We present necessary conditions for sets of monomials to satisfy sorting and ordering conditions.

Sorting conditions were introduced by Sturmfels when describing the toric ideal for subrings of Veronese type.

We prove that Rees and multi-Rees algebras of certain principal strongly stable ideals, which correspond to toric rings, satisfy sorting and ordering conditions are Koszul, Cohen-Macaulay, normal domains. We also provide an explicit Grobner basis for the defining ideals of these algebras. (Received August 31, 2015)