

Diamondoid–cyclohexamantane

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Introduction

This paper was prompted by Reference 2. Each of the twenty-six “atoms” of cyclohexamantane in Reference 2 is a crystal forming unit (CFU) of diamond. Diamond is defined by the four C-atom tetrahedron which is its CFU.

Cyclohexamantane can be formed by the joining of two identical panels of diamond CFUs each of which is a vertexially truncated 4-triangle. The same arrangement occurs in decamantane. [See Figure 9 of Reference 5.] Layers B and C of decamantane are identical to layers A and B of cyclohexamantane [See Figure 1 of this paper.]

Figure 2 shows only the CFUs which participate in the interlayer joining of panels A and B which produce cyclohexamantane.

Figure 3 shows how the atoms are arranged in the diamond CFUs and how the join between the CFUs of the two layers is effected.

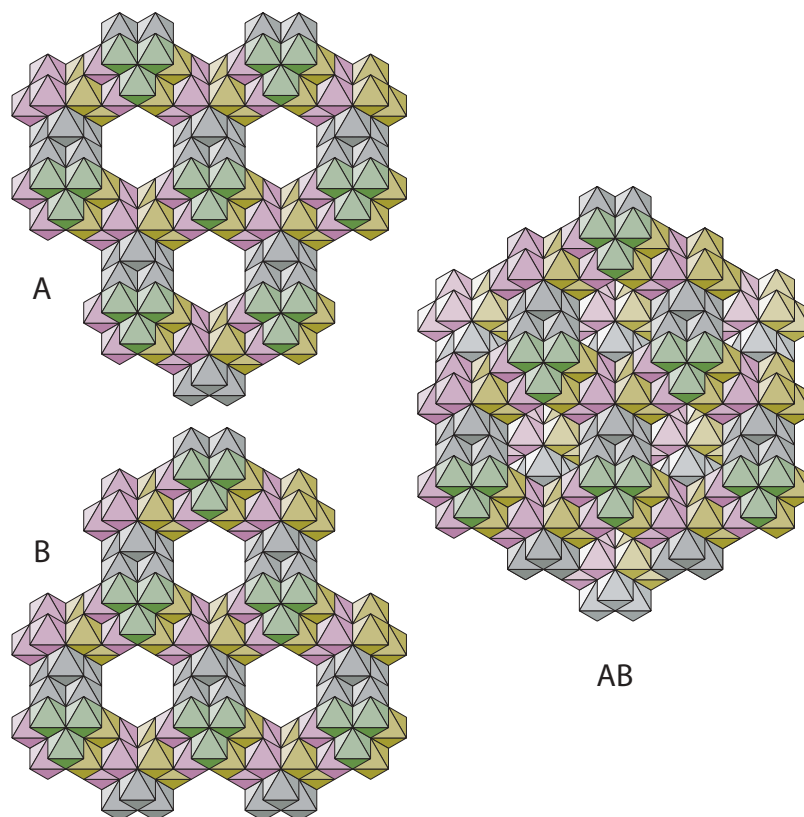


Fig. 1 Cyclohexamantane—an assembly of two identical diamond panels

The figure shows how two identical panels of diamond CFUs assemble as cyclohexamantane. Each of the panels A and B is a vertexially truncated 4-triangle. A and B differ by a half turn rotation about the bottom edge of the page.

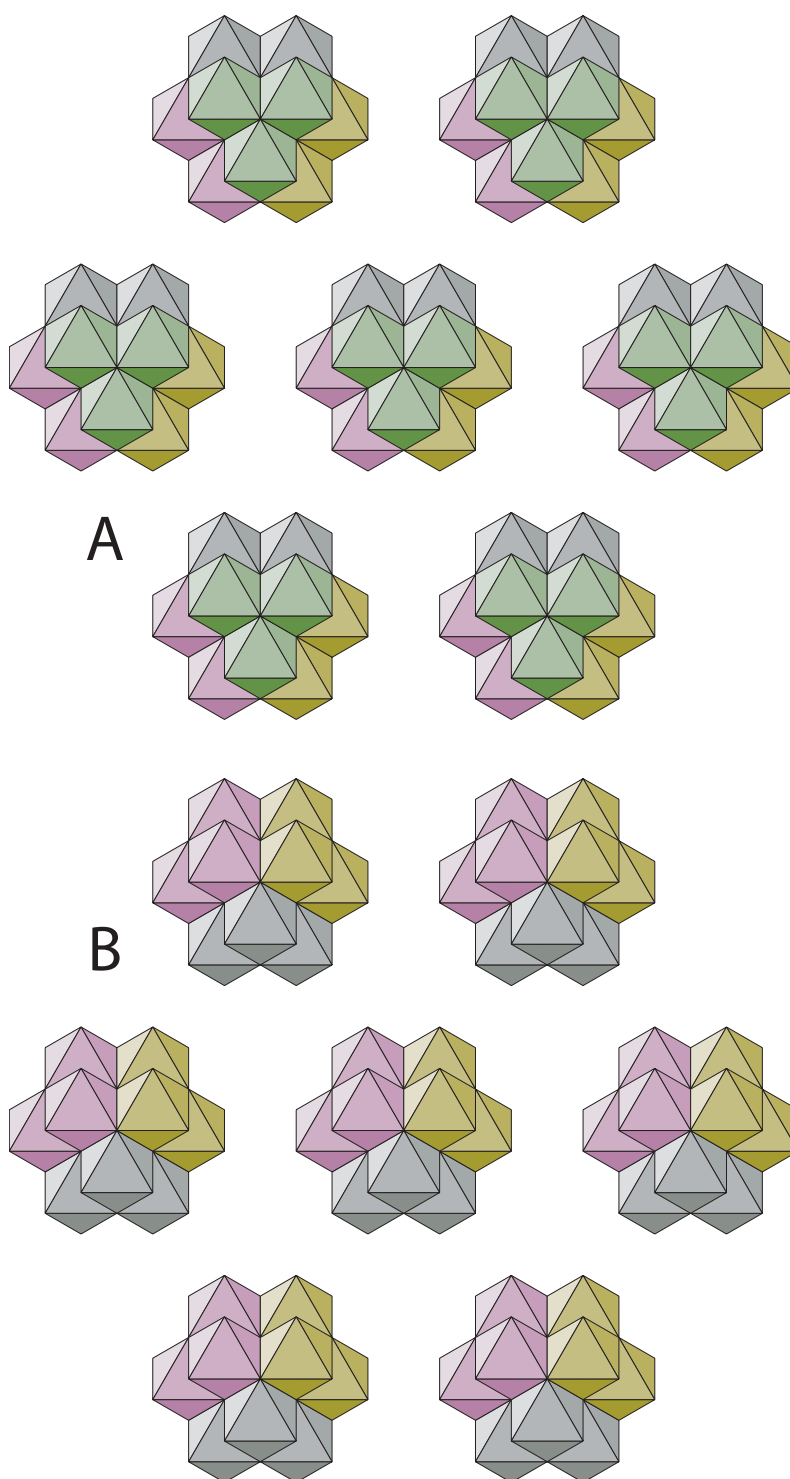


Fig. 2 Interpanel joins in cyclohexamantane

Only those CFUs which participate in the interpanel joining of cyclohexamantane are shown in the figure. Those from panel A are shown at the top; those from panel B are shown at the bottom. Each of the CFUs is in the same orientation and position it has in its panel.

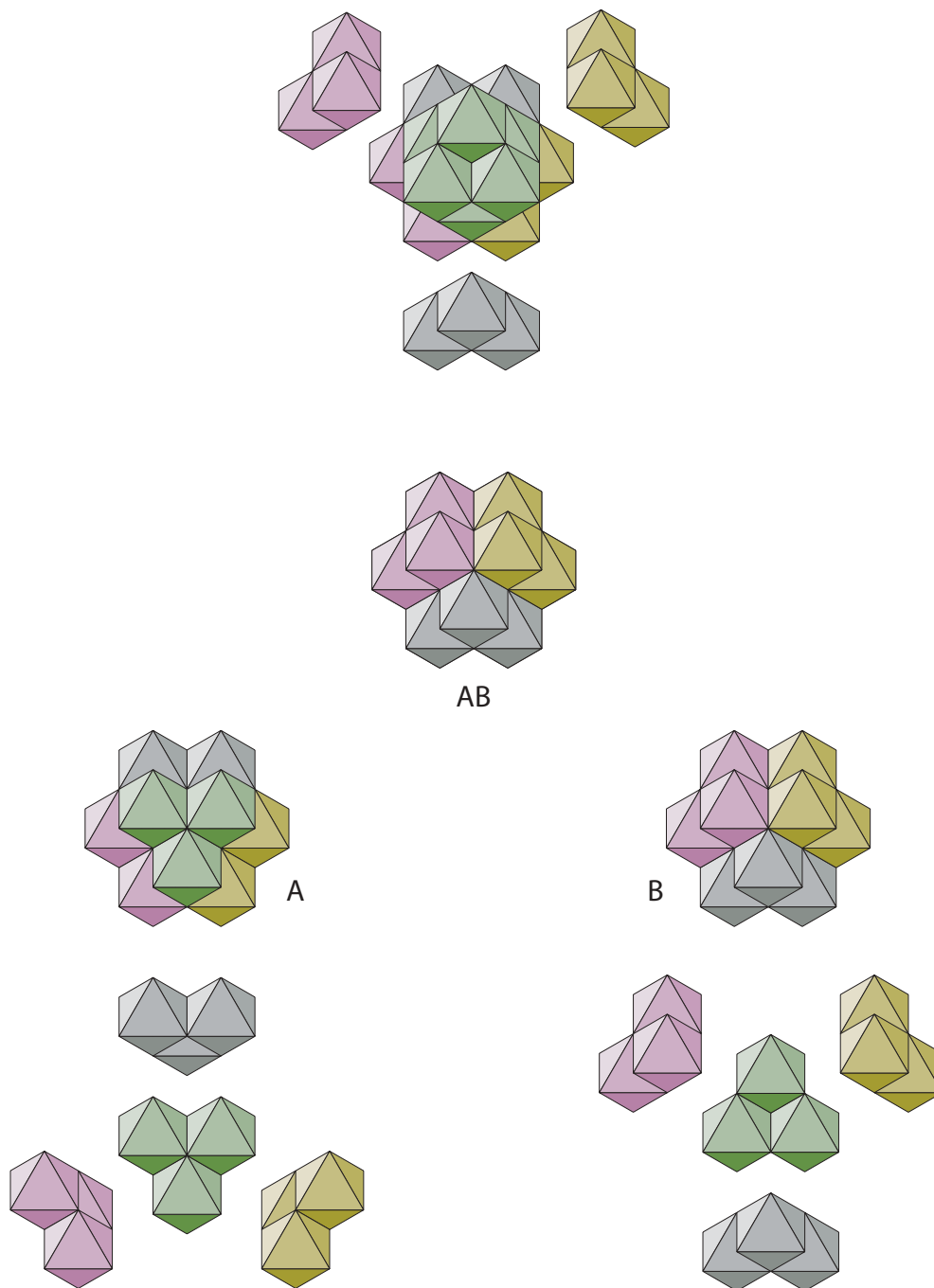


Fig. 3 Cyclohexamantane–join between diamond CFUs of adjacent diamond panels

The figure shows how the join is effected between the CFUs of adjacent diamond panels. The joining CFU of layer A of cyclohexamantane is shown in the lower left. Each of its C-atoms is shown separately below it. The joining CFU of layer B is shown in the lower right. The joined CFU pair is shown in the middle and is marked AB. At the top, three of the C-atoms of CFU A are removed to show the join between the green colored C-atoms of AB.