Building scheme for SIV

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

SIV can be built using units of 32 T atoms: a 6-fold (1,2,3,4,5,6)-connected double 8-ring [see **PHI**] and a 4-fold (1,2,3,4)-connected double 8-ring [see **GIS**] linked along ***c*** through 4-rings. T32-units are connected along ***a*** through 4-rings into a one-dimensional PerBU depicted in Figure 1 (one T32-unit in bold). Double crankshaft chains parallel to ***a*** are formed.

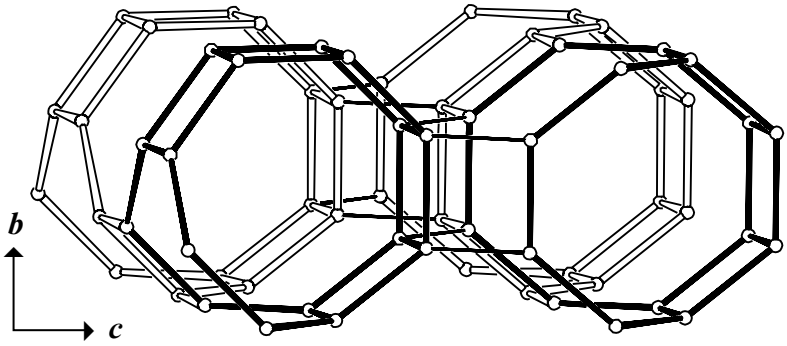
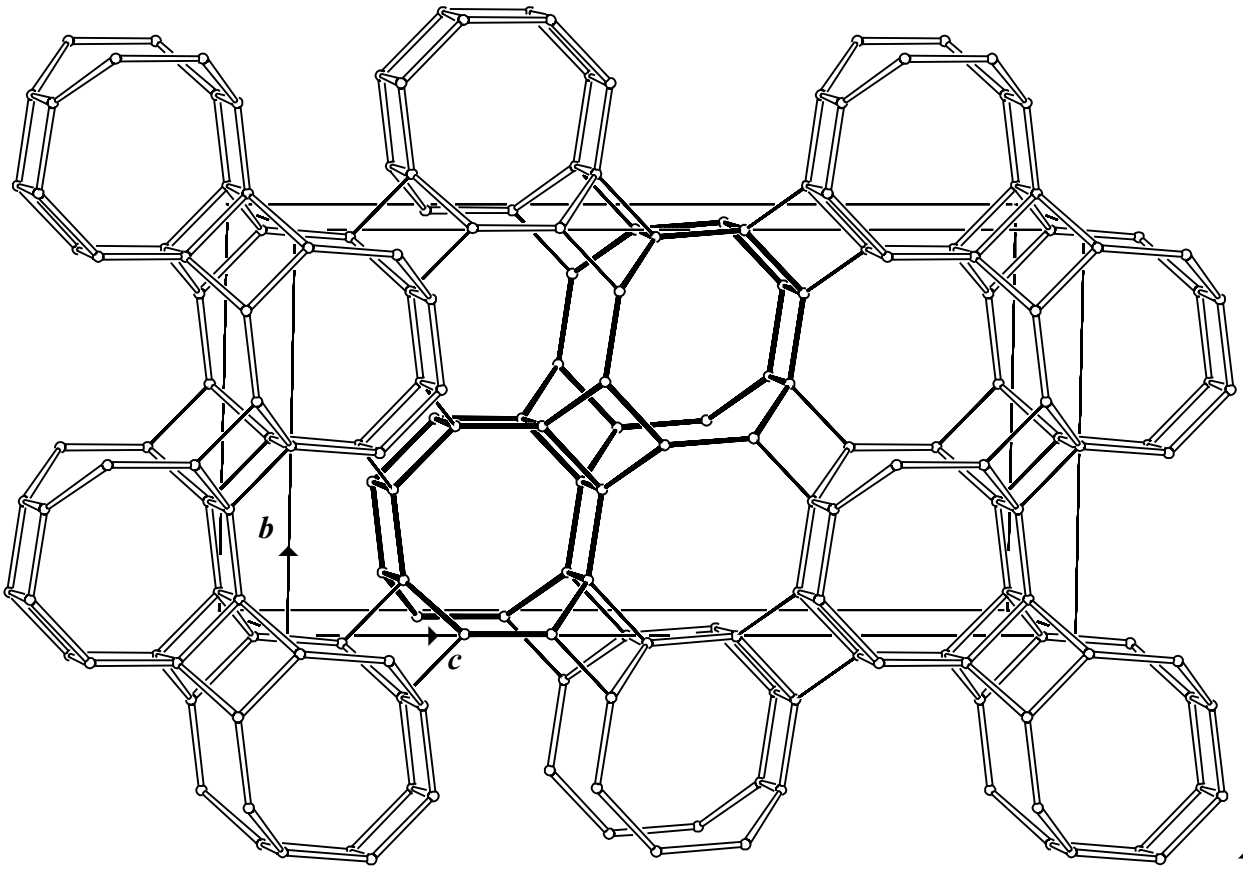


Figure 1. PerBU, constructed from 6- and 4-fold connected double 8-rings, viewed along ***a***.

Figure 2. See: bottom page. Connection mode (and unit cell content) viewed along ***a***. For clarity, only one repeat unit along ***a*** of each PerBU is shown.

2. Connection mode:

Neighboring PerBUs, related along ***b*** by a pure translation and along ***c*** by a screw rotation of 180º about ***c***, are connected along ***b*** and ***c*** through double-crankshaft chains as shown in Figure 2.



3. Projections of the unit cell content: See Figure 2.

4. Channels and/or cages:

Two types of interconnecting 8-ring channels (with the same topology) are parallel to ***a***. The first type is equivalent to the 8-ring channel in **PHI** and the other type to the 8-ring channel in **ATT** and **GIS**. The channels and there interconnection are shown in Figure 3. The **pore descriptor** is added.

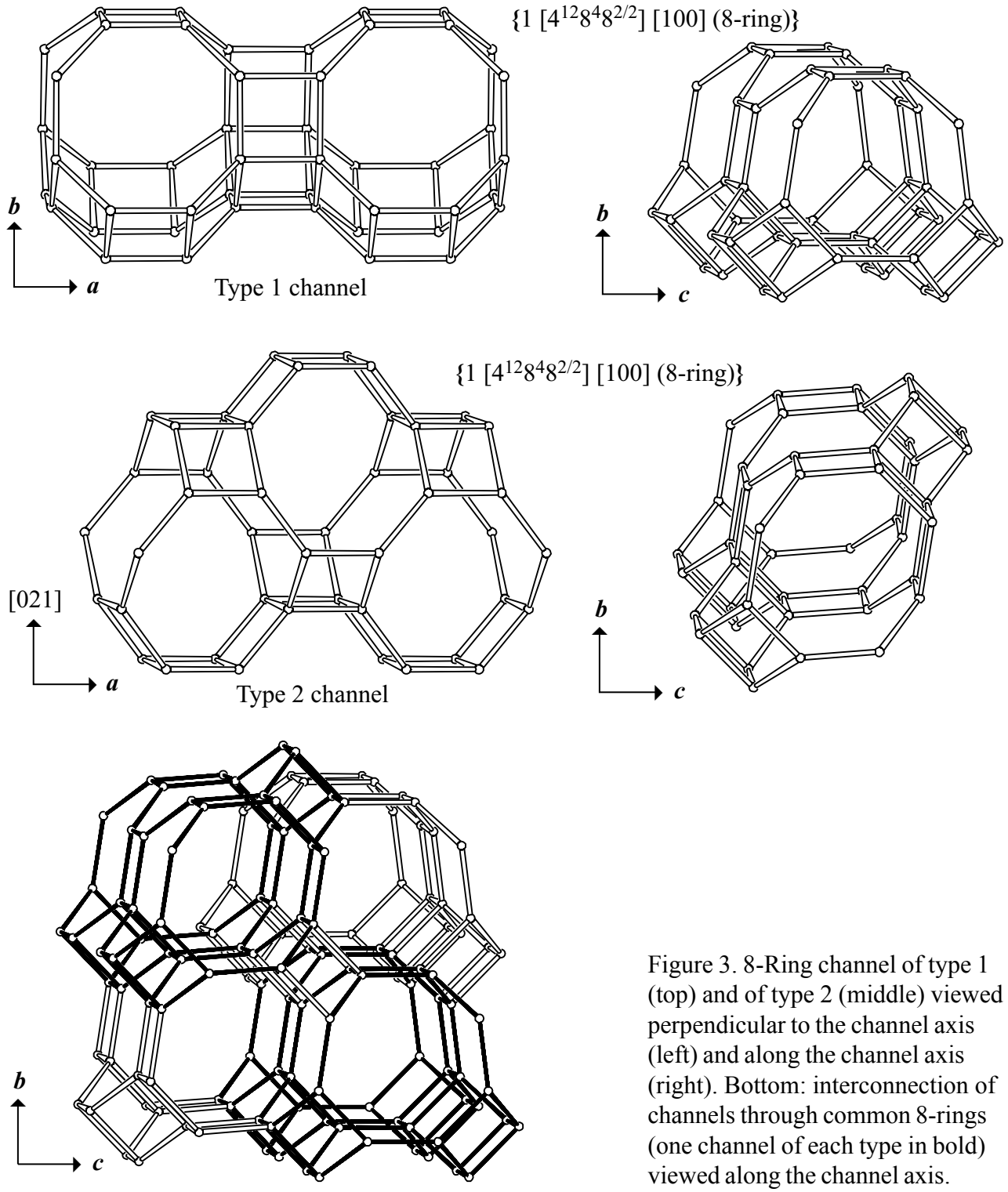


Figure 3. 8-Ring channel of type 1 (top) and of type 2 (middle) viewed perpendicular to the channel axis (left) and along the channel axis (right). Bottom: interconnection of channels through common 8-rings (one channel of each type in bold) viewed along the channel axis.

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**).