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Given an abelian group A and a group homomorphism $\deg: \mathbb{Z}^n \rightarrow A$, we grade the polynomial ring $S := K[x_1, \dots, x_n]$ by setting $\deg(x_i) = \deg(e_i)$. For a function $h: A \rightarrow \mathbb{N}$, the multigraded Hilbert scheme Hilb_S^h , introduced by Haiman and Sturmfels, parameterizes all S -ideals with Hilbert function h . In this talk, we will show that Hilb_S^h is smooth and irreducible when $n = 2$. (Received August 05, 2008)