

The present invention relates to a sample chamber for taking samples from a molten metal bath, particularly from a molten steel bath or molten iron bath. The sample chamber comprises a flat cover plate and a housing, wherein the flat cover plate and the housing are configured to be assembled together along an analysis plane AP to form a sample cavity. The housing comprises an immersion face and an opposing end face, a top face and a bottom face. The housing comprises a first opening in the immersion face, and a second opening in another face. The top face has at least one indentation, comprising a distribution segment, a ventilation segment and an analysis segment and wherein the analysis segment is bounded by the analysis plane AP. The distribution segment and the ventilation segment are arranged below the analysis segment in a direction from the top face to an opposite face of the housing and the maximum and the minimum cross-sectional area of the analysis segment perpendicular to a central longitudinal axis X of the housing do not deviate from each other by more than 20 %. The invention further relates to a sampler, comprising the sample chamber according to the invention and a carrier tube adapted to accommodate at least parts of the sample chamber.