

# Additions and Corrections

1993, Volume 32

**S. Chandrasekhar, D. G. Fortier, and A. McAuley\*:**  
Syntheses of Chromium and Copper Complexes of Hexa-  
azamacrocycles. Crystal Structures of Chromium(III)  
Complexes of 1,4,7,10,13,16-Hexaazacyclooctadecane and  
1,4,7,11,14,17-Hexaazacycloeicosane.

Pages 1424–1429. In the original paper, we presented data for the synthesis and crystal structure of  $[\text{Cr}(1,4,7,10,13,16\text{-hexaazacyclooctadecane})]\text{Br}_3$  together with other macrocyclic species. However, following further spectroscopic studies, it became clear that the wrong space group  $I_12/m_1$  (No. 12) was used for this complex. The data have been re-examined and have been found to conform to the space group  $R\bar{3}m$  (trigonal, No. 166). The pertinent data are as follows:  $a = b = c = 8.038(3)$  Å,  $\alpha = \beta = \gamma = 72.83(3)^\circ$ , 1 molecule/unit cell, cell volume 463 Å<sup>3</sup>. Refinement of the structure in the new unit cell leads to an asymmetric unit that is one-twelfth of the complex cation with the following fractional atomic coordinates and temperature factors:

atom	$x/a$	$y/b$	$z/c$	$U_{\text{eq}}, \text{Å}^2$
Cr	0(1)	0(1)	0(1)	178(5)
Br(1)	22055(8)	22055(8)	22055(8)	325(4)
Br(2)	50000(1)	50000(1)	50000(1)	381(5)
N(1)	1691(5)	-1619(8)	1691(5)	28(3)
C(1)	3242(9)	-2711(11)	686(9)	69(4)

Estimated standard deviations are given in parentheses; coordinates  $\times 10^4$ ,  $n = 5, 5, 4, 4$  for Cr, Br, N, C; temperature parameters  $\times 10^3$ ,  $n = 4, 4, 3, 3$  for Cr, Br, N, C.  $U_{\text{eq}}$  = the equivalent isotropic temperature parameter =  $1/3 \sum_i \sum_j U_{ij} a_i^* a_j^* (\mathbf{a}_i \cdot \mathbf{a}_j)$ . The number of reflections used was 751 ( $I > 2\sigma_I$ ) out of a total of 872, with 23 parameters to be refined in the cycle. Refinement converged at  $R = 0.067$  and  $R_w = 0.076$ , where  $R$  and  $R_w$  are defined in the paper and  $w = 4.3/(\sigma_F^2 + 0.001F^2)$ . The overall structural form of the cation is that depicted in the paper, but several of the bond angles and interatomic distances differ. All Cr–N distances are identical at 2.092(6) Å. The N(1)–C(1) bond distance is 1.468(7) Å, and C(1)–C(1)' is 1.497(16) Å. Bond angles are C(1)–N(1)–Cr = 110.0(4)°, C(1)–N(1)–C(1)' = 112.3(8)°, the open-faced angle N(1)–Cr–N(1)' = 97.9(2)°, and the internal chelating angle N(1)–Cr–N(1)'' = 82.1(2)°. As a result, the trigonal twist angle is now 60°.

**Supplementary Material Available:** Listings of anisotropic temperature factors and selected intermolecular distances (1 page). Ordering information is given on any current masthead page.