A note on FLOX technology

“FLOX” is an abbreviation for “flameless oxidation”, i.e. combustion without a flame. This phenomenon was first observed in 1989 by Joachim Alfred Wünning in a combustion chamber at his company WS Wärmeprozesstechnik. The process was then developed further under the supervision of his son Joachim Georg Wünning in years of complex research. With traditional flame-based combustion in the high-temperature area – above all, the burning of fossil fuels and waste – large quantities of nitrogen oxides (NOx) are frequently produced. These are precursors for the formation of acid rain and ozone, and are damaging to health and the environment. FLOX technology makes it possible to have high-temperature processes during which the proportion of NOx in the flue gas is more than ten times lower than with traditional flame-based combustion, despite high preheating of the air to over 700 degrees. In the FLOX procedure, the combustion air necessary for the reaction flows into the combustion chamber at high speed through special nozzles, where it first draws in several times as much flue gas before mixing with the fuel. If the nozzles are arranged properly, the fuel oxidises very evenly without any flame at temperatures of over 850 degrees.