

Title (en)

METHOD FOR DETERMINING THE DISTRIBUTION OF PARTICLE SIZES IN A POLYDISPERSE PARTICLE SET

Title (de)

VERFAHREN ZUR BESTIMMUNG DER VERTEILUNGEN VON PARTIKELGRÖSSEN EINES POLYDISPERSEN PARTIKELENSEMBLES

Title (fr)

PROCEDE POUR DETERMINER LES REPARTITIONS DE TAILLES DE PARTICULES D'UN ENSEMBLE DE PARTICULES POLYDISPERSE

Publication

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Application

**EP 04713523 A 20040223**

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Abstract (en)

[origin: WO2004077027A1] A method for determining the distribution of particle sizes in a set of particles from time-resolved measurement of the radiant heat of particles heated over a short period of time. In order to achieve comprehensive characterization of a set of particles, it is necessary to determine the size distribution of said particles, especially primary particles, preferably on line. The inventive method is based on the fact that during the cooling of heated particles, the weighting of the signal quantities of individual particle size categories is modified, as a result of the conduction of heat, whereby a radiant heat signal is formed. Smaller particles have quicker signal delays and thus contribute in a time-delayed manner to the overall signal of the particle collective. The overall signal of a polydisperse particle collective does not decrease in a simply exponential manner. The signal delay is modified over time and increases. On-line evaluation of the time-resolved signal by mathematical adaptation into two or several time periods during cooling produces characteristic signal delays for the various time domains. The higher moments of the particle size distribution can be clearly determined therefrom by making specific assumptions as to distribution function. The invention also relates to on-line analysis or process control of particle synthesis processes during product characterization or analysis of the waste gases of engine combustion processes or other combustion processes.

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