

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

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