BRNO UNIVERSITY OF TECHNOLOGY

FACULTY OF MECHANICAL ENGINEERING

ENERGY INSTITUTE

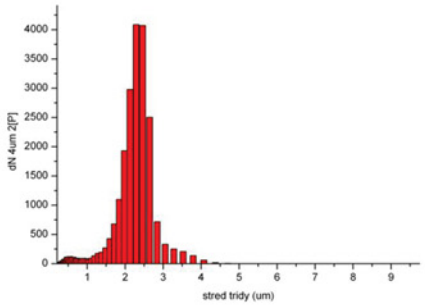
Dept. of Thermodynamics and Environmental Engineering

Condensation monodisperse aerosol generator TSI – CMAG 3475

The generator is an advanced device for preparation of highly monodisperse liquid and/or solid aerosols of wide range of particle size and concentration. It is a modified Sinclair-LaMer generator which principle is derived from controlled heterogeneous condensation; vapours of a suitable material condensate in a controlled fashion on small particles of sodium chloride which serve as condensation nuclei. Electrostatic Boltzman equilibrium of the particles is ensured via incorporation of electrical charge neutralizer ^{85}Kr based with activity of 370 MBq. For monitoring and recording of actual particle size and concentration, a process aerosol monitor Model TSI – PAM 3375 is employed.

SPECIFICATION

- compact, portable generator capable of producing particles size (aerodynamic diameter) ranging from 0.1 to 8 μm
- adjustable particle concentration up to 10^6 particles/cm^3, depending on their size
- particles are monodisperse with standard geometric variation less than 1.1 for particles ranging from 0.1 to 8 μm
- preparation of liquid and/or solid aerosols using substances such as DEHS, DOP, Carnauba Wax, Stearic Acid
- possibility to prepare fluorescent or radioactive aerosols (tested at the department)
- long-time continuous operation (up to several hours)



▪ Typical size distribution

▪ CMAG 3475 + PAM 3375

TYPICAL APPLICATIONS

- filter testing
- smoke detectors functionality testing
- aerosol source for measurement of deposition and studies on two-phase flow with accurately defined particle size
- source of tracer particles for laser measuring methods employed in experimental research of fluid flow
- assessment and calibration of other particle size measuring instruments
- studies on human and/or animal exposition to aerosols

esf european social fund in the czech republic | EUROPEAN UNION | MINISTRY OF EDUCATION, YOUTH AND SPORTS | OP Education for Competitiveness

INVESTMENTS IN EDUCATION DEVELOPMENT

Ing. Jan Jedelský, Ph.D.

tel: +420 541 143 266 | e-mail: jedelsky@fme.vutbr.cz

Department of Thermodynamics and Environmental Engineering

Faculty of Mechanical Engineering, Brno University of Technology

Technická 2896/2, Brno 616 69, Czech Republic

tel: +420 541 143 280 | e-mail: ottp@fme.vutbr.cz | www.eu.fme.vutbr.cz