

# ORGANOMETALLICS

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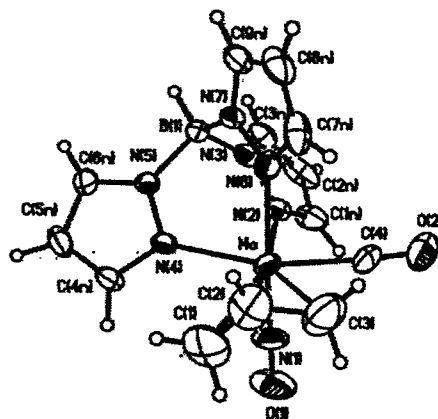
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**Figure 1.** ORTEP of *exo*-[TpMo(CO)(NO)( $\eta^3$ -C<sub>3</sub>H<sub>5</sub>)][(3,5-(CF<sub>3</sub>)<sub>2</sub>C<sub>6</sub>H<sub>3</sub>)<sub>4</sub>B], **9a**.

**Table S-I. Bond lengths (Å) and angles (deg) for [TpMo(CO)(NO)( $\eta^3$ -C<sub>3</sub>H<sub>5</sub>)][(3,5-(CF<sub>3</sub>)<sub>2</sub>C<sub>6</sub>H<sub>3</sub>)<sub>4</sub>B] 9a.**

|             |           |               |           |
|-------------|-----------|---------------|-----------|
| Mo-N(1)     | 1.833(9)  | C(11)-C(61)   | 1.419(9)  |
| Mo-C(4)     | 2.011(10) | C(21)-C(31)   | 1.39(2)   |
| Mo-N(2)     | 2.175(9)  | C(31)-C(41)   | 1.411(10) |
| Mo-N(6)     | 2.198(7)  | C(31)-C(71)   | 1.46(2)   |
| Mo-N(4)     | 2.196(6)  | C(41)-C(51)   | 1.331(14) |
| Mo-C(3)     | 2.34(2)   | C(51)-C(61)   | 1.419(14) |
| Mo-C(2)     | 2.35(2)   | C(51)-C(81)   | 1.506(11) |
| Mo-C(1)     | 2.47(2)   | C(71)-F(2)    | 1.297(10) |
| O(1)-N(1)   | 1.143(11) | C(71)-F(1)    | 1.32(2)   |
| O(2)-C(4)   | 1.161(11) | C(71)-F(3)    | 1.381(12) |
| N(2)-C(1N)  | 1.314(14) | C(81)-F(4)    | 1.210(11) |
| N(2)-N(3)   | 1.376(9)  | C(81)-F(6)    | 1.308(14) |
| N(3)-C(3N)  | 1.349(13) | C(81)-F(5)    | 1.35(2)   |
| N(3)-B(1)   | 1.507(14) | C(12)-C(22)   | 1.396(10) |
| N(4)-C(4N)  | 1.347(9)  | C(12)-C(62)   | 1.385(11) |
| N(4)-N(5)   | 1.355(8)  | C(22)-C(32)   | 1.40(2)   |
| N(5)-C(6N)  | 1.336(9)  | C(32)-C(42)   | 1.37(2)   |
| N(5)-B(1)   | 1.551(10) | C(32)-C(72A)  | 1.40(2)   |
| N(6)-N(7)   | 1.352(10) | C(42)-C(52)   | 1.379(11) |
| N(6)-C(7N)  | 1.376(13) | C(52)-C(62)   | 1.394(12) |
| N(7)-C(9N)  | 1.358(12) | C(52)-C(82)   | 1.469(14) |
| N(7)-B(1)   | 1.540(14) | C(72)-F(7)    | 0.57(3)   |
| C(1N)-C(2N) | 1.39(2)   | C(72)-F(7A)   | 1.04(3)   |
| C(2N)-C(3N) | 1.34(2)   | C(72)-C(72A)  | 1.14(4)   |
| C(4N)-C(5N) | 1.366(13) | C(72)-F(9)    | 1.42(3)   |
| C(5N)-C(6N) | 1.382(11) | C(72)-F(7AA)  | 1.76(4)   |
| C(7N)-C(8N) | 1.34(2)   | C(72A)-F(9)   | 0.94(2)   |
| C(8N)-C(9N) | 1.34(2)   | C(72A)-F(7A)  | 1.09(2)   |
| C(1)-C(2)   | 1.32(2)   | C(72A)-F(9A)  | 1.43(3)   |
| C(2)-C(3)   | 1.43(2)   | C(72A)-F(8)   | 1.55(3)   |
| B(2)-C(12)  | 1.629(12) | C(72A)-F(7)   | 1.62(3)   |
| B(2)-C(11)  | 1.671(13) | C(72A)-F(7AA) | 1.71(3)   |
| B(2)-C(14)  | 1.651(9)  | C(82)-F(10)   | 1.321(10) |
| B(2)-C(13)  | 1.655(10) |               |           |
| C(11)-C(21) | 1.357(13) |               |           |

**Table S-I. Bond lengths (Å) and angles (deg) for [TpMo(CO)(NO)( $\eta^3$ -C<sub>3</sub>H<sub>5</sub>)][(3,5-(CF<sub>3</sub>)<sub>2</sub>C<sub>6</sub>H<sub>3</sub>)<sub>4</sub>B]**  
**9a (cont.).**

|              |           |                   |           |
|--------------|-----------|-------------------|-----------|
| C(82)-F(12)  | 1.344(12) | N(1)-Mo-N(4)      | 95.3(3)   |
| C(82)-F(11)  | 1.354(10) | C(4)-Mo-N(4)      | 160.2(4)  |
| C(13)-C(23)  | 1.398(9)  | N(2)-Mo-N(4)      | 80.5(3)   |
| C(13)-C(63)  | 1.389(10) | N(6)-Mo-N(4)      | 85.1(2)   |
| C(23)-C(33)  | 1.398(10) | N(1)-Mo-C(3)      | 94.0(6)   |
| C(33)-C(43)  | 1.386(10) | C(4)-Mo-C(3)      | 66.1(6)   |
| C(33)-C(73)  | 1.495(11) | N(2)-Mo-C(3)      | 146.0(4)  |
| C(43)-C(53)  | 1.371(11) | N(6)-Mo-C(3)      | 90.4(5)   |
| C(53)-C(63)  | 1.407(10) | N(4)-Mo-C(3)      | 132.2(5)  |
| C(53)-C(83)  | 1.503(11) | N(1)-Mo-C(2)      | 102.5(6)  |
| C(73)-F(14)  | 1.30(2)   | C(4)-Mo-C(2)      | 100.6(6)  |
| C(73)-F(15)  | 1.299(9)  | N(2)-Mo-C(2)      | 166.6(5)  |
| C(73)-F(13)  | 1.344(13) | N(6)-Mo-C(2)      | 83.7(5)   |
| C(83)-F(18)  | 1.256(13) | N(4)-Mo-C(2)      | 96.9(4)   |
| C(83)-F(17)  | 1.287(11) | C(3)-Mo-C(2)      | 35.5(5)   |
| C(83)-F(16)  | 1.34(2)   | N(1)-Mo-C(1)      | 79.1(6)   |
| C(14)-C(64)  | 1.399(10) | C(4)-Mo-C(1)      | 121.7(5)  |
| C(14)-C(24)  | 1.415(10) | N(2)-Mo-C(1)      | 155.4(4)  |
| C(24)-C(34)  | 1.384(10) | N(6)-Mo-C(1)      | 107.1(5)  |
| C(34)-C(44)  | 1.369(11) | N(4)-Mo-C(1)      | 78.1(4)   |
| C(34)-C(74)  | 1.515(13) | C(3)-Mo-C(1)      | 58.0(5)   |
| C(44)-C(54)  | 1.378(10) | C(2)-Mo-C(1)      | 31.7(5)   |
| C(54)-C(64)  | 1.382(9)  | O(1)-N(1)-Mo      | 177.8(12) |
| C(54)-C(84)  | 1.516(12) | O(2)-C(4)-Mo      | 174.4(9)  |
| C(74)-F(20)  | 1.321(13) | C(1N)-N(2)-N(3)   | 106.7(9)  |
| C(74)-F(19)  | 1.330(12) | C(1N)-N(2)-Mo     | 133.0(7)  |
| C(74)-F(21)  | 1.339(11) | N(3)-N(2)-Mo      | 120.3(7)  |
| C(84)-F(24)  | 1.270(10) | C(3N)-N(3)-N(2)   | 108.3(9)  |
| C(84)-F(22)  | 1.297(11) | C(3N)-N(3)-B(1)   | 130.7(8)  |
| C(84)-F(23)  | 1.348(11) | N(2)-N(3)-B(1)    | 120.9(8)  |
| N(1)-Mo-C(4) | 89.8(4)   | C(4N)-N(4)-N(5)   | 105.5(6)  |
| N(1)-Mo-N(2) | 90.8(4)   | C(4N)-N(4)-Mo     | 134.8(5)  |
| C(4)-Mo-N(2) | 80.3(4)   | C(21)-C(11)-B(2)  | 120.6(6)  |
| N(1)-Mo-N(6) | 173.6(4)  | C(61)-C(11)-B(2)  | 123.0(9)  |
| C(4)-Mo-N(6) | 87.8(4)   | C(11)-C(21)-C(31) | 124.8(7)  |
| N(2)-Mo-N(6) | 83.0(3)   | C(21)-C(31)-C(41) | 117.3(11) |

**Table S-I. Bond lengths (Å) and angles (deg) for [TpMo(CO)(NO)( $\eta^3$ -C<sub>3</sub>H<sub>5</sub>)][(3,5-(CF<sub>3</sub>)<sub>2</sub>C<sub>6</sub>H<sub>3</sub>)<sub>4</sub>B] 9a (cont.).**

|                   |           |                     |           |
|-------------------|-----------|---------------------|-----------|
| N(5)-N(4)-Mo      | 119.7(4)  | C(51)-C(41)-C(31)   | 120.2(9)  |
| C(6N)-N(5)-N(4)   | 110.4(5)  | C(41)-C(51)-C(61)   | 121.7(7)  |
| C(6N)-N(5)-B(1)   | 128.0(6)  | C(41)-C(51)-C(81)   | 121.8(9)  |
| N(4)-N(5)-B(1)    | 121.3(5)  | C(61)-C(51)-C(81)   | 116.5(10) |
| N(7)-N(6)-C(7N)   | 105.0(7)  | C(11)-C(61)-C(51)   | 119.6(9)  |
| N(7)-N(6)-Mo      | 119.5(6)  | F(2)-C(71)-F(1)     | 110.9(13) |
| C(7N)-N(6)-Mo     | 135.5(7)  | F(2)-C(71)-F(3)     | 100.6(9)  |
| N(6)-N(7)-C(9N)   | 108.2(8)  | F(1)-C(71)-F(3)     | 101.8(10) |
| N(6)-N(7)-B(1)    | 121.7(6)  | F(2)-C(71)-C(31)    | 115.7(9)  |
| C(9N)-N(7)-B(1)   | 130.1(8)  | F(1)-C(71)-C(31)    | 114.3(10) |
| N(3)-B(1)-N(7)    | 107.6(6)  | F(3)-C(71)-C(31)    | 111.8(10) |
| N(3)-B(1)-N(5)    | 107.7(6)  | F(4)-C(81)-F(6)     | 108.0(12) |
| N(7)-B(1)-N(5)    | 108.3(8)  | F(4)-C(81)-F(5)     | 108.7(10) |
| N(2)-C(1N)-C(2N)  | 110.3(10) | F(6)-C(81)-F(5)     | 98.6(8)   |
| C(3N)-C(2N)-C(1N) | 105.6(11) | F(4)-C(81)-C(51)    | 115.2(8)  |
| C(2N)-C(3N)-N(3)  | 109.1(9)  | F(6)-C(81)-C(51)    | 114.6(8)  |
| N(4)-C(4N)-C(5N)  | 111.0(7)  | F(5)-C(81)-C(51)    | 110.4(11) |
| C(4N)-C(5N)-C(6N) | 105.1(6)  | C(22)-C(12)-C(62)   | 116.1(8)  |
| N(5)-C(6N)-C(5N)  | 108.0(7)  | C(22)-C(12)-B(2)    | 118.8(8)  |
| C(8N)-C(7N)-N(6)  | 111.3(10) | C(62)-C(12)-B(2)    | 124.8(6)  |
| C(9N)-C(8N)-C(7N) | 105.3(9)  | C(32)-C(22)-C(12)   | 122.1(10) |
| C(8N)-C(9N)-N(7)  | 110.3(9)  | C(22)-C(32)-C(42)   | 119.8(9)  |
| C(2)-C(1)-Mo      | 68.8(8)   | C(22)-C(32)-C(72A)  | 117(2)    |
| C(1)-C(2)-C(3)    | 117(2)    | C(42)-C(32)-C(72A)  | 124(2)    |
| C(1)-C(2)-Mo      | 79.6(10)  | C(32)-C(42)-C(52)   | 119.6(10) |
| C(3)-C(2)-Mo      | 72.1(10)  | C(62)-C(52)-C(42)   | 119.9(9)  |
| C(2)-C(3)-Mo      | 72.5(9)   | C(62)-C(52)-C(82)   | 120.7(7)  |
| C(12)-B(2)-C(11)  | 114.2(5)  | F(9)-C(72A)-F(7AA)  | 125(2)    |
| C(12)-B(2)-C(14)  | 105.0(6)  | F(7A)-C(72A)-F(7AA) | 25.7(13)  |
| C(11)-B(2)-C(14)  | 108.2(7)  | C(72)-C(72A)-F(7AA) | 73(2)     |
| C(12)-B(2)-C(13)  | 113.0(7)  | C(32)-C(72A)-F(7AA) | 104(2)    |
| C(11)-B(2)-C(13)  | 104.1(6)  | F(9A)-C(72A)-F(7AA) | 84(2)     |
| C(14)-B(2)-C(13)  | 112.3(5)  | F(8)-C(72A)-F(7AA)  | 143(2)    |
| C(21)-C(11)-C(61) | 116.4(8)  | F(7)-C(72A)-F(7AA)  | 74.3(12)  |
| C(21)-C(31)-C(71) | 120.7(7)  | C(72)-F(7)-C(72A)   | 27(3)     |
| C(41)-C(31)-C(71) | 121.9(10) | C(72)-F(7A)-C(72A)  | 65(2)     |

**Table S-I. Bond lengths (Å) and angles (deg) for [TpMo(CO)(NO)( $\eta^3$ -C<sub>3</sub>H<sub>5</sub>)][(3,5-(CF<sub>3</sub>)<sub>2</sub>C<sub>6</sub>H<sub>3</sub>)<sub>4</sub>B]**  
**9a (cont.).**

|                     |           |                   |          |
|---------------------|-----------|-------------------|----------|
| C(42)-C(52)-C(82)   | 119.3(9)  | F(10)-C(82)-F(11) | 103.2(6) |
| C(52)-C(62)-C(12)   | 122.5(6)  | F(12)-C(82)-F(11) | 102.7(9) |
| F(7)-C(72)-F(7A)    | 129(5)    | F(10)-C(82)-C(52) | 114.8(9) |
| F(7)-C(72)-C(72A)   | 140(4)    | F(12)-C(82)-C(52) | 113.7(7) |
| F(7A)-C(72)-C(72A)  | 60(3)     | F(11)-C(82)-C(52) | 112.7(6) |
| F(7)-C(72)-F(9)     | 152(5)    | C(23)-C(13)-C(63) | 116.4(6) |
| F(7A)-C(72)-F(9)    | 78(3)     | C(23)-C(13)-B(2)  | 118.9(5) |
| C(72A)-C(72)-F(9)   | 41.3(14)  | C(63)-C(13)-B(2)  | 124.6(6) |
| F(7)-C(72)-F(7AA)   | 109(4)    | C(13)-C(23)-C(33) | 121.9(6) |
| F(7A)-C(72)-F(7AA)  | 21.1(13)  | C(43)-C(33)-C(23) | 120.4(7) |
| C(72A)-C(72)-F(7AA) | 69(3)     | C(43)-C(33)-C(73) | 119.5(6) |
| F(9)-C(72)-F(7AA)   | 96(3)     | C(23)-C(33)-C(73) | 120.0(6) |
| F(9)-C(72A)-F(7A)   | 102(2)    | C(33)-C(43)-C(53) | 118.8(7) |
| F(9)-C(72A)-C(72)   | 86(3)     | C(63)-C(53)-C(43) | 120.6(7) |
| F(7A)-C(72A)-C(72)  | 55(2)     | C(63)-C(53)-C(83) | 118.5(7) |
| F(9)-C(72A)-C(32)   | 130(2)    | C(43)-C(53)-C(83) | 120.9(7) |
| F(7A)-C(72A)-C(32)  | 129(2)    | C(53)-C(63)-C(13) | 121.9(7) |
| C(72)-C(72A)-C(32)  | 124(2)    | F(14)-C(73)-F(15) | 107.3(9) |
| F(9)-C(72A)-F(9A)   | 68(2)     | F(14)-C(73)-F(13) | 101.2(8) |
| F(7A)-C(72A)-F(9A)  | 83(2)     | F(10)-C(82)-F(12) | 108.7(8) |
| C(72)-C(72A)-F(9A)  | 124(2)    | F(10)-C(82)-F(11) | 103.2(6) |
| C(32)-C(72A)-F(9A)  | 110(2)    | F(12)-C(82)-F(11) | 102.7(9) |
| F(9)-C(72A)-F(8)    | 18.8(14)  | F(10)-C(82)-C(52) | 114.8(9) |
| F(7A)-C(72A)-F(8)   | 119(2)    | F(12)-C(82)-C(52) | 113.7(7) |
| C(72)-C(72A)-F(8)   | 90(2)     | F(11)-C(82)-C(52) | 112.7(6) |
| C(32)-C(72A)-F(8)   | 112.6(14) | C(23)-C(13)-C(63) | 116.4(6) |
| F(9A)-C(72A)-F(8)   | 79.4(13)  | C(23)-C(13)-B(2)  | 118.9(5) |
| F(9)-C(72A)-F(7)    | 95(2)     | C(63)-C(13)-B(2)  | 124.6(6) |
| F(7A)-C(72A)-F(7)   | 62(2)     | C(13)-C(23)-C(33) | 121.9(6) |
| C(72)-C(72A)-F(7)   | 13(2)     | C(43)-C(33)-C(23) | 120.4(7) |
| C(32)-C(72A)-F(7)   | 111(2)    | C(43)-C(33)-C(73) | 119.5(6) |
| F(7A)-C(72A)-F(7AA) | 25.7(13)  | C(23)-C(33)-C(73) | 120.0(6) |
| C(72)-C(72A)-F(7AA) | 73(2)     | C(33)-C(43)-C(53) | 118.8(7) |
| C(72A)-F(7AA)-C(72) | 38.5(13)  | C(63)-C(53)-C(43) | 120.6(7) |
| C(72A)-F(9)-C(72)   | 53(2)     | C(63)-C(53)-C(83) | 118.5(7) |
| F(10)-C(82)-F(12)   | 108.7(8)  | C(43)-C(53)-C(83) | 120.9(7) |

**Table S-I. Bond lengths (Å) and angles (deg) for [TpMo(CO)(NO)( $\eta^3$ -C<sub>3</sub>H<sub>5</sub>)][(3,5-(CF<sub>3</sub>)<sub>2</sub>C<sub>6</sub>H<sub>3</sub>)<sub>4</sub>B] 9a (cont.).**

|                   |           |                   |           |
|-------------------|-----------|-------------------|-----------|
| C(53)-C(63)-C(13) | 121.9(7)  | C(44)-C(34)-C(74) | 118.9(7)  |
| F(14)-C(73)-F(15) | 107.3(9)  | C(54)-C(44)-C(34) | 118.7(6)  |
| F(14)-C(73)-F(13) | 101.2(8)  | C(44)-C(54)-C(64) | 120.7(7)  |
| F(15)-C(73)-F(13) | 107.2(9)  | C(44)-C(54)-C(84) | 118.2(6)  |
| F(14)-C(73)-C(33) | 113.3(8)  | C(64)-C(54)-C(84) | 121.1(6)  |
| F(15)-C(73)-C(33) | 115.3(6)  | C(14)-C(64)-C(54) | 122.2(6)  |
| F(13)-C(73)-C(33) | 111.6(9)  | F(20)-C(74)-F(19) | 109.5(8)  |
| F(18)-C(83)-F(17) | 110.5(11) | F(20)-C(74)-F(21) | 106.3(10) |
| F(18)-C(83)-F(16) | 104.3(9)  | F(19)-C(74)-F(21) | 104.8(7)  |
| F(17)-C(83)-F(16) | 102.2(9)  | F(20)-C(74)-C(34) | 113.3(7)  |
| F(18)-C(83)-C(53) | 115.4(8)  | F(19)-C(74)-C(34) | 110.8(10) |
| F(17)-C(83)-C(53) | 113.7(8)  | F(21)-C(74)-C(34) | 111.7(7)  |
| F(16)-C(83)-C(53) | 109.4(11) | F(24)-C(84)-F(22) | 109.0(11) |
| C(64)-C(14)-C(24) | 115.6(6)  | F(24)-C(84)-F(23) | 105.0(6)  |
| C(64)-C(14)-B(2)  | 123.4(6)  | F(22)-C(84)-F(23) | 104.8(7)  |
| C(24)-C(14)-B(2)  | 120.5(7)  | F(24)-C(84)-C(54) | 113.8(6)  |
| C(34)-C(24)-C(14) | 121.4(8)  | F(22)-C(84)-C(54) | 113.8(6)  |
| C(24)-C(34)-C(44) | 121.3(7)  | F(23)-C(84)-C(54) | 109.7(9)  |
| C(24)-C(34)-C(74) | 119.8(8)  |                   |           |

**Table S-II. Hydrogen atom coordinates ( $\times 10^4$ ) and temperature factors ( $\text{\AA}^2 \times 10^3$ ) for [TpMo(CO)(NO)( $\eta^3\text{-C}_3\text{H}_5$ )][(3,5-( $\text{CF}_3$ )<sub>2</sub> $\text{C}_6\text{H}_3$ )<sub>4</sub>B] 9a.**

| <i>atom</i> | <i>x</i> | <i>y</i> | <i>z</i> | <i>U<sub>11</sub></i> |
|-------------|----------|----------|----------|-----------------------|
| H(2B)       | 4214(3)  | 8054(7)  | 2327(5)  | 50                    |
| H(1NA)      | 4723(3)  | 4499(9)  | 1639(5)  | 50                    |
| H(2NA)      | 5158(3)  | 5991(11) | 1374(5)  | 50                    |
| H(3NA)      | 4859(3)  | 7547(8)  | 1842(5)  | 50                    |
| H(4NA)      | 3161(3)  | 5673(7)  | 1417(5)  | 50                    |
| H(5NA)      | 3073(3)  | 7517(7)  | 1153(5)  | 50                    |
| H(6NA)      | 3606(3)  | 8475(6)  | 1679(4)  | 50                    |
| H(7NA)      | 3908(4)  | 5163(9)  | 3985(4)  | 50                    |
| H(8NA)      | 4044(4)  | 6856(10) | 4453(5)  | 50                    |
| H(9NA)      | 4161(3)  | 8056(8)  | 3609(5)  | 50                    |
| H(1B)       | 3145(5)  | 3632(13) | 2240(9)  | 50                    |
| H(1A)       | 3025(5)  | 4817(13) | 2317(9)  | 50                    |
| H(2A)       | 3256(4)  | 4686(11) | 3277(9)  | 50                    |
| H(3A)       | 3762(5)  | 3527(9)  | 3454(9)  | 50                    |
| H(3B)       | 3613(5)  | 2879(9)  | 2882(9)  | 50                    |
| H(21A)      | 3034(3)  | 10271(5) | 883(4)   | 50                    |
| H(41A)      | 3366(3)  | 10474(6) | 2643(4)  | 50                    |
| H(61A)      | 4140(3)  | 10625(5) | 1293(3)  | 50                    |
| H(22)       | 4116(3)  | 12055(6) | 626(4)   | 50                    |
| H(42)       | 5067(3)  | 11889(6) | -389(4)  | 50                    |
| H(62)       | 4229(2)  | 9801(5)  | -594(3)  | 50                    |
| H(23)       | 4047(2)  | 8686(5)  | 341(3)   | 50                    |
| H(43)       | 3347(3)  | 6579(6)  | -425(4)  | 50                    |
| H(63)       | 3068(2)  | 9600(5)  | -408(4)  | 50                    |
| H(24)       | 3438(2)  | 10836(5) | -952(4)  | 50                    |
| H(44)       | 2846(2)  | 13491(5) | -863(4)  | 50                    |
| H(64)       | 3299(2)  | 12254(5) | 655(3)   | 50                    |



**Table S-III. Temperature factors ( $\text{\AA}^2 \times 10^3$ ) for  $[\text{TpMo}(\text{CO})(\text{NO})(\eta^3\text{-C}_3\text{H}_5)][(3,5\text{-(CF}_3)_2\text{C}_6\text{H}_3)_4\text{B}]$  9a (cont.).**

| Atom  | $U_{11}$ | $U_{22}$ | $U_{33}$ | $U_{23}$ | $U_{13}$ | $U_{12}$ |
|-------|----------|----------|----------|----------|----------|----------|
| C(82) | 39(6)    | 57(5)    | 53(7)    | -9(4)    | 1(7)     | 11(4)    |
| F(10) | 110(6)   | 52(3)    | 107(5)   | -23(3)   | 57(6)    | 10(3)    |
| F(11) | 57(4)    | 93(4)    | 48(3)    | -12(3)   | 5(4)     | 15(3)    |
| F(12) | 33(4)    | 143(5)   | 72(5)    | -29(4)   | 4(5)     | 23(4)    |
| C(73) | 54(7)    | 38(5)    | 75(7)    | -14(5)   | 8(8)     | 1(4)     |
| F(13) | 69(5)    | 52(4)    | 304(14)  | 65(5)    | 32(9)    | 8(3)     |
| F(14) | 116(7)   | 141(6)   | 104(6)   | -62(5)   | -28(7)   | 79(6)    |
| F(15) | 84(5)    | 55(3)    | 91(4)    | -11(3)   | -30(5)   | 26(3)    |
| C(83) | 70(9)    | 60(6)    | 86(8)    | -13(5)   | -33(9)   | -9(6)    |
| F(16) | 113(8)   | 239(10)  | 88(6)    | 9(6)     | -52(7)   | -58(7)   |
| F(17) | 118(6)   | 93(5)    | 195(9)   | 0(5)     | -90(7)   | -50(4)   |
| F(18) | 58(4)    | 137(6)   | 250(12)  | -96(7)   | -73(7)   | 20(4)    |
| C(74) | 74(9)    | 66(6)    | 53(7)    | 2(5)     | -22(8)   | 3(6)     |
| F(19) | 80(5)    | 181(6)   | 43(4)    | -2(4)    | -15(5)   | -31(5)   |
| F(20) | 130(7)   | 74(4)    | 41(3)    | -9(3)    | -2(5)    | 21(4)    |
| F(21) | 88(5)    | 82(4)    | 48(3)    | 22(3)    | 10(4)    | 15(3)    |
| C(84) | 58(7)    | 37(4)    | 55(6)    | 3(4)     | -21(7)   | 0(4)     |
| F(22) | 168(10)  | 81(4)    | 66(4)    | -15(3)   | 4(6)     | 65(5)    |
| F(23) | 88(6)    | 53(3)    | 166(8)   | -35(4)   | 52(7)    | -24(4)   |
| F(24) | 65(5)    | 85(4)    | 124(6)   | -43(4)   | -26(6)   | 35(3)    |

The anisotropic temperature factor exponent takes the form:  $-2\pi^2(h^2a^{*2}U_{11} + k^2b^{*2}U_{22} + l^2c^{*2}U_{33} + 2hka^*b^*U_{12} + 2hla^*c^*U_{13} + 2klb^*c^*U_{23})$ .

**Table 5. Atom coordinates ( $\times 10^4$ ) and Equivalent Isotropic Displacement Parameters ( $\text{\AA}^2 \times 10^3$ ) for [TpMo(CO)(NO)( $\eta^3\text{-C}_3\text{H}_5$ )][(3,5-(CF<sub>3</sub>)<sub>2</sub>C<sub>6</sub>H<sub>3</sub>)<sub>4</sub>B], 9a.**

| Atom  | x       | y        | z       | U(eq)  |
|-------|---------|----------|---------|--------|
| Mo    | 3883(1) | 4793(1)  | 2385(1) | 52(1)  |
| O(1)  | 3837(3) | 3397(7)  | 1320(6) | 148(6) |
| N(1)  | 3857(3) | 3948(6)  | 1722(5) | 93(4)  |
| O(2)  | 4544(3) | 3439(6)  | 2937(6) | 137(5) |
| C(4)  | 4289(4) | 3894(6)  | 2742(6) | 86(5)  |
| N(2)  | 4382(2) | 5550(5)  | 2019(4) | 54(3)  |
| N(3)  | 4430(2) | 6591(5)  | 2090(3) | 47(2)  |
| N(4)  | 3611(2) | 6111(4)  | 1942(3) | 43(2)  |
| N(5)  | 3755(2) | 7066(4)  | 2022(3) | 42(2)  |
| N(6)  | 3976(2) | 5855(5)  | 3145(3) | 55(3)  |
| N(7)  | 4069(2) | 6843(5)  | 3031(3) | 48(3)  |
| B(1)  | 4127(3) | 7240(7)  | 2380(5) | 46(3)  |
| C(1N) | 4681(3) | 5211(9)  | 1730(5) | 71(4)  |
| C(2N) | 4926(3) | 6019(11) | 1600(5) | 75(4)  |
| C(3N) | 4762(3) | 6858(8)  | 1835(5) | 58(3)  |
| C(4N) | 3314(3) | 6229(7)  | 1564(5) | 65(3)  |
| C(5N) | 3270(3) | 7235(7)  | 1404(5) | 67(4)  |
| C(6N) | 3556(3) | 7751(6)  | 1702(4) | 52(3)  |
| C(7N) | 3963(4) | 5783(9)  | 3767(4) | 73(4)  |
| C(8N) | 4038(4) | 6692(10) | 4029(5) | 95(5)  |
| C(9N) | 4103(3) | 7340(8)  | 3569(5) | 74(4)  |
| C(1)  | 3207(5) | 4291(13) | 2408(9) | 122(7) |
| C(2)  | 3357(4) | 4271(11) | 2957(9) | 106(6) |
| C(3)  | 3654(5) | 3546(9)  | 3054(9) | 121(7) |
| B(2)  | 3678(3) | 10508(6) | 224(4)  | 31(3)  |
| C(11) | 3591(2) | 10486(5) | 968(3)  | 33(2)  |
| C(21) | 3233(3) | 10354(5) | 1177(4) | 40(2)  |
| C(31) | 3132(3) | 10335(6) | 1788(4) | 50(2)  |
| C(41) | 3424(3) | 10456(6) | 2218(4) | 50(2)  |
| C(51) | 3782(3) | 10553(6) | 2036(4) | 43(2)  |
| C(61) | 3880(3) | 10564(5) | 1413(3) | 39(2)  |
| C(71) | 2740(4) | 10154(8) | 1969(5) | 67(4)  |

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| Atom   | x       | y         | z        | U(eq)  |
|--------|---------|-----------|----------|--------|
| F(1)   | 2657(3) | 10479(7)  | 2517(4)  | 124(4) |
| F(2)   | 2484(2) | 10440(7)  | 1582(4)  | 129(4) |
| F(3)   | 2660(2) | 9119(5)   | 2013(3)  | 97(3)  |
| C(81)  | 4102(4) | 10686(7)  | 2480(5)  | 73(4)  |
| F(4)   | 4189(3) | 11567(6)  | 2586(6)  | 227(8) |
| F(5)   | 4021(3) | 10213(9)  | 3007(3)  | 154(4) |
| F(6)   | 4411(2) | 10183(6)  | 2342(3)  | 102(3) |
| C(12)  | 4108(2) | 10849(5)  | 49(3)    | 31(2)  |
| C(22)  | 4261(3) | 11725(6)  | 320(4)   | 51(2)  |
| C(32)  | 4617(3) | 12114(7)  | 157(5)   | 61(2)  |
| C(42)  | 4826(3) | 11625(6)  | -279(4)  | 61(2)  |
| C(52)  | 4680(2) | 10770(5)  | -564(4)  | 40(2)  |
| C(62)  | 4326(2) | 10394(5)  | -398(3)  | 32(2)  |
| C(72)  | 4754(9) | 13044(17) | 987(14)  | 55(6)  |
| C(72A) | 4741(7) | 12984(16) | 471(10)  | 64(5)  |
| F(7)   | 4724(5) | 12806(10) | 1197(7)  | 73(4)  |
| F(7A)  | 5000(6) | 13086(11) | 731(8)   | 88(4)  |
| F(7AA) | 5194(6) | 12680(14) | 685(9)   | 125(6) |
| F(8)   | 4449(3) | 13874(7)  | 454(5)   | 49(2)  |
| F(9)   | 4636(6) | 13649(13) | 484(9)   | 101(5) |
| F(9A)  | 4926(4) | 13682(8)  | 64(6)    | 170(4) |
| C(82)  | 4894(3) | 10294(6)  | -1061(4) | 50(3)  |
| F(10)  | 4817(2) | 9315(4)   | -1155(3) | 90(2)  |
| F(11)  | 4822(2) | 10733(4)  | -1605(2) | 66(2)  |
| F(12)  | 5271(2) | 10402(5)  | -1008(3) | 83(2)  |
| C(13)  | 3572(2) | 9333(5)   | -6(3)    | 35(2)  |
| C(23)  | 3818(2) | 8528(5)   | 135(3)   | 37(2)  |
| C(33)  | 3733(2) | 7508(5)   | -10(4)   | 42(2)  |
| C(43)  | 3404(3) | 7270(6)   | -321(4)  | 50(2)  |
| C(53)  | 3157(3) | 8045(6)   | -463(4)  | 46(2)  |
| C(63)  | 3240(2) | 9067(5)   | -306(4)  | 42(2)  |
| C(73)  | 4010(3) | 6676(6)   | 138(5)   | 56(3)  |
| F(13)  | 3836(2) | 5843(4)   | 367(6)   | 142(5) |
| F(14)  | 4173(3) | 6290(6)   | -336(4)  | 120(4) |
| F(15)  | 4276(2) | 6930(4)   | 517(3)   | 77(2)  |
| C(83)  | 2798(3) | 7828(7)   | -805(5)  | 72(4)  |
| F(16)  | 2857(3) | 7966(8)   | -1400(4) | 147(4) |
| F(17)  | 2694(2) | 6881(5)   | -784(4)  | 136(4) |
| F(18)  | 2524(2) | 8409(6)   | -685(5)  | 148(5) |
| C(14)  | 3403(2) | 11387(5)  | -88(3)   | 34(2)  |
| C(24)  | 3339(2) | 11391(5)  | -721(4)  | 41(2)  |
| C(34)  | 3128(2) | 12157(5)  | -995(4)  | 39(2)  |
| C(44)  | 2987(2) | 12963(5)  | -668(4)  | 40(2)  |

| <b>Atom</b> | <b>x</b> | <b>y</b> | <b>z</b> | <b>U(eq)</b> |
|-------------|----------|----------|----------|--------------|
| C(54)       | 3053(2)  | 12996(5) | -53(3)   | 35(2)        |
| C(64)       | 3258(2)  | 12228(5) | 230(3)   | 31(2)        |
| C(74)       | 3063(3)  | 12131(7) | -1674(5) | 65(4)        |
| F(19)       | 2700(2)  | 11966(6) | -1799(3) | 101(3)       |
| F(20)       | 3272(2)  | 11440(4) | -1956(2) | 82(2)        |
| F(21)       | 3142(2)  | 13035(4) | -1933(2) | 73(2)        |
| C(84)       | 2903(3)  | 13905(5) | 301(4)   | 50(3)        |
| F(22)       | 2896(3)  | 13761(4) | 883(3)   | 105(3)       |
| F(23)       | 3133(2)  | 14721(4) | 222(4)   | 103(3)       |
| F(24)       | 2579(2)  | 14208(4) | 128(3)   | 91(3)        |

\* Equivalent isotropic U defined as one third of the trace of the orthogonalised  $U_{ij}$  tensor.