For an integer $d \geq 1$ and a finite set $A$, let $A^{Z^d}$ denote the full shift on $A$. Let $B_n = A^{[1,n]^d}$ be its set of words with shape $[1,n]^d \subset Z^d$. Define a random subset $\omega$ of $B_n$ by independently choosing each word from $B_n$ with some probability $\alpha$. Let $X_\omega$ be the (random) SFT built from the set $\omega$. For $0 \leq \alpha \leq 1$ and $n$ tending to infinity, we compute the limit of the likelihood that $X_\omega$ is empty. For $d \geq 2$, there is no algorithm that decides in finite time whether a given SFT is empty; nonetheless, we find an exact representation of the limiting probability of emptiness in terms of $\alpha$ and the zeta function of $A^{Z^d}$. (Received September 17, 2013)