

$E(\text{HF}/6\text{-}31\text{G}^*) = -747.4071413 \text{ H/molecule}$
 $(\text{ZPE} = 658.8 \text{ kJ/mol})$

Archive:

```
N-N= 6.978994473539D+02 E-N=-3.142130373229D+03 KE= 7.465802949520D+02
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-20041\#\VRHF/ 6-31G* OPT=(GRAD,TS,READFC) GEOM=CHECKPOINT GUESS=READ\
\SiMe3butOHN2d-6 stretching C-N bond\1,1\C\C,1,r1\C,1,r2,2,a1\C,2,r3,
1,a2,3,D1,0\Si,4,r4,2,a3,1,D2,0\C,5,r5,4,a4,2,D3,0\C,5,r6,4,a5,2,D4,0\
C,5,r7,4,a6,2,D5,0\O,1,rA,2,aA,4,DA,0\H,1,r8,2,a7,4,D6,0\H,3,r9,1,a8,2
,D7,0\H,3,r10,1,a9,2,D8,0\N,3,rTS,1,aB,2,DB,0\X,13,1.,3,90.,1,180.,0\N
,13,r11,14,a10,3,D9,0\H,2,r12,1,a11,3,D10,0\H,2,r13,1,a12,3,D11,0\H,4,
r14,2,a13,1,D12,0\H,4,r15,2,a14,1,D13,0\H,6,r16,5,a15,4,D14,0\H,6,r17,
5,a16,4,D15,0\H,6,r18,5,a17,4,D16,0\H,7,r19,5,a18,6,D17,0\H,7,r20,5,a1
9,6,D18,0\H,7,r21,5,a20,6,D19,0\H,8,r22,5,a21,6,D20,0\H,8,r23,5,a22,6,
D21,0\H,8,r24,5,a23,6,D22,0\H,9,r25,1,a24,2,D23,0\vrTS=1.94421482vr1=1
.55842506vr2=1.48043971vr3=1.53668605vr4=1.92657135vr5=1.88379135vr6=1
.88831084vr7=1.88884928vr8=1.08487049vrA=1.38315302vr9=1.0746174vr10=1
.07489418vr11=1.0752295vr12=1.08568801vr13=1.08546782vr14=1.0891809vr1
5=1.08809472vr16=1.08687608vr17=1.08687555vr18=1.0866807vr19=1.0867347
6vr20=1.0871297vr21=1.08740624vr22=1.08715817vr23=1.08675658vr24=1.087
45623vr25=0.94964618va1=103.85189544va2=111.03356782va3=115.15905898va
4=106.62854249va5=108.78344297va6=108.74788171vaA=114.45731506va7=108.
924878va8=120.1204827va9=117.66110633vaB=103.97295145va10=92.22843406\
a11=109.24165077va12=108.54068476va13=109.71086167va14=109.72157573va1
5=111.85076694va16=111.8404926va17=110.82587825va18=110.4573196va19=11
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299\D4=58.77678805\D5=-61.70520121\DA=60.64498466\D6=-66.33756714\D7=7
2.32275984\D8=-81.8629887\DB=177.20992144\D9=177.80814\D10=54.6247139\
D11=-62.97630197\D12=53.31925128\D13=-63.98238836\D14=60.12120819\D15=
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(C7H17N2O1Si1)]\@
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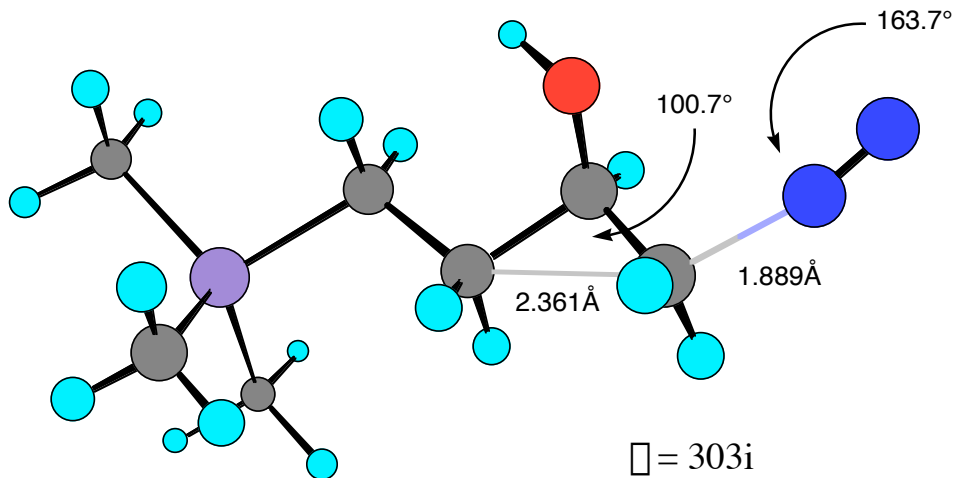
GS = 747.4116961 H/molecule
 GS_{ZPE} = 666.3 kJ/mol

□E[‡] = 12.0 kJ/mol (2.85 kcal/mol)
 □E[‡]_{ZPE} = 4.5 kJ/mol (1.08 kcal/mol)

10.1071/CH04077_AC

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Accessory Publication: Aust. J. Chem., 2004, 57(9), 869–876.



Archive:

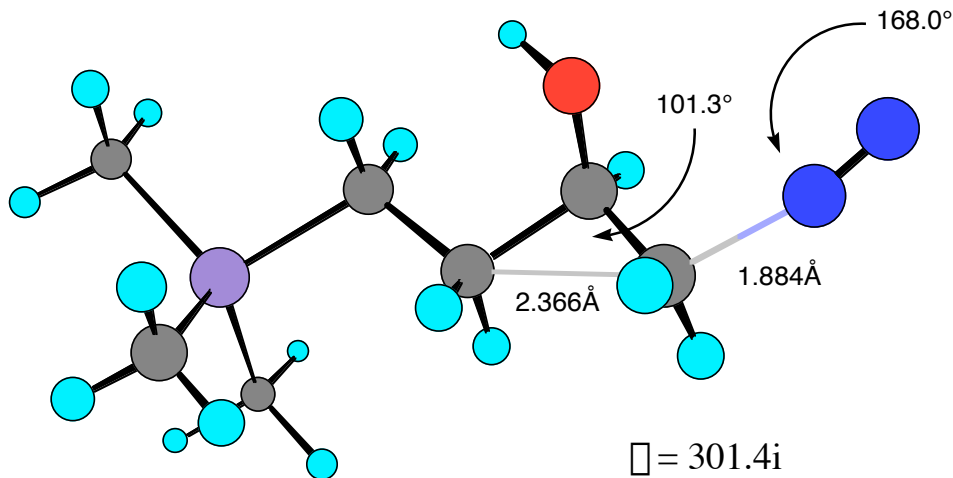
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Mar-2004\1\#B3LYP/ 6-31G* OPT=(GRAD,TS,READFC) GEOM=CHECKPOINT GUESS=
READ\SiMe3butOHN2d-6 stretching C-N bond\1,1\C\C,1,r1\C,1,r2,2,a1\C,
2,r3,1,a2,3,D1,0\Si,4,r4,2,a3,1,D2,0\C,5,r5,4,a4,2,D3,0\C,5,r6,4,a5,2,
D4,0\C,5,r7,4,a6,2,D5,0\O,1,rA,2,aA,4,DA,0\H,1,r8,2,a7,4,D6,0\H,3,r9,1
,a8,2,D7,0\H,3,r10,1,a9,2,D8,0\N,3,rTS,1,aB,2,DB,0\X,13,1.,3,90.,1,180
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,r17,5,a16,4,D15,0\H,6,r18,5,a17,4,D16,0\H,7,r19,5,a18,6,D17,0\H,7,r20
,5,a19,6,D18,0\H,7,r21,5,a20,6,D19,0\H,8,r22,5,a21,6,D20,0\H,8,r23,5,a
22,6,D21,0\H,8,r24,5,a23,6,D22,0\H,9,r25,1,a24,2,D23,0\VTs=1.88874298
vr1=1.60601616vr2=1.45903237vr3=1.53423171vr4=1.94231884vr5=1.88536594
vr6=1.88797467vr7=1.88821097vr8=1.09841136vrA=1.39510243vr9=1.08743999
vr10=1.08851591vr11=1.10413874vr12=1.09507817vr13=1.09422684vr14=1.098
77436vr15=1.09796529vr16=1.09612727vr17=1.09616168vr18=1.09666007vr19=
1.09658023vr20=1.09653298vr21=1.09675514vr22=1.096529vr23=1.09661549vr
24=1.09679291vr25=0.97201098va1=100.70528792va2=108.98427066va3=113.68
20767va4=105.65577414va5=108.58450658va6=108.47194793vaA=114.21449033\
a7=106.71190064va8=119.27877286va9=117.05675461vaB=106.32646198va10=10
3.97830309va11=109.83923224va12=108.088261va13=110.52373514va14=110.31
668221va15=111.91295853va16=111.89376575va17=110.23229023va18=110.0609
8418va19=111.9496105va20=112.64912246va21=111.92328261va22=110.0219693
7va23=112.75968954va24=109.02509784\D1=171.1776357\D2=175.22145711\D3=
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16\D7=70.5604273\D8=-78.4185113\DB=178.62668204\D9=176.28937291\D10=50
.51331675\D11=-67.97100022\D12=54.02316697\D13=-65.04971389\D14=60.501
0371\D15=-60.79911039\D16=179.86953674\D17=60.61781409\D18=-58.3692938
2\D19=179.72513137\D20=58.18958265\D21=-60.73220686\D22=180.18007233\D
23=-60.72416056\Version=x86-Linux-G03RevB.04\State=1-A/HF=-750.923753
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VPG=C01 [X(C7H17N2O1Si1)]\@

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$GS = 750.9323265 \text{ H/molecule}$
 $GS_{\text{ZPE}} = 623.6 \text{ kJ/mol}$

$\square E^\ddagger = 22.5 \text{ kJ/mol (5.4 kcal/mol)}$
 $\square E^\ddagger_{\text{ZPE}} = 16.0 \text{ kJ/mol (3.8 kcal/mol)}$



$E(\text{b3lyp}/6\text{-}311\text{G}^{**}) = -751.0868442 \text{ H/molecule}$
 (ZPE = 612.1 kJ/mol)

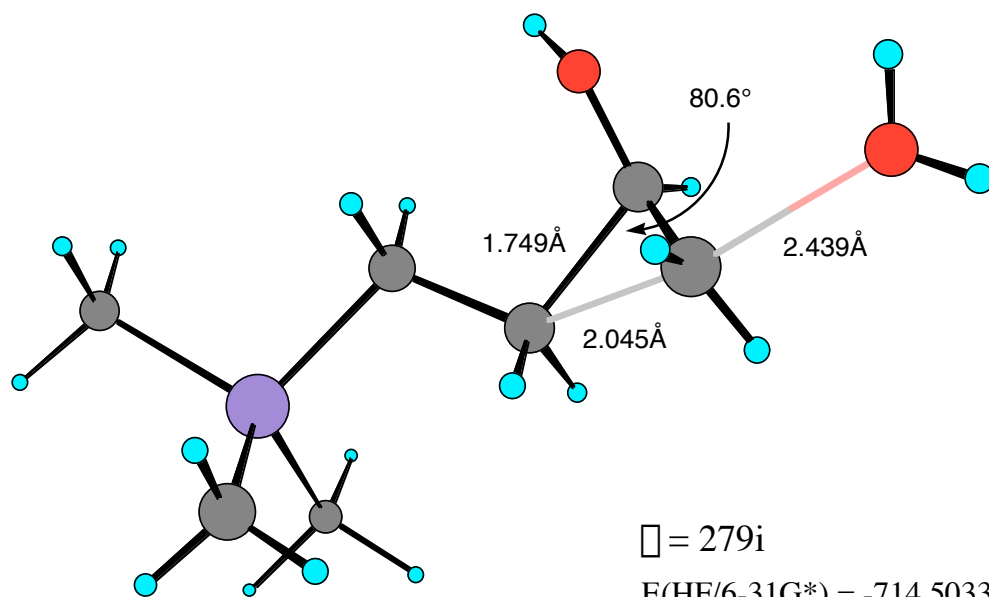
Archive:

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04-Apr-2004\1\#B3LYP/ 6-311G** OPT=(GRAD,TS,READFC,NOEIGENTEST) GEOM=
CHECKPOINT GUESS=READ\SiMe3butOHN2d-6 stretching C-N bond\1,1\C\C,1,
r1\C,1,r2,2,a1\C,2,r3,1,a2,3,D1,0\Si,4,r4,2,a3,1,D2,0\C,5,r5,4,a4,2,D3
,0\C,5,r6,4,a5,2,D4,0\C,5,r7,4,a6,2,D5,0\O,1,rA,2,aA,4,DA,0\H,1,r8,2,a
7,4,D6,0\H,3,r9,1,a8,2,D7,0\H,3,r10,1,a9,2,D8,0\N,3,rTS,1,aB,2,DB,0\X,
13,1,.,3,90.,1,180.,0\N,13,r11,14,a10,3,D9,0\H,2,r12,1,a11,3,D10,0\H,2,
r13,1,a12,3,D11,0\H,4,r14,2,a13,1,D12,0\H,4,r15,2,a14,1,D13,0\H,6,r16,
5,a15,4,D14,0\H,6,r17,5,a16,4,D15,0\H,6,r18,5,a17,4,D16,0\H,7,r19,5,a1
8,6,D17,0\H,7,r20,5,a19,6,D18,0\H,7,r21,5,a20,6,D19,0\H,8,r22,5,a21,6,
D20,0\H,8,r23,5,a22,6,D21,0\H,8,r24,5,a23,6,D22,0\H,9,r25,1,a24,2,D23,
0\VTs=1.88375759r1=1.60022772r2=1.45800381r3=1.5332459r4=1.937544
91r5=1.87972717r6=1.88293741r7=1.88318886r8=1.09614681rA=1.396340
24r9=1.08555188r10=1.08668389r11=1.09495494r12=1.09310507r13=1.09
22696r14=1.09641828r15=1.09547532r16=1.09366615r17=1.09368722r18=
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r23=1.09416039r24=1.09425378r25=0.96489723\A=101.28172689\A2=109.30
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A=114.19571606\A7=106.83569822\A8=119.27041889\A9=116.86724181\AB=106.
36586924\A10=101.43189822\A11=109.69172212\A12=108.09083996\A13=110.51
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4943\D18=-58.60363557\D19=179.47373018\D20=58.55190734\D21=-60.3648077
7\D22=180.57959086\D23=-61.48431458\Version=x86-Linux-G03RevB.04\Stat
e=1-AHF=-751.0868442\RMSD=6.336e-09\RMSF=9.533e-06\Dipole=1.9201363,-
0.5382973,-2.7241479\PG=C01 [X(C7H17N2O1Si1)]\@
  
```

GS = -751.094888 H/molecule
 GS_{ZPE} = 618.7 kJ/mol

$\square E^\ddagger = 21.1 \text{ kJ/mol (5.0 kcal/mol)}$
 $\square E^\ddagger_{\text{ZPE}} = 14.5 \text{ kJ/mol (3.5 kcal/mol)}$



$\square = 279i$

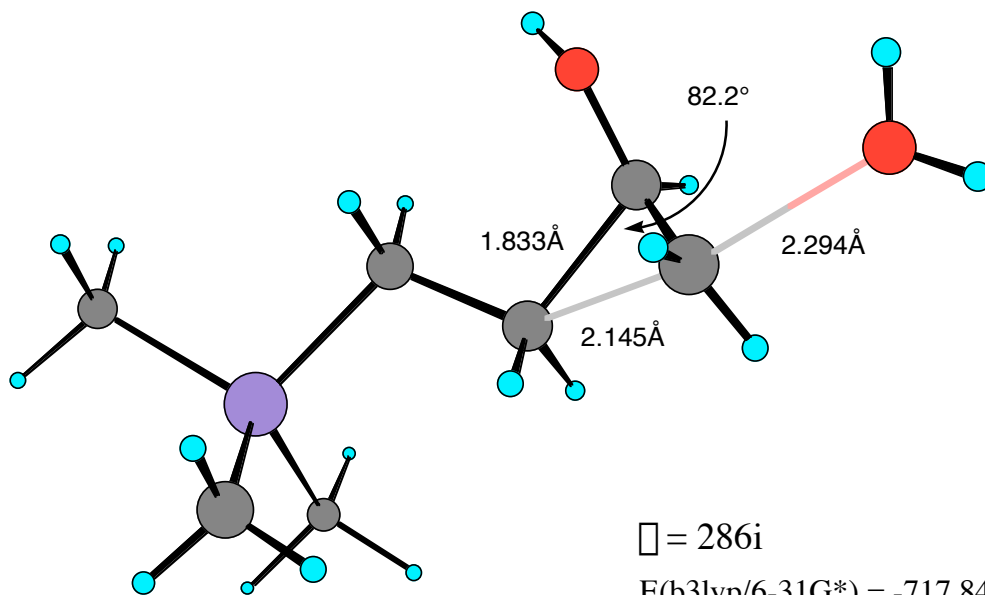
$E(\text{HF}/6\text{-}31\text{G}^*) = -714.503331 \text{ H/molecule}$
 $(\text{ZPE} = 701.8 \text{ kJ/mol})$

Archive:

```
N-N= 6.506492656442D+02 E-N=-2.973562495961D+03 KE= 7.138933872086D+02
1\1\ CHEMCLUSTER-KNET9\FTS\RH\6-31G(d)\C7H19O2Si1(1+)\CARLHS\02-Apr-2
004\1\#RH\6-31G* OPT=(GRAD,TS,READFC,NOEIGENTEST,NOFREEZE) GEOM=CHE
CKPOINT GUESS=READ\Finding TS with OH and OH2 leaving group\1,1\C\C,
1,r1\C,1,r2,2,a1\C,2,r3,1,a2,3,D1,0\Si,4,r4,2,a3,1,D2,0\C,5,r5,4,a4,2,
D3,0\C,5,r6,4,a5,2,D4,0\C,5,r7,4,a6,2,D5,0\O,1,rA,2,aA,4,DA,0\H,1,r8,2,
a7,4,D6,0\H,3,r9,1,a8,2,D7,0\H,3,r10,1,a9,2,D8,0\O,3,rTS,1,aB,2,DB,0\
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9,6,D18,0\H,7,r21,5,a20,6,D19,0\H,8,r22,5,a21,6,D20,0\H,8,r23,5,a22,6,
D21,0\H,8,r24,5,a23,6,D22,0\H,9,r25,1,a24,2,D23,0\H,13,r26,3,a25,1,D24
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4vr10=1.07132574vr11=0.95003678vr12=1.08502901vr13=1.0786503vr14=1.087
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64772va3=113.45389954va4=105.89122945va5=108.43672845va6=108.72949479\
a7=103.44168554va8=120.88730225va9=119.65209213va10=120.9509644va11=11
6.7170622va12=103.73661782va13=110.23135459va14=109.8724854va15=111.89
748282va16=111.8936156va17=110.65886201va18=110.21203778va19=111.99061
755va20=112.79718258va21=111.94218426va22=110.30423239va23=112.7371927
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C01 [X(C7H19O2Si1)]\@
```

GS = -714.5424432 H/molecule
 GS_{ZPE} = 720.7 kJ/mol

$\square E^\ddagger = 102.7 \text{ kJ/mol (24.5 kcal/mol)}$
 $\square E^\ddagger_{\text{ZPE}} = 83.3 \text{ kJ/mol (20.0 kcal/mol)}$



$\square = 286i$

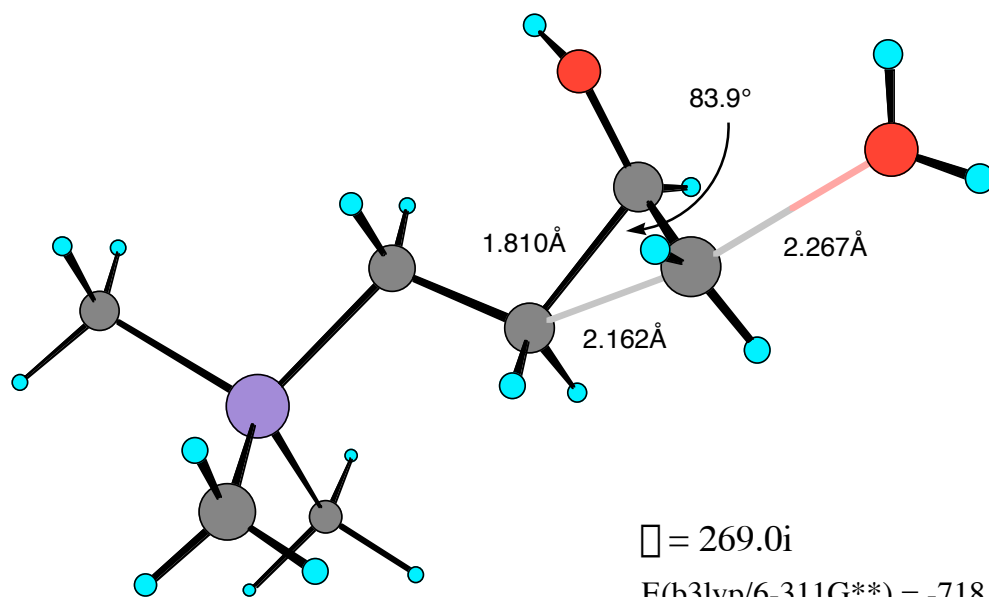
$E(b3lyp/6-31G^*) = -717.8422785$ H/molecule
(ZPE = 659.3 kJ/mol)

Archive:

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r-2004\1\#B3LYP/ 6-31G* GEOM=CHECKPOINT GUESS=READ OPT=(GRAD,TS,READF
C,NOEIGENTEST,NOFREEZE)\Finding TS with OH and OH2 leaving group\1,1
\C\C,1,r1\C,1,r2,2,a1\C,2,r3,1,a2,3,D1,0\Si,4,r4,2,a3,1,D2,0\C,5,r5,4,
a4,2,D3,0\C,5,r6,4,a5,2,D4,0\C,5,r7,4,a6,2,D5,0\O,1,rA,2,aA,4,DA,0\H,1
,r8,2,a7,4,D6,0\H,3,r9,1,a8,2,D7,0\H,3,r10,1,a9,2,D8,0\O,3,rTS,1,aB,2,
DB,0\H,13,r11,3,a10,1,D9,0\H,2,r12,1,a11,3,D10,0\H,2,r13,1,a12,3,D11,0
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,r17,5,a16,4,D15,0\H,6,r18,5,a17,4,D16,0\H,7,r19,5,a18,6,D17,0\H,7,r20
,5,a19,6,D18,0\H,7,r21,5,a20,6,D19,0\H,8,r22,5,a21,6,D20,0\H,8,r23,5,a
22,6,D21,0\H,8,r24,5,a23,6,D22,0\H,9,r25,1,a24,2,D23,0\H,13,r26,3,a25,
1,D24,0\TS=2.29384476vr1=1.83261051vr2=1.39035052vr3=1.51017556vr4=1
.95386723vr5=1.88460074vr6=1.88684942vr7=1.88624705vr8=1.08985621vr9=1
.08178403vr10=1.08367398vr11=0.97143974vr12=1.09320942vr13=1.08979634\
r14=1.09803213vr15=1.09524108vr16=1.09610513vr17=1.09603084vr18=1.0966
6673vr19=1.09660507vr20=1.0964694vr21=1.09669148vr22=1.09649802vr23=1.
09656934vr24=1.09666093vr25=0.97155407vr26=0.97189197a1=82.18858094a
2=103.45534832a3=112.18123689a4=104.86828077a5=108.26770373a6=108.
70187639a7=100.964169a8=120.34527036a9=119.53566908a10=113.0283112
3a11=115.24530544a12=102.10099187a13=111.53714497a14=110.87314632\
a15=111.91175623a16=111.879409a17=110.19129135a18=109.88797085a19=
111.97425876a20=112.8145648a21=111.91894486a22=109.95563389a23=112
.78898142a24=110.47048439a25=122.16473153D1=149.41323945D2=173.088
68176D3=178.70990698D4=59.39270175D5=-61.85775661D6=-91.98064423D
7=77.49680938D8=-91.52894958D9=61.63268269D10=28.09870528D11=-90.6
8137404D12=52.9894861D13=-67.50254354D14=60.58411633D15=-60.774200
27D16=179.87446861D17=60.59266987D18=-58.22990373D19=179.5663817D
20=58.1525853D21=-60.68879327D22=180.17922652D23=-81.06481748D24=
-171.30626331rA=1.35833981aA=113.67512039aB=104.09742644DA=34.3597
9603DB=172.48156269\Version=x86-Linux-G03RevB.04\State=1-A\HF=-717.8
422785RMSD=2.839e-09RMSF=2.647e-05Dipole=1.7825085,-0.5056724,-2.56
45459PG=C01 [X(C7H19O2Si1)]\@
```

GS = -717.8778967 H/molecule
GS_{ZPE} = 627.8 kJ/mol

$\square E^\ddagger = 93.5$ kJ/mol (22.3 kcal/mol)
 $\square E^\ddagger_{ZPE} = 62.0$ kJ/mol (14.8 kcal/mol)



$$\square = 269.0i$$

$$E(\text{b3lyp}/6\text{-}311\text{G}^{**}) = -718.013317 \text{ H/molecule}$$

(ZPE = 654.8 kJ/mol)

Archive:

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1\1\ CHEMCLUSTER-KNET8\FTS\RB3LYP\6-311G(d,p)\C7H19O2Si(1+)\CARLHS\05
-Apr-2004\1\#\B3LYP/ 6-311G** GEOM=CHECKPOINT GUESS=READ OPT=(GRAD,TS,
READFC,NOEIGENTEST,NOFREEZE)\Finding TS with OH and OH2 leaving group
\1,1\C\C,1,r1\C,1,r2,2,a1\C,2,r3,1,a2,3,D1,0\Si,4,r4,2,a3,1,D2,0\C,5,
r5,4,a4,2,D3,0\C,5,r6,4,a5,2,D4,0\C,5,r7,4,a6,2,D5,0\O,1,rA,2,aA,4,DA,
0\H,1,r8,2,a7,4,D6,0\H,3,r9,1,a8,2,D7,0\H,3,r10,1,a9,2,D8,0\O,3,rTS,1,
aB,2,DB,0\H,13,r11,3,a10,1,D9,0\H,2,r12,1,a11,3,D10,0\H,2,r13,1,a12,3,
D11,0\H,4,r14,2,a13,1,D12,0\H,4,r15,2,a14,1,D13,0\H,6,r16,5,a15,4,D14,
0\H,6,r17,5,a16,4,D15,0\H,6,r18,5,a17,4,D16,0\H,7,r19,5,a18,6,D17,0\H,
7,r20,5,a19,6,D18,0\H,7,r21,5,a20,6,D19,0\H,8,r22,5,a21,6,D20,0\H,8,r2
3,5,a22,6,D21,0\H,8,r24,5,a23,6,D22,0\H,9,r25,1,a24,2,D23,0\H,13,r26,3
,a25,1,D24,0\VTs=2.26736953vr1=1.81006487vr2=1.39033617vr3=1.50975637
vr4=1.94980243vr5=1.87895352vr6=1.88163768vr7=1.88094168vr8=1.08772007
vr9=1.07983169vr10=1.08154049vr11=0.96508061vr12=1.09137447vr13=1.0873
9445vr14=1.09555684vr15=1.09277798vr16=1.09360875vr17=1.0935247vr18=1.
09424455vr19=1.09417102vr20=1.09397135vr21=1.09413678vr22=1.09399933vr
23=1.09412917vr24=1.09412511vr25=0.96462157vr26=0.96536495a1=83.87546
159a2=104.37215189a3=112.66863187a4=105.04093199a5=108.2676537a6=
108.67956638a7=101.47209225a8=120.21496737a9=119.33874417a10=113.6
8109883a11=114.34885553a12=102.35621899a13=111.47078577a14=110.944
64584a15=111.88552371a16=111.88338999a17=110.09478659a18=109.88403
656a19=111.93562775a20=112.7293258a21=111.84788343a22=109.95644192
a23=112.7410055a24=110.71743654a25=122.94299162D1=149.71419956D2=
173.57023305D3=178.58269066D4=59.15992176D5=-61.94403104D6=-91.796
73891D7=76.44895719D8=-91.31075405D9=57.99632125D10=28.32734233D1
1=-90.07336935D12=53.43802256D13=-67.02820156D14=60.57838462D15=-6
0.85110949D16=179.81607921D17=60.34462756D18=-58.49973095D19=179.2
6678927D20=58.29551582D21=-60.55056215D22=180.34190539D23=-80.5738
5741D24=-172.23983532vrA=1.36106098vA=113.71049616vB=104.54296587D
A=34.58233483DB=172.79933442\Version=x86-Linux-G03RevB.04\State=1-A\
HF=-718.013317RMSD=3.217e-09RMSF=2.643e-05Dipole=1.8236027,-0.54895
7,-2.6735194PG=C01 [X(C7H19O2Si)]\@\

```

GS = -718.0449254 H/molecule
GS_{ZPE} = 668.2 kJ/mol

$\square E^\ddagger = 83.0 \text{ kJ/mol (19.8 kcal/mol)}$
 $\square E^\ddagger_{\text{ZPE}} = 60.6 \text{ kJ/mol (14.5 kcal/mol)}$