	C(71)	C(72)	-15.1(12)	P(1)	C(21)	C(22)	C(23)	177.6(4)
C(74b)	O	C(71)	C(72)	12.5(13)	C(26)	C(21)	C(22)	C(23)	0.1(7)
Sm	O	C(74a)	C(73a)	171.2(11)	P(1)	C(21)	C(26)	C(25)	-178.2(4)
C(71)	O	C(74a)	C(73a)	2.6(18)	C(22)	C(21)	C(26)	C(25)	-0.8(7)
C(74b)	O	C(74a)	C(73a)	-101(5)	C(21)	C(22)	C(23)	C(24)	0.1(8)
Sm	O	C(74b)	C(73b)	-164.6(11)	C(22)	C(23)	C(24)	C(25)	0.4(9)
C(71)	O	C(74b)	C(73b)	3(2)	C(23)	C(24)	C(25)	C(26)	-1.2(8)
C(74a)	O	C(74b)	C(73b)	89(5)	C(24)	C(25)	C(26)	C(21)	1.3(8)
Sm	N(3)	C(51)	C(52)	-59.5(6)	P(2)	C(31)	C(32)	C(33)	-179.5(4)
Sm	N(3)	C(51)	C(56)	63.3(6)	C(36)	C(31)	C(32)	C(33)	1.6(7)
C(61)	N(3)	C(51)	C(52)	127.7(5)	P(2)	C(31)	C(36)	C(35)	-179.1(4)
C(61)	N(3)	C(51)	C(56)	-109.4(5)	C(32)	C(31)	C(36)	C(35)	-0.3(7)
Sm	N(3)	C(61)	C(62)	-112.0(4)	C(31)	C(32)	C(33)	C(34)	-3.2(7)
Sm	N(3)	C(61)	C(66)	120.1(4)	C(32)	C(33)	C(34)	C(35)	3.3(8)
C(51)	N(3)	C(61)	C(62)	62.2(5)	C(33)	C(34)	C(35)	C(36)	-1.9(8)

**Table S5.** Torsional Angles for

[Sm{C(Ph<sub>2</sub>P=NSiMe<sub>3</sub>)<sub>2</sub>-κ<sup>3</sup>C,N,N'}(NCy<sub>2</sub>)(THF)]•0.5PhMe (continued)

Atom 1	Atom 2	Atom 3	Atom 4	Angle	Atom 1	Atom 2	Atom 3	Atom 4	Angle
C(34)	C(35)	C(36)	C(31)	0.4(8)	N(3)	C(61)	C(62)	C(63)	175.9(4)
P(2)	C(41)	C(42)	C(43)	-172.1(4)	C(66)	C(61)	C(62)	C(63)	-53.9(6)
C(46)	C(41)	C(42)	C(43)	0.3(7)	N(3)	C(61)	C(66)	C(65)	-176.9(4)
P(2)	C(41)	C(46)	C(45)	173.4(4)	C(62)	C(61)	C(66)	C(65)	52.4(6)
C(42)	C(41)	C(46)	C(45)	1.0(7)	C(61)	C(62)	C(63)	C(64)	54.9(7)
C(41)	C(42)	C(43)	C(44)	-0.9(8)	C(62)	C(63)	C(64)	C(65)	-54.5(7)
C(42)	C(43)	C(44)	C(45)	0.2(9)	C(63)	C(64)	C(65)	C(66)	54.3(8)
C(43)	C(44)	C(45)	C(46)	1.1(9)	C(64)	C(65)	C(66)	C(61)	-54.0(7)
C(44)	C(45)	C(46)	C(41)	-1.7(9)	O	C(71)	C(72)	C(73a)	25.1(15)
N(3)	C(51)	C(52)	C(53)	176.8(5)	O	C(71)	C(72)	C(73b)	-23.6(10)
C(56)	C(51)	C(52)	C(53)	52.5(7)	C(71)	C(72)	C(73a)	C(74a)	-23(2)
N(3)	C(51)	C(56)	C(55)	-176.8(5)	C(73b)	C(72)	C(73a)	C(74a)	71.3(17)
C(52)	C(51)	C(56)	C(55)	-53.2(6)	C(71)	C(72)	C(73b)	C(74b)	26.0(18)
C(51)	C(52)	C(53)	C(54)	-54.0(8)	C(73a)	C(72)	C(73b)	C(74b)	-75.8(18)
C(52)	C(53)	C(54)	C(55)	53.5(8)	C(72)	C(73a)	C(74a)	O	13(2)
C(53)	C(54)	C(55)	C(56)	-54.2(7)	C(72)	C(73b)	C(74b)	O	-18(2)
C(54)	C(55)	C(56)	C(51)	55.1(7)					

**Table S6.** Least-Squares Planes for



Plane	Coefficients <sup>a</sup>			Defining Atoms with Deviations (Å) <sup>b</sup>		
1	4.181(14)	6.723(11)	18.45(2)	8.4765(12)		
				Sm	-0.0373(8)	N(1) 0.0595(13)
				P(1)	-0.0788(18)	C(1) 0.0566(13)
				<u>Si(1)</u>	0.613(6)	
2	3.781(13)	10.708(7)	8.01(3)	7.153(7)		
				Sm	0.0036(8)	N(2) -0.0058(13)
				P(2)	0.0077(17)	C(1) -0.0056(12)
				<u>Si(2)</u>	0.291(6)	

Dihedral angle between planes 1 and 2: 37.69(13)°

<sup>a</sup>Coefficients are for the form  $ax+by+cz = d$  where  $x$ ,  $y$  and  $z$  are crystallographic coordinates.

<sup>b</sup>Underlined atoms were not included in the definition of the plane.

**Table S7.** Anisotropic Displacement Parameters ( $U_{ij}$ , Å<sup>2</sup>) for



Atom	$U_{11}$	$U_{22}$	$U_{33}$	$U_{23}$	$U_{13}$	$U_{12}$
Sm	0.02058(13)	0.02311(12)	0.03043(14)	-0.00646(9)	-0.00225(9)	-0.00334(8)
P(1)	0.0200(6)	0.0224(5)	0.0280(6)	-0.0055(4)	-0.0028(4)	-0.0033(4)
P(2)	0.0220(6)	0.0262(5)	0.0275(6)	-0.0049(4)	-0.0021(4)	-0.0045(4)
Si(1)	0.0307(7)	0.0303(6)	0.0337(7)	-0.0004(5)	0.0039(5)	-0.0052(5)
Si(2)	0.0303(7)	0.0372(7)	0.0288(7)	-0.0039(5)	-0.0062(5)	0.0010(6)
O	0.0268(18)	0.0397(18)	0.068(2)	-0.0152(17)	-0.0139(17)	-0.0042(15)
N(1)	0.0224(19)	0.0286(18)	0.031(2)	-0.0032(15)	-0.0030(15)	-0.0068(15)
N(2)	0.028(2)	0.0344(19)	0.034(2)	-0.0061(16)	-0.0050(16)	-0.0034(16)
N(3)	0.026(2)	0.0314(19)	0.039(2)	-0.0116(17)	-0.0003(17)	-0.0040(16)
C(1)	0.022(2)	0.0216(19)	0.029(2)	-0.0043(17)	-0.0036(17)	-0.0032(17)
C(2)	0.031(3)	0.068(4)	0.047(3)	0.002(3)	0.007(2)	0.002(3)
C(3)	0.047(3)	0.069(4)	0.035(3)	0.001(3)	-0.002(3)	0.001(3)
C(4)	0.096(5)	0.040(3)	0.060(4)	-0.002(3)	0.025(4)	-0.023(3)
C(5)	0.054(4)	0.037(3)	0.057(4)	-0.003(2)	-0.007(3)	0.000(3)
C(6)	0.060(4)	0.061(3)	0.034(3)	-0.013(3)	-0.013(3)	0.003(3)
C(7)	0.035(3)	0.073(4)	0.051(3)	0.004(3)	-0.010(3)	0.006(3)
C(11)	0.030(2)	0.0221(19)	0.028(2)	-0.0017(17)	-0.0056(18)	-0.0036(18)
C(12)	0.027(2)	0.033(2)	0.043(3)	-0.011(2)	-0.004(2)	-0.004(2)
C(13)	0.034(3)	0.038(3)	0.053(3)	-0.017(2)	-0.003(2)	0.002(2)
C(14)	0.047(3)	0.034(2)	0.051(3)	-0.020(2)	-0.001(3)	-0.001(2)
C(15)	0.044(3)	0.033(2)	0.053(3)	-0.013(2)	-0.009(2)	-0.015(2)
C(16)	0.024(2)	0.032(2)	0.037(3)	-0.008(2)	0.0007(19)	-0.0041(19)
C(21)	0.021(2)	0.036(2)	0.027(2)	-0.0043(18)	-0.0033(18)	-0.0011(18)
C(22)	0.036(3)	0.043(3)	0.036(3)	-0.008(2)	-0.004(2)	-0.008(2)

**Table S7.** Anisotropic Displacement Parameters for

[Sm{C(Ph<sub>2</sub>P=NSiMe<sub>3</sub>)<sub>2</sub>-κ<sup>3</sup>C,N,N'}(NCy<sub>2</sub>)(THF)]•0.5PhMe (continued)

Atom	$U_{11}$	$U_{22}$	$U_{33}$	$U_{23}$	$U_{13}$	$U_{12}$
C(23)	0.044(3)	0.064(3)	0.045(3)	-0.014(3)	-0.015(3)	-0.014(3)
C(24)	0.039(3)	0.087(4)	0.033(3)	-0.002(3)	-0.016(2)	0.006(3)
C(25)	0.039(3)	0.055(3)	0.040(3)	0.002(3)	-0.006(2)	0.005(3)
C(26)	0.033(3)	0.040(3)	0.033(3)	0.001(2)	-0.004(2)	0.001(2)
C(31)	0.024(2)	0.026(2)	0.038(3)	-0.0043(19)	0.0007(19)	-0.0002(18)
C(32)	0.029(3)	0.028(2)	0.048(3)	-0.003(2)	-0.002(2)	-0.0041(19)
C(33)	0.027(3)	0.033(2)	0.076(4)	-0.014(3)	-0.008(3)	-0.010(2)
C(34)	0.033(3)	0.031(3)	0.089(5)	-0.009(3)	0.012(3)	-0.008(2)
C(35)	0.046(3)	0.037(3)	0.060(4)	0.008(3)	0.022(3)	-0.001(2)
C(36)	0.041(3)	0.043(3)	0.039(3)	-0.001(2)	0.006(2)	-0.002(2)
C(41)	0.033(3)	0.035(2)	0.024(2)	-0.0051(19)	-0.0028(19)	-0.002(2)
C(42)	0.038(3)	0.038(2)	0.035(3)	-0.005(2)	-0.006(2)	-0.003(2)
C(43)	0.062(4)	0.045(3)	0.041(3)	-0.016(2)	-0.012(3)	-0.008(3)
C(44)	0.073(4)	0.050(3)	0.040(3)	-0.021(3)	-0.001(3)	0.004(3)
C(45)	0.048(3)	0.058(3)	0.046(3)	-0.020(3)	0.007(3)	0.005(3)
C(46)	0.036(3)	0.044(3)	0.037(3)	-0.009(2)	0.000(2)	-0.002(2)
C(51)	0.027(3)	0.037(2)	0.051(3)	-0.019(2)	-0.007(2)	-0.002(2)
C(52)	0.049(3)	0.080(4)	0.043(3)	-0.007(3)	-0.008(3)	-0.031(3)
C(53)	0.054(4)	0.110(6)	0.047(4)	-0.017(4)	-0.015(3)	-0.028(4)
C(54)	0.037(3)	0.066(4)	0.062(4)	-0.026(3)	-0.011(3)	-0.008(3)
C(55)	0.041(3)	0.059(4)	0.097(5)	-0.010(4)	-0.017(3)	-0.022(3)
C(56)	0.042(3)	0.051(3)	0.059(4)	0.005(3)	-0.010(3)	-0.021(3)
C(61)	0.028(2)	0.034(2)	0.041(3)	-0.011(2)	-0.002(2)	-0.006(2)
C(62)	0.043(3)	0.033(2)	0.056(3)	-0.010(2)	-0.004(3)	-0.005(2)

**Table S7.** Anisotropic Displacement Parameters for[Sm{C(Ph<sub>2</sub>P=NSiMe<sub>3</sub>)<sub>2</sub>-κ<sup>3</sup>C,N,N'}(NCy<sub>2</sub>)(THF)]•0.5PhMe (continued)

Atom	$U_{11}$	$U_{22}$	$U_{33}$	$U_{23}$	$U_{13}$	$U_{12}$
C(63)	0.058(4)	0.044(3)	0.066(4)	-0.003(3)	-0.024(3)	0.007(3)
C(64)	0.046(4)	0.074(4)	0.087(5)	-0.023(4)	-0.017(3)	0.027(3)
C(65)	0.030(3)	0.087(5)	0.066(4)	-0.019(4)	0.003(3)	0.009(3)
C(66)	0.034(3)	0.059(3)	0.045(3)	-0.012(3)	0.002(2)	-0.003(3)
C(71)	0.025(3)	0.047(3)	0.069(4)	-0.015(3)	-0.006(2)	-0.004(2)
C(72)	0.035(4)	0.113(6)	0.118(6)	-0.073(5)	-0.010(4)	-0.009(4)
C(73a)	0.044(9)	0.057(9)	0.18(2)	-0.044(11)	-0.047(11)	-0.004(7)
C(74a)	0.025(9)	0.046(9)	0.11(2)	-0.038(12)	-0.028(11)	0.009(7)
C(73b)	0.033(7)	0.075(9)	0.070(9)	-0.039(8)	-0.005(6)	-0.012(6)
C(74b)	0.050(10)	0.09(2)	0.11(2)	-0.067(17)	-0.010(14)	-0.008(11)

The form of the anisotropic displacement parameter is:

$$\exp[-2\pi^2(h^2a^2U_{11} + k^2b^2U_{22} + l^2c^2U_{33} + 2klb^*c^*U_{23} + 2hla^*c^*U_{13} + 2hka^*b^*U_{12})]$$

**Table S8.** Derived Atomic Coordinates and Displacement Parameters for Hydrogen Atoms for  
 $[\text{Sm}\{\text{C}(\text{Ph}_2\text{P}=\text{NSiMe}_3)_2-\kappa^3\text{C},\text{N},\text{N}'\}(\text{NCy}_2)(\text{THF})]\cdot 0.5\text{PhMe}$

Atom	x	y	z	$U_{\text{eq}}, \text{\AA}^2$
H(2A)	-0.0238	0.3267	0.4209	0.062
H(2B)	-0.0782	0.2076	0.4609	0.062
H(2C)	-0.0845	0.2344	0.3868	0.062
H(3A)	0.2208	0.2533	0.4768	0.062
H(3B)	0.2897	0.1237	0.4709	0.062
H(3C)	0.1569	0.1364	0.5139	0.062
H(4A)	0.1837	-0.0441	0.3987	0.082
H(4B)	0.0505	-0.0079	0.3729	0.082
H(4C)	0.0575	-0.0335	0.4470	0.082
H(5A)	0.2918	0.7200	0.0887	0.060
H(5B)	0.1754	0.7481	0.1402	0.060
H(5C)	0.1571	0.7681	0.0672	0.060
H(6A)	0.2824	0.5066	0.0154	0.061
H(6B)	0.1482	0.5652	-0.0024	0.061
H(6C)	0.1614	0.4293	0.0307	0.061
H(7A)	-0.0477	0.4825	0.1328	0.065
H(7B)	-0.0609	0.6151	0.0953	0.065
H(7C)	-0.0434	0.5954	0.1683	0.065
H(12)	0.5548	0.0912	0.2376	0.041
H(13)	0.5849	-0.0703	0.1817	0.049
H(14)	0.4115	-0.1665	0.1641	0.052
H(15)	0.2084	-0.0999	0.2031	0.050
H(16)	0.1785	0.0566	0.2629	0.037
H(22)	0.4804	0.3604	0.3574	0.045

**Table S8.** Derived Parameters for Hydrogen Atoms for[Sm{C(Ph<sub>2</sub>P=NSiMe<sub>3</sub>)<sub>2</sub>-κ<sup>3</sup>C,N,N'}(NCy<sub>2</sub>)(THF)]•0.5PhMe (continued)

Atom	x	y	z	<i>U</i> <sub>eq</sub> , Å <sup>2</sup>
H(23)	0.6212	0.3252	0.4318	0.058
H(24)	0.6797	0.1308	0.4741	0.064
H(25)	0.5992	-0.0310	0.4405	0.055
H(26)	0.4549	0.0043	0.3675	0.044
H(32)	0.5151	0.5202	0.2466	0.042
H(33)	0.6560	0.6714	0.2224	0.053
H(34)	0.7133	0.7526	0.1195	0.063
H(35)	0.6157	0.7010	0.0398	0.062
H(36)	0.4681	0.5558	0.0630	0.051
H(42)	0.2535	0.2336	0.1197	0.044
H(43)	0.3350	0.0839	0.0605	0.057
H(44)	0.5508	0.0639	0.0247	0.065
H(45)	0.6851	0.1950	0.0491	0.062
H(46)	0.6073	0.3406	0.1116	0.047
H(51)	0.1223	0.6813	0.3897	0.044
H(52A)	0.2509	0.4494	0.4067	0.067
H(52B)	0.1303	0.4949	0.4511	0.067
H(53A)	0.2498	0.6253	0.4889	0.081
H(53B)	0.3211	0.4946	0.4974	0.081
H(54A)	0.4660	0.5459	0.4094	0.063
H(54B)	0.4630	0.6453	0.4547	0.063
H(55A)	0.3359	0.7789	0.3921	0.077
H(55B)	0.4567	0.7342	0.3474	0.077
H(56A)	0.2677	0.7305	0.3017	0.061

**Table S8.** Derived Parameters for Hydrogen Atoms for  
 $[\text{Sm}\{\text{C}(\text{Ph}_2\text{P}=\text{NSiMe}_3)_2-\kappa^3\text{C},\text{N},\text{N}'\}(\text{NCy}_2)(\text{THF})]\cdot 0.5\text{PhMe}$  (continued)

Atom	x	y	z	$U_{\text{eq}}, \text{\AA}^2$
H(56B)	0.3395	0.6004	0.3117	0.061
H(61)	-0.0610	0.5892	0.2912	0.040
H(62A)	0.0296	0.8082	0.3101	0.052
H(62B)	0.0475	0.7571	0.2445	0.052
H(63A)	-0.1222	0.9077	0.2492	0.067
H(63B)	-0.1699	0.7834	0.2385	0.067
H(64A)	-0.2005	0.8756	0.3557	0.082
H(64B)	-0.3124	0.8615	0.3161	0.082
H(65A)	-0.2873	0.6568	0.3372	0.074
H(65B)	-0.3032	0.7095	0.4023	0.074
H(66A)	-0.0851	0.6768	0.4090	0.055
H(66B)	-0.1353	0.5538	0.3983	0.055
H(71A)	-0.2088	0.4543	0.2455	0.056
H(71B)	-0.2197	0.3742	0.3138	0.056
H(72A)	-0.3460	0.2745	0.2712	0.099
H(72B)	-0.2808	0.3158	0.2010	0.099
H(73A) <sup>a</sup>	-0.2103	0.1479	0.2088	0.104
H(73B) <sup>a</sup>	-0.2275	0.1313	0.2844	0.104
H(74A) <sup>a</sup>	-0.0194	0.1554	0.2767	0.068
H(74B) <sup>a</sup>	-0.0120	0.2036	0.2026	0.068
H(73C) <sup>a</sup>	-0.1899	0.1440	0.1983	0.067
H(73D) <sup>a</sup>	-0.1805	0.2716	0.1543	0.067
H(74C) <sup>a</sup>	0.0151	0.2613	0.1767	0.092
H(74D) <sup>a</sup>	-0.0128	0.1601	0.2366	0.092

<sup>a</sup>Included with an occupancy factor of 0.5.