1111-20-710 **J. I. García-García*** (ignacio.garcia@uca.es), Dpto. Matemáticas, Facultad de Ciencias, Campus Universitario Río San Pedro s/n, 11510 Puerto Real, Cádiz, Spain, and **A. Vigneron-Tenorio** (alberto.vigneron@uca.es), Dpto. Matemáticas, Facultad de Ciencias Sociales, y de la Comunicació, 11405 Jerez de la Fra., Cádiz, Spain. *Affine convex body semigroups of* $\mathbb{N}^3$*.* Preliminary report.

Let F be a subset of $\mathbb{R}^k$ with non-empty interior, $\mathcal{F} = \cup_{i=0}^{\infty} F_i \cap \mathbb{N}^k$, where $F_i = \{iX \mid X \in F\}$ with $i \in \mathbb{N}$. A convex body of $\mathbb{R}^n$ is a compact convex subset of $\mathbb{R}^n$ with non-empty interior. If F is a convex body, then the set $\mathcal{F}$ is a semigroup of $\mathbb{N}^k$, the convex body semigroup generated by F. This kind of semigroups generalize to arbitrary dimension the concept of proportionally modular numerical semigroup.

In general, these semigroups are not finitely generated. If $\mathcal{F}$ is a finitely generated semigroup we say that $\mathcal{F}$ is an affine convex body semigroup. In previous works, convex body semigroups generated by polygons of $\mathbb{N}^2$ have been studied. We have characterizations to check if a convex body semigroup is finitely generated. It must be noted that these semigroups provides us with instances of families of Cohen-Macaulay semigroups and examples of Gorenstein semigroups.

In our work we study convex body semigroups when F is a convex polyhedron of $\mathbb{R}^3$, characterizing affine convex body semigroups of $\mathbb{N}^3$ and giving some results concerning the Cohen-Macaulay property. (Received February 10, 2015)