Building scheme for APC

1. Periodic Building Unit

APC can be built using the crankshaft chain (bold in Figure 1 (left)) running parallel to $a$. The repeat distance along a crankshaft chain varies between 8.4-9.9 Å. The repeat unit consists of 4 T atoms. A one-dimensional Periodic Building Unit (PerBU) is obtained when two crankshaft chains and two 4-rings are connected in such a way that a channel with an 8-ring aperture is formed. The channel wall consists of 4-, 6- and 10-rings. The repeat unit of the PerBU consists of a 4-fold (1,2,3,5)-connected double 8-ring (D8R) (bold in Fig.1(right)). [The 4-fold connection in the D8R in APC is different from the connection in the D8R in ACO, APD, GIS and MER]

2. Connection mode:

Neighboring PerBUs, related along $c$ by a pure translation and along $b$ by a shift of $\frac{1}{2}(a + b)$, are connected through 4-rings which form double-crankshaft chains.
3. **Projections of the unit cell content:** See Figure 2.

4. **Channels and/or cages:**

The channel intersection (or cavity) is depicted in Figure 3 together with the pore descriptor. Fused cavities form pairs of interconnecting channels parallel to \(a\) as depicted in Figure 4.

---

**Figure 3.** Intersection of channels viewed along \(a\) (left), and along \(b\) (right).

\[
\{1 \left[ 4^5 6^2 8^3 \right] \left[ 100 \right] \left(8\text{-ring}\right) \}
\]

---

**Figure 4.** Fused cavities along \(b\) viewed along \(a\) (top left), and fused cavities along \(a\) viewed along \(b\) (top right) and interconnecting 8-ring channels formed along \(a\) viewed along \(a\) (bottom).
5. Supplementary information:

**Other framework types containing crankshaft chains**
In several framework types at least one of the unit cell dimensions is between 8.4 and 9.9 Å. In many cases this indicates the presence of crankshaft chains.
In the INTRO pages links are given to detailed descriptions of these framework types (choose: Crankshaft chains). There is also a link provided to a summary of the Periodic Building Units used in the building schemes of these framework types (choose: Appendix; Figure 3).

**Alternative description of APC using (modified) double 4-rings (D4Rs)**
Several framework types, like APC, can be built using double crankshaft chains of the feldspar type consisting of 2-fold (1,2)-connected D4Rs (see Figure 2).
In the INTRO pages links are given to descriptions of other framework types containing (modified) D4Rs (choose: Double 4-rings). There is also a link provided to a summary of the Periodic Building Units used in the building schemes of these framework types (choose: Appendix; Figure 5).