

# Building scheme for DON



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

**DON** can be built using the crankshaft chain (bold in Fig.1 (left)) parallel to  $c$ . The repeat distance along the 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 eight crankshaft chains are connected into a channel with a 14-ring aperture with ‘handles’. The channel wall consists of (fused) 6-rings. An alternative PerBU consists of 5-3 units (bold in Fig.1 (right)). [See [Alternative description](#)]

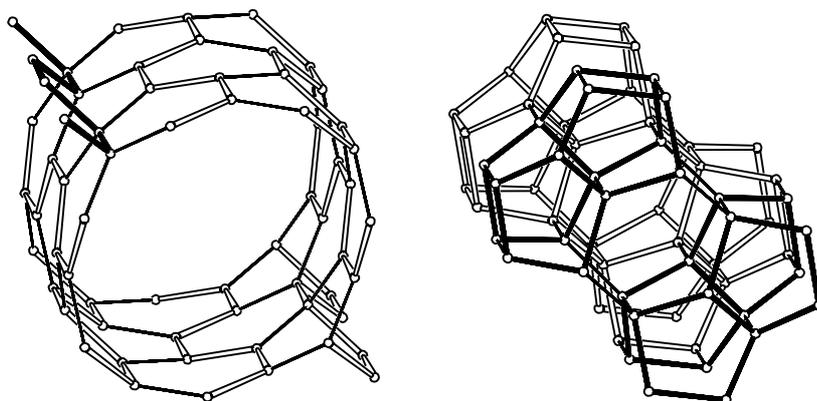


Figure 1. Cylindrical PerBU constructed from eight crankshaft chains (left) and PerBU constructed from 5-3 units (right) viewed along  $c$ .



## 2. Connection mode:

Neighboring PerBUs, related by pure translations of  $\frac{1}{2}(\pm \mathbf{a} \pm \mathbf{b})$ , are connected through single- and double-crankshaft chains forming 5- and 6-rings.

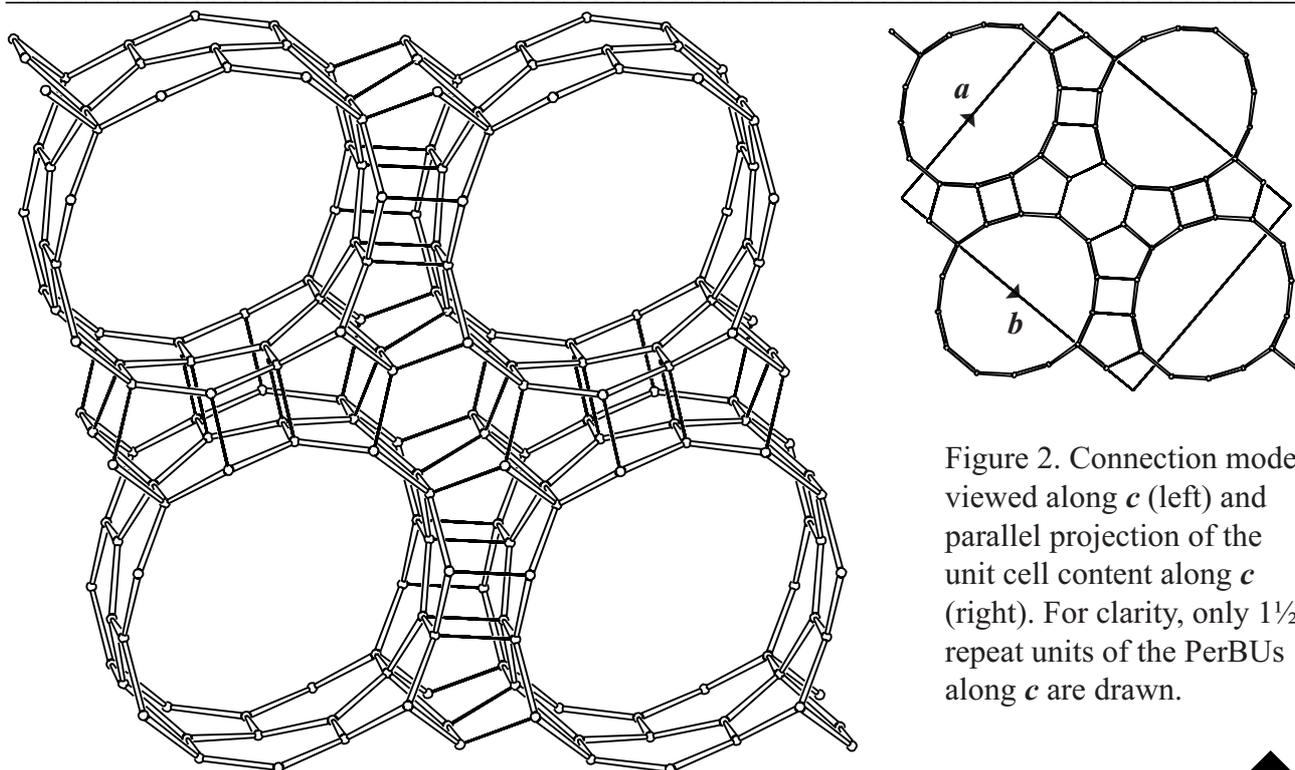


Figure 2. Connection mode viewed along  $c$  (left) and parallel projection of the unit cell content along  $c$  (right). For clarity, only  $1\frac{1}{2}$  repeat units of the PerBUs along  $c$  are drawn.



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

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

One-dimensional, non-interconnecting 14-ring channels, parallel to  $c$ , are topologically equivalent to the channels in **AET**. One channel is depicted in Figure 3. The **pore descriptor** is added.

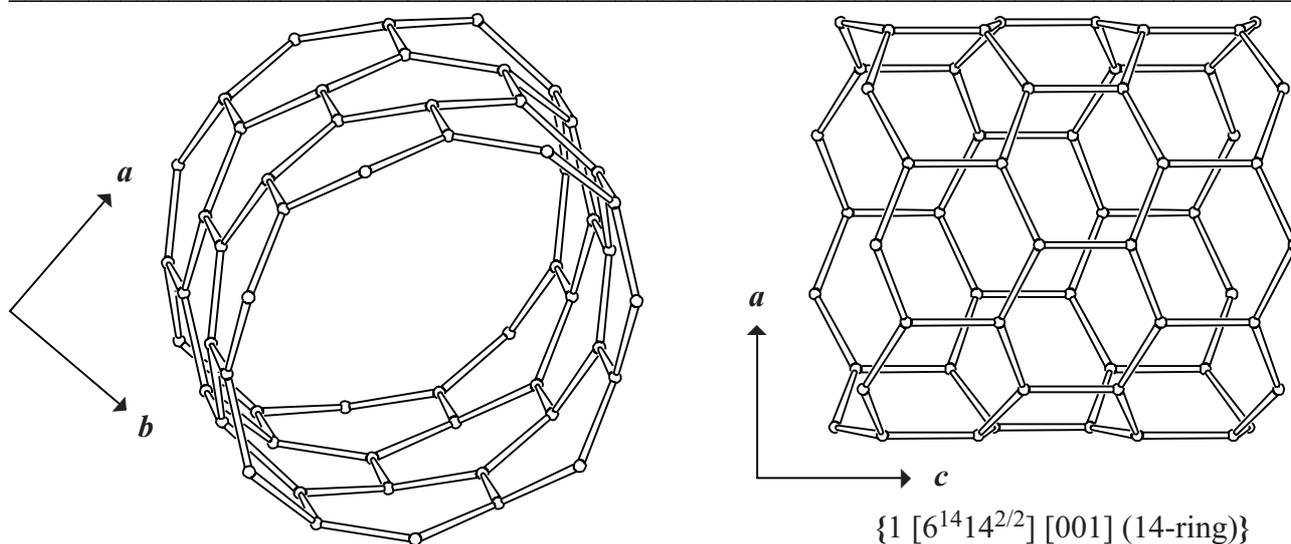


Figure 3. Channel with 14-ring window in **DON** viewed along  $c$  (left), and along  $b$  (right). ▲

#### 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 using (modified) 5-rings*

Several framework types, like **DON**, can be constructed using (modified) 5-rings.

In the **INTRO** pages links are given to detailed descriptions of these framework types (choose: **5-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 6**).

##### *Alternative description of DON as end-member in a family of disordered zeolites*

**DON** is an end-member in a family of disordered zeolites. For more details: see the description of the **UTD-1** family in the “Catalog of Disorder in Zeolite Frameworks”. ▲