



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

SGT can be built using units of 32 T atoms. Four 5-3 units (one unit in bold in Figure 1) are connected through (fused) 4-rings and 5-rings into T32-units as shown in Figure 1). The one-dimensional Periodic Building Unit (PerBU) is obtained when T32-units, related by a pure translation of $\frac{1}{2}(-a + b + c)$, are connected along $[-111]$ through 4- and 5-rings as shown in Figure 2.

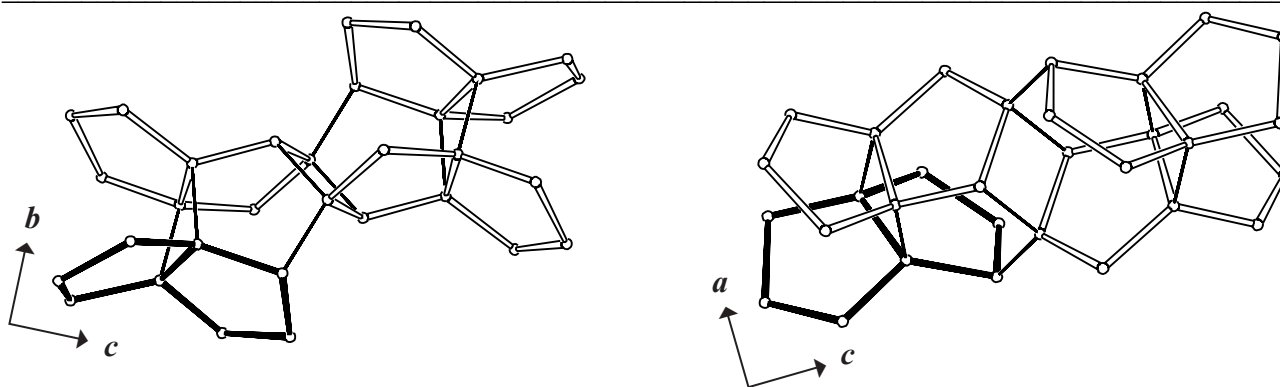


Figure 1. T32 unit, composed of four 5-3 units (one in bold), seen along a (left), and along b (right).

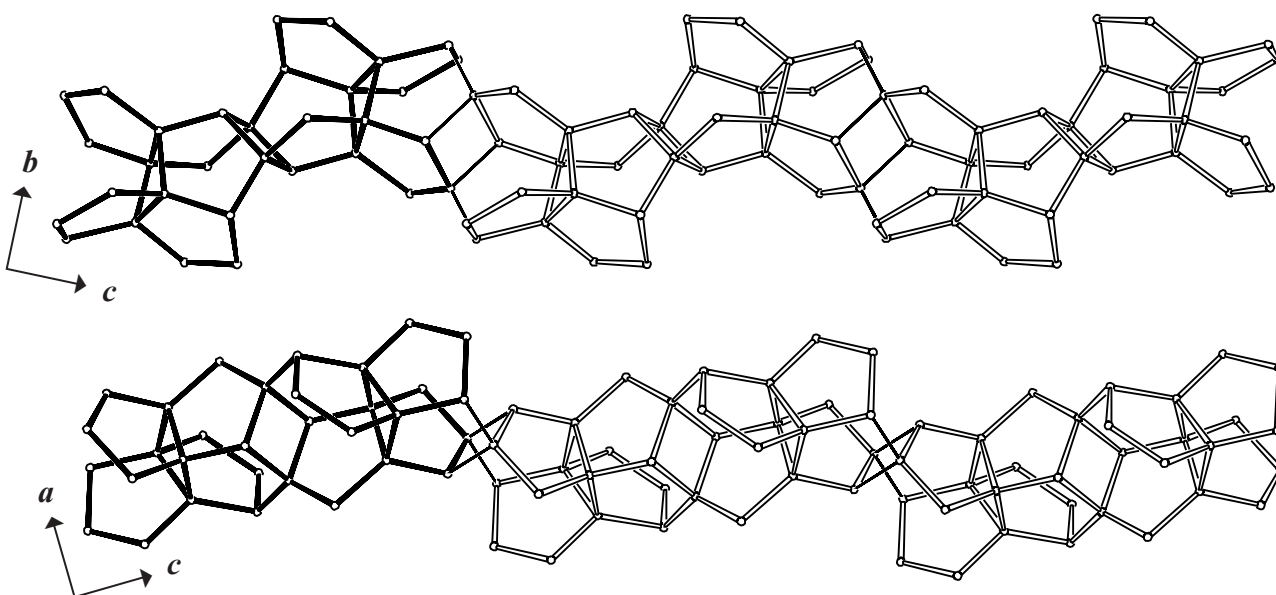


Figure 2. PerBU (one T32-unit in bold) viewed along a (top), and along b (bottom).



2. Connection mode: See next page

2. Connection mode:

Neighboring PerBUs, related by pure translations along b , are connected into the (101) plane through 4-, 5- and 6-rings as shown in Figure 3(top). Small $[4^35^6]$ -cages are formed. Neighboring (101) planes, related by pure translations along a , are connected into the three-dimensional structure through 4-, 5- and 6-rings as shown in Figure 3(bottom). Small $[4^35^6]$ -cages and large $[5^{12}6^8]$ -cages are formed. The connection modes along a and b are equal as can be seen from Figure 3.

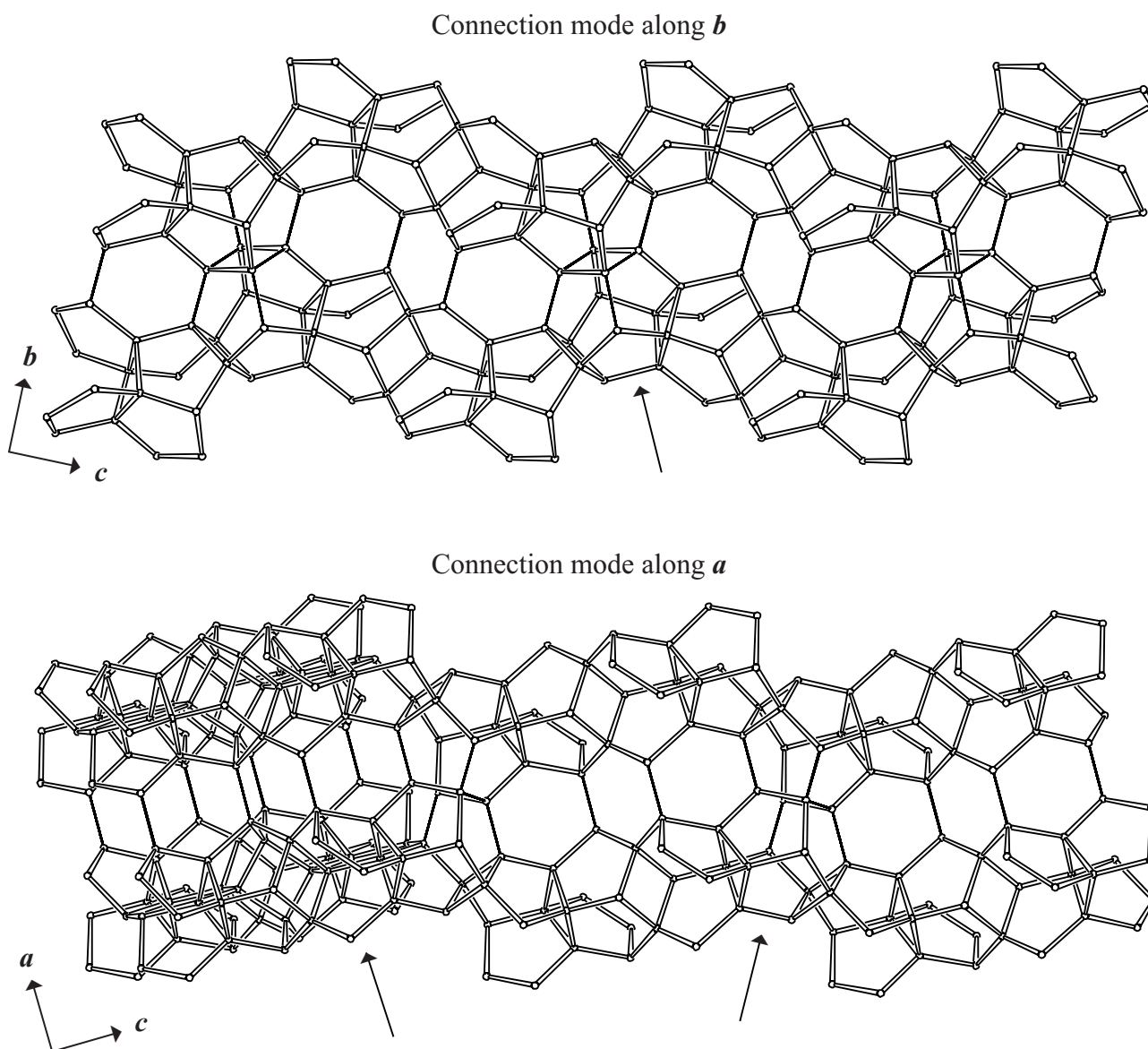


Figure 3. Connection mode along b viewed along a (top), and connection mode along a viewed along b (bottom). One set of small $[4^35^6]$ -cages with a 4-ring in common, and one large $[5^{12}6^8]$ -cage (See Figure 5) are indicated by arrows. In both (101) layers in the bottom drawing, only a part of the second PerBU is shown for clarity. ▲

3. Projections of the unit cell content: See Figure 4 on next page.

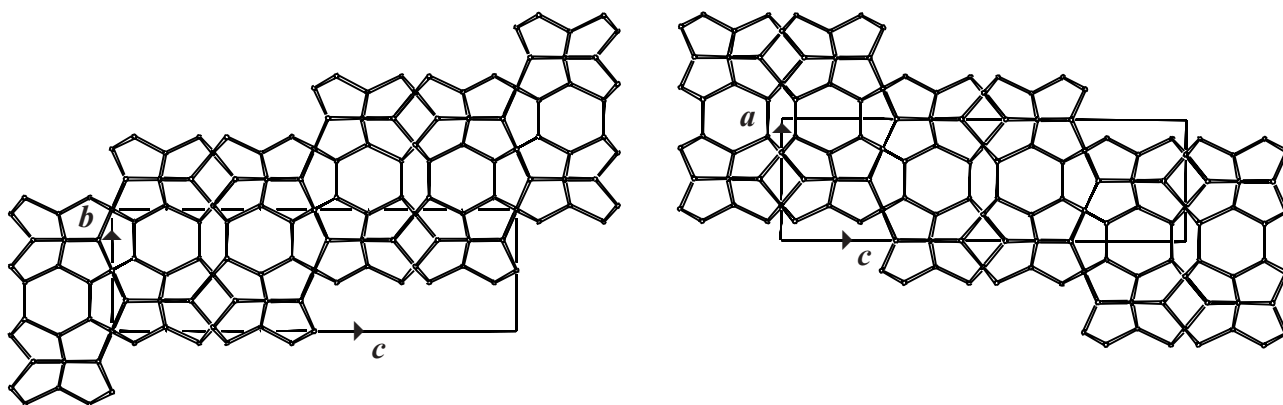


Figure 4. (Equal) projections of the unit cell content along *a* (left), and along *b* (right). ▲

4. Channels and/or cages:

The two types of cages in **SGT** are shown in Figure 5. The **pore descriptors** are added. The fusion of the cages is also illustrated in Figure 5. Apertures are formed by 6-rings only.

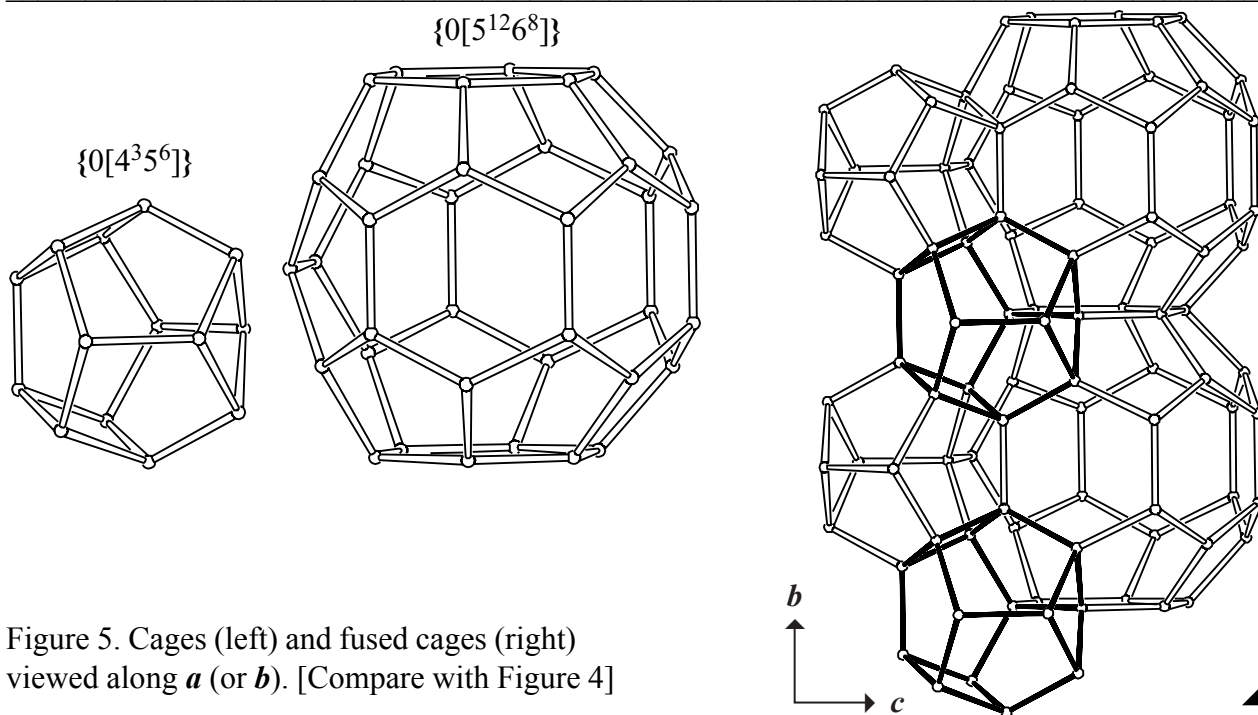


Figure 5. Cages (left) and fused cages (right) viewed along *a* (or *b*). [Compare with Figure 4] ▲

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**). ▲