

# Building scheme for ZON



1. Periodic Building Unit – 2. Connection mode – 3. Parallel projections of the unit cell
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## 1. Periodic Building Unit:

ZON can be built using double 4-rings (D4Rs) with one disconnected edge (a 4-4- unit; bold in Figure 1). D4Rs, related by a pure translation along  $a$  are connected into chains parallel to  $a$ . Neighboring chains, related by a rotation of  $180^\circ$  about  $b$  and a shift of  $\frac{1}{2}b$ , are linked into the flat  $ab$  layer. This two-dimensional Periodic Building Unit (PerBU) is depicted in Figure 1. [The PerBU can also be built from 6-2 units; Compare the perBU with those in [AFR](#), [SFO](#) and [OWE](#)]

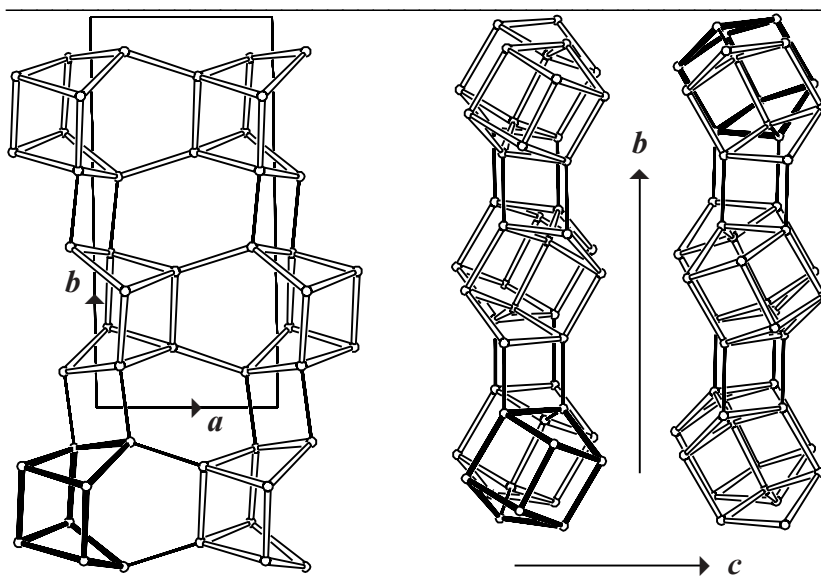


Figure 1. (a): PerBU in ZON viewed along  $c$ ; (b): PerBU viewed down  $a$ . The PerBUs in (b) differ by a rotation of  $180^\circ$  about  $c$ . ▲

## 2. Connection mode:

Neighboring PerBUs, related by a shift of  $\frac{1}{2}(b + c)$  and a rotation of  $180^\circ$  about  $c$ , are connected along  $c$  through single T-T bonds. Intersecting 8-ring channels parallel to  $a$  and  $b$  are formed.

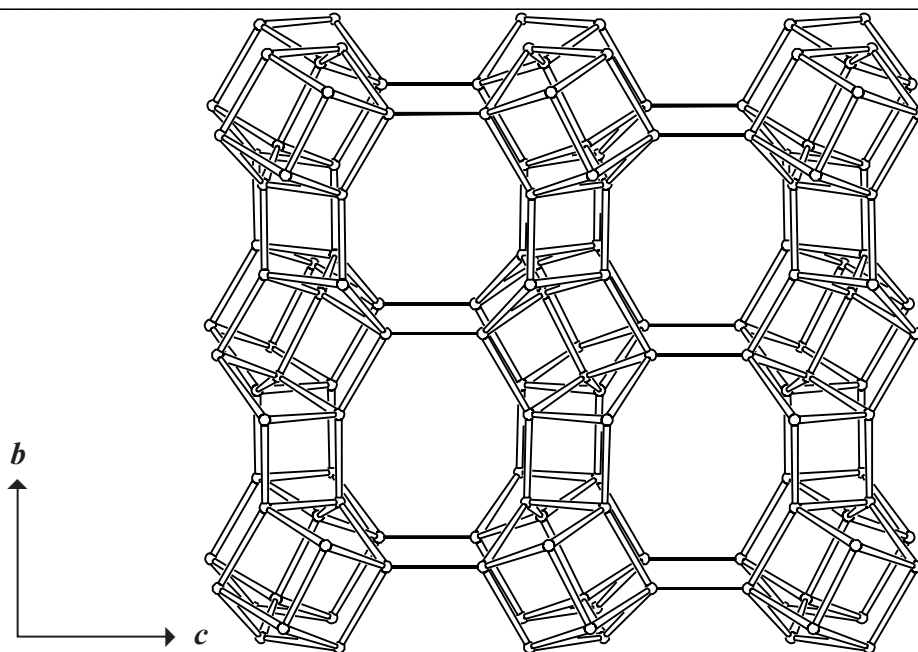


Figure 2. Connection mode viewed along  $a$ . ▲

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

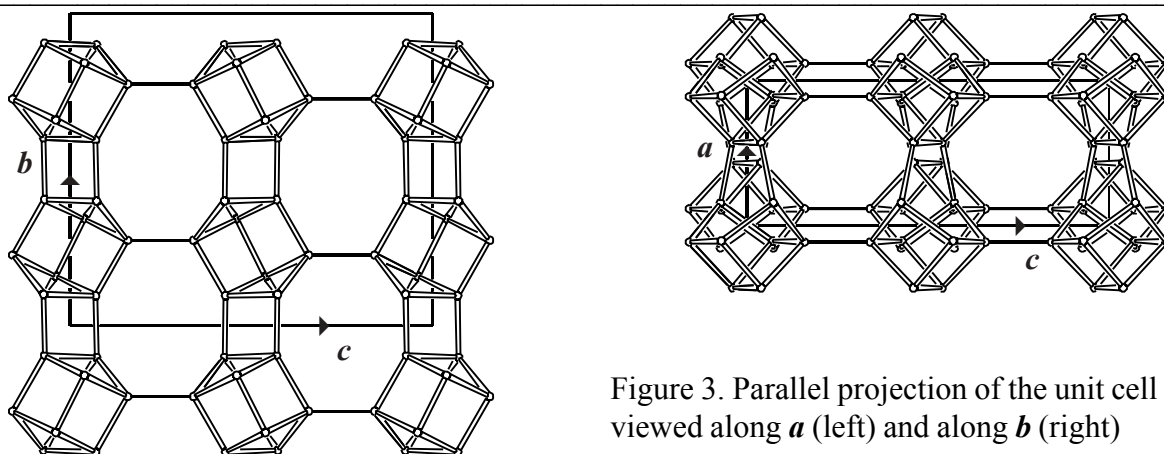


Figure 3. Parallel projection of the unit cell content viewed along *a* (left) and along *b* (right) ▲

4. Channels and/or cages:

The channel intersection is shown in Figure 4(a) together with the **pore descriptor**. Channel intersections are connected into 8-ring channels along *a* and *b* as illustrated in Figure 4(b).

Pore descriptor:  $\{2 [4^6 6^4 8^4] [100] (8\text{-ring}), [010] (8\text{-ring})\}$

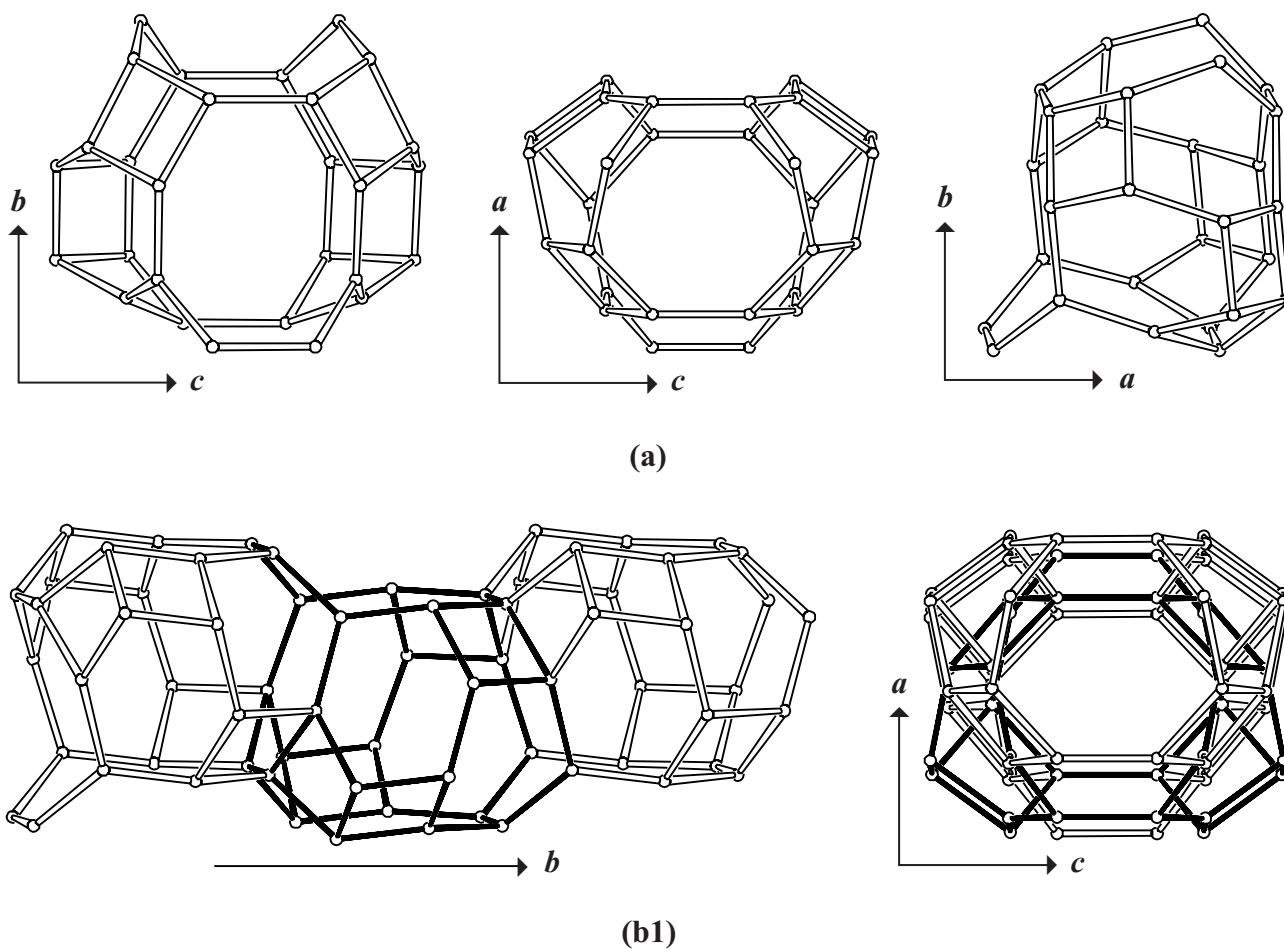


Figure 4.(a): Channel intersection in **ZON** viewed (from left to right) along *a*, *b* and *c*; (b1): Fusion of channel intersections along *b* viewed along *c* (left) and along the 8-ring channel axis parallel to *b* (right); [Figure 4 is continued on next page]

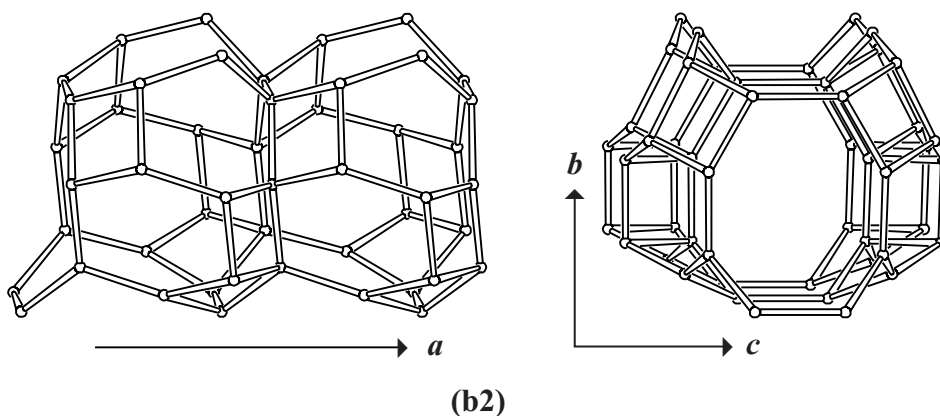


Figure 4 [Cont'd]. (b2): Fusion of channel intersections along  $a$  viewed along  $c$  (left) and along  $a$  (right).

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## 5. Supplementary information:

### *Other framework types containing (modified) double 4-rings (D4Rs)*

Double 4-rings (D4Rs) can be connected in several other ways. In some cases the 4-rings of the D4Rs are not 4-fold connected and/or 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) D4Rs (choose **Double 4-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 5**).