

1. Periodic Building Unit – 2. Connection mode – 3. Projections of the unit cell content
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1. Periodic Building Unit:

ESV can be built using units composed of 12 T atoms: two 5-1 units linked through a 4-ring and a 5-ring (Figure 1; in bold). Neighboring T12-units, related by a rotation of 180° about c , are connected through 4-rings into a wavy chain along c as shown in Figure 1. Chains, related by pure translations along a , are connected along a through (fused) 4- and 5-rings. The Periodic Building Unit (PerBU) equals the ac layer shown in Figure 2.

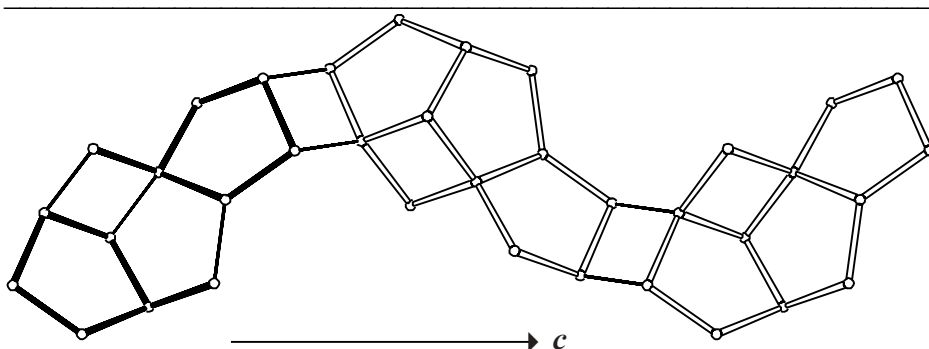


Figure 1. Chain along c formed after connecting T12-units (one in bold) through 4-rings.

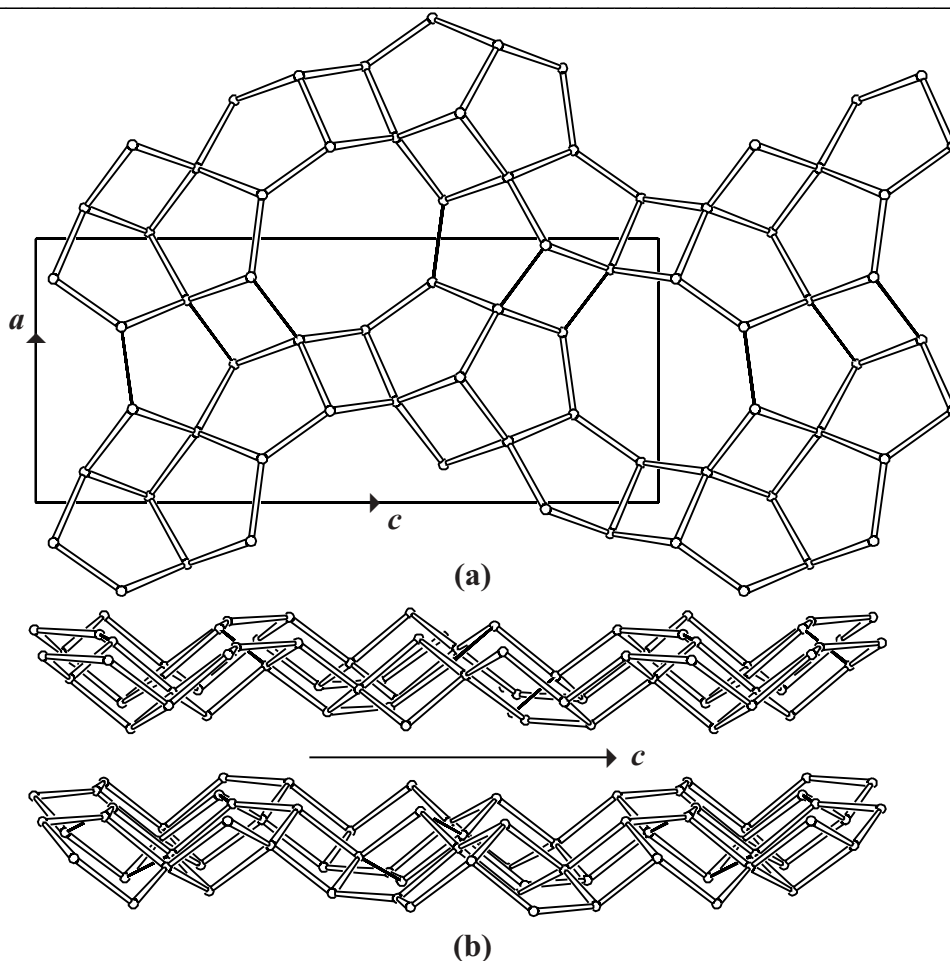


Figure 2. (a): PerBU viewed along b ; (b): PerBUs viewed along a ; the PerBUs are identical and related by a 180° rotation about the plane normal.

2. Connection mode:

Neighboring PerBUs, related by a 180° rotation about b and a shift of $1/2(a + c)$ (or by a mirror plane perpendicular to b), are connected along b through 4- and 6-rings as shown in Figure 3. Two types of cavities are generated.

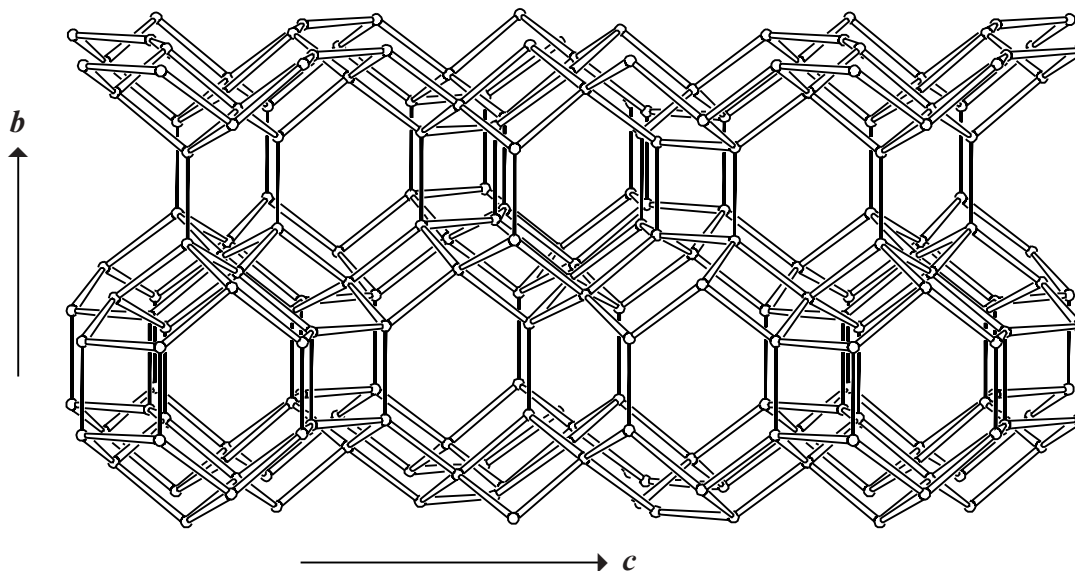


Figure 3. Connection mode in **ESV** viewed along a . ▲

3. Projections of the unit cell content:

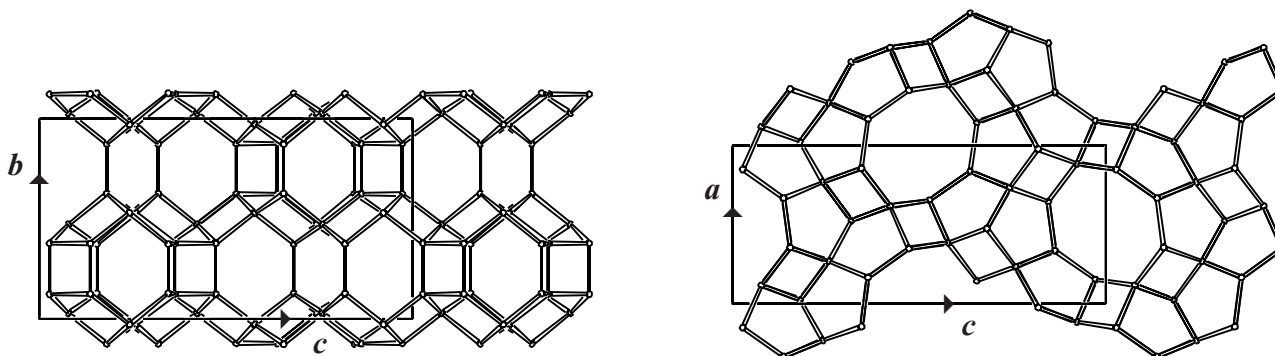


Figure 4. Projection of the unit cell content viewed along a (left), and along b (right). ▲

4. Channels and/or cages:

There are two types of cavities in **ESV** as shown in Figure 5. The **pore descriptors** are added. The small cages are fused through common 6-rings into rows parallel to a . The cavities with 8-ring windows are connected through common 8-rings into 8-ring channels parallel to b as illustrated in Figure 6 (and through common 6-rings into rows parallel to a). Figure 5 and Figure 6 are on next page.

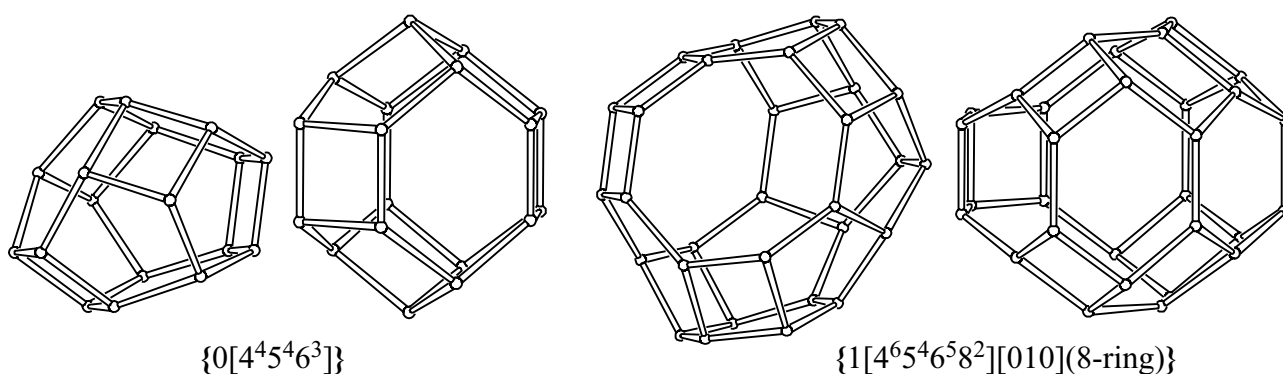


Figure 5. Cage (left) and cavity (right) viewed along b (left), and along a (right).

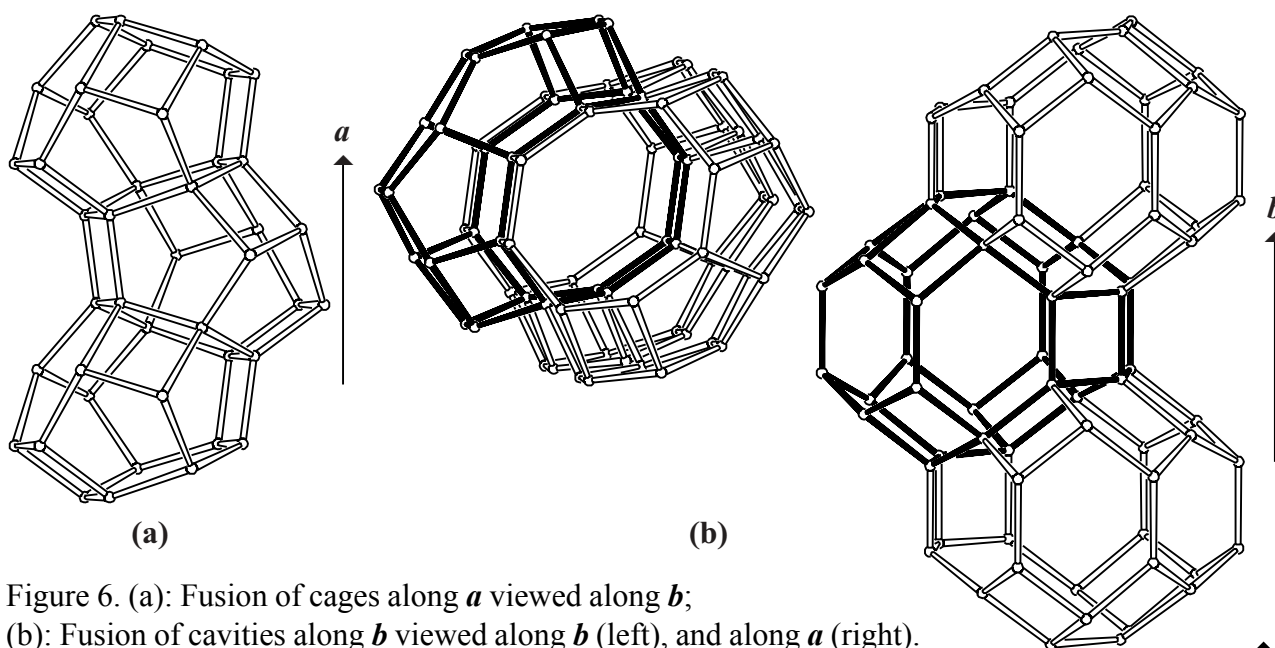


Figure 6. (a): Fusion of cages along a viewed along b ;
 (b): Fusion of cavities along b viewed along b (left), and along a (right).

5. Supplementary information:

Other framework types containing (modified) 5-rings

5-Rings can be connected in several other ways. In all cases additional T atoms are needed to build the framework.

In the [INTRO](#)-pages links are given to a detailed description of a sub-set of framework types that contain (modified) 5-rings (choose: **5-Rings**). There is also a link provided to a summary of the PerBUs used in the building schemes of these framework types (choose: **Appendix; Figure 6**).