What is claimed is:

1. A process for producing semiconductor wafers with epitaxial layer deposited from the gas phase in a deposition chamber, comprising

the removal from the deposition chamber of material which has deposited in the deposition chamber in the course of preceding coating operations, by means of etching of the deposition chamber;

coating operations carried out in succession and each entailing the deposition of an epitaxial layer on a substrate wafer in the deposition chamber, involving a first gas stream of a first deposition gas being passed over the substrate wafer, to form a semiconductor wafer with epitaxial layer;

before or after each of the coating operations carried out in succession, the passing of a second gas stream of a second deposition gas to an edge region of the respective substrate wafer or of the respective semiconductor wafer with epitaxial layer, wherein a change is made in at least one process parameter whose effect is that through the passing of the second deposition gas, deposition of material in the edge region increases as a function of the number of coating operations carried out since the removal of material from the deposition chamber,

wherein the at least one process parameter is selected from a group which encompasses a time during which the second gas stream of the second deposition gas is passed to the substrate wafer, a velocity with which the second deposition gas is passed to the edge region of the substrate wafer, a volume ratio of a precursor gas and a carrier gas in the second gas stream, a ratio of the volume velocities of the precursor gas and the carrier gas before the mixing of these gases to form the second gas stream, a temperature in the deposition chamber, and a velocity with which the substrate wafer is rotated, and

wherein the flow direction of the first gas stream and the flow direction of the second gas stream include an angle α which is 45° to 90°.