

The invention relates to an accelerated carbonation process which comprises the following steps: a) providing recycled concrete aggregates with a particle size less than or equal to a value $V1$ °F between 1 mm and 6 mm, in other words a 0/ $V1$ sand; b) carrying out a separation step on the 0/ $V1$ sand by defining a particle size cut-off with a value $V2$ °F between 0.1 mm and 0.2 mm in such a way as to obtain: - a first fraction with a particle size less than $V2$, and-a second fraction with a particle size between $V2$ and $V1$; and c) subjecting the second fraction to an accelerated carbonation step in a dynamic carbonator (11) in order to obtain carbonated recycled concrete aggregates. The invention also relates to a process for upcycling concrete waste and industrial waste gases, in particular waste gases from cement works, using the accelerated carbonation process.