

## 1.25: Crystal

Those solids in which atoms, ions or molecules are arranged in a definite three dimensional pattern are called crystalline solids. A material is a crystal if it has **essentially** a sharp diffraction pattern. The word **essentially** means that most of the intensity of the diffraction is concentrated in relatively sharp **Bragg peaks**, besides the always present diffuse scattering. In all cases, the positions of the diffraction peaks can be expressed by

$$H = \sum_{i=1}^n h_i a_i^* \quad (n \geq 3)$$

Here  $\mathbf{a}_i^*$  and  $h_i$  are the basis vectors of the reciprocal lattice and integer coefficients respectively and the number  $n$  is the minimum for which the position of the peaks can be described with integer coefficient  $h_i$ . The conventional crystals are a special class, though very large, for which  $n = 3$ .

### See also

*Acta Cryst.* (1992), **A48**, 928 where the definition of a crystal appears in the **Terms of reference** of the IUCr commission on aperiodic crystals

- [Online Dictionary of Crystallography](#)

This page titled [1.25: Crystal](#) is shared under a [CC BY 4.0](#) license and was authored, remixed, and/or curated by [Online Dictionary of Crystallography](#) via [source content](#) that was edited to the style and standards of the LibreTexts platform.