Building scheme for LTA

1. Periodic Building Unit – 2. Connection mode – 3. Projections of the unit cell content
   4. Channels and/or cages – 5. Supplementary information

1. Periodic Building Unit:

Cubic LTA can be built using the sodalite cage (or β-cage) consisting of 24 T atoms (six 4-rings, four 6-rings, three 6-2 units or four 1-4-1 units) shown in Figure 1 as zero-dimensional Periodic Building Unit (PerBU). [Compare this PerBU with the PerBU in EMT, FAU and SOD]

![Figure 1. Perspective view (left) and parallel projection (right) of the PerBU (or sodalite cage) down one of the cube axes.]

2. Connection mode:

The three-dimensional LTA framework is obtained when PerBUs, related by pure translations along the cube axes, are linked through double 4-rings as shown in Figure 2 for one cube face. As can be seen from Figure 2, an alternative PerBU of LTA can be obtained using D4Rs (see Alternative description).

![Figure 2. Connection mode in one cubic face of LTA (left) and projection of the unit cell content (right) viewed along a cube axis.]

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

4. Channels and/or cages:

In cubic LTA 8-ring channels are parallel to <100>. The channel intersections are equal to the α-cavity depicted in Figure 3 together with its location within the framework. The pore descriptor is also added in Figure 3. The linkage of the cavities through common 8-rings is illustrated in Figure 4.

![Figure 3. Cavity in LTA (left) and its location in the framework (right) viewed along a cube axis.](image)

![Figure 4. Fusion of cavities along a cube axis viewed perpendicular to a cube axis (left) and along that cube axis (right). [LTA can also be built from 8-rings as can be seen from the Figure](image)

5. Supplementary information:

Other framework types containing (modified) cavities

Several other framework types can be built using (modified) cavities. In the INTRO-pages links are given to a detailed description of a sub-set of framework types that contain (modified) cavities (choose: Cages). There is also a link provided to a summary of the PerBUs used in the building schemes of these framework types (choose: Appendix; Figure 11).

Alternative description of LTA using (modified) double 4-rings (D4Rs)

Several framework types, like LTA, can be built using (modified) D4Rs (see Figure 2). 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).