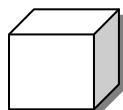


X-ray Diffraction Laboratory. Texas A & M University

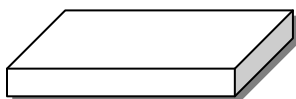
How to describe your crystal.

The names for six basic crystal shapes that have been defined by the US Pharmacopeia (monograph 776, USP 27 2204, United States Pharmacopeia Convention, Inc. 12601 Twinbrook Parkway, Rockville, MD 20852, <http://www.usp.org/>) are *Equant*, *Plate*, *Flake*, *Lath*, *Needle* and *Column*. In addition there are 15 other particle descriptions that are of common usage: *Angular*, *Rounded*, *Irregular*, *Granular*, *Euhedral*, *Anhedral*, *Polycrystalline*, *Microcrystalline*, *Cryptocrystalline*, *Transparent*, *Translucent*, *Opaque*, *Colored*, *Lamellar*, *Foliated* and *Spheulitic*. When describing your crystal, you should employ these names, since their meanings have been standardized.

1. *Equant* – Crystals that are equi-dimensional (i.e. Cubes)



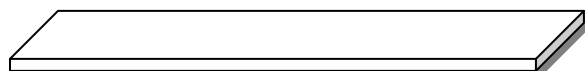
2. *Plate* – Flat crystals with similar width and breadth



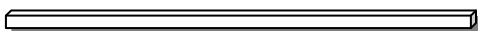
3. *Flake* – Thin flat crystal that is much thinner than a plate



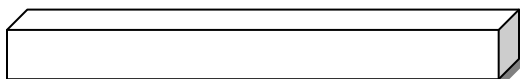
4. *Lath* – Long thin blade-like crystal



5. *Needle* – Thin elongated crystal having almost equi-dimensional width and breadth



6. *Columns* – Similar to a needle but with greater width and thickness.



Other Shape and Particle descriptions :

- a. *Angular* – Crystals with many sharp corners and edges.
- b. *Rounded* – Crystals with indistinct corners and edges.
- c. *Irregular* – Shapeless crystals without symmetry
- d. *Granular* – Same as irregular but with equi-dimensional edges.
- e. *Euhedral* – Crystals with well formed faces.
- f. *Anhedral* – Crystals without well formed faces.
- g. *Polycrystalline* – Aggregates with many interlocking crystals.
- h. *Microcrystalline* – Polycrystalline material with crystals that can only be seen with a microscope.
- i. *Cryptocrystalline* – Polycrystalline material with crystals that cannot be resolved with a light microscope.
- j. *Transparent* – Clear crystals.
- k. *Translucent* – Cloudy crystals due to cracking or polycrystallinity.
- l. *Opaque* – Crystals that scatter light (diffuse, no transmission)
- m. *Colored* – Crystals that have a characteristic color.
- n. *Lamellar* – Crystals consisting of stacked plates.
- o. *Foliated* – Crystals consisting of stacked flakes.
- p. *Spherulitic* – Sphere-shaped crystalline mass with needles (or blades) radiating from its core.

See : “Light Microscopy”, Gary Nichols, in “Polymorphism in the Pharmaceutical Industry”, Rolf Hilfiker editor, Wiley-VCH, Weinham, German, 2006.