



FIFTH NANOSAFE INTERNATIONAL CONFERENCE

*HEALTH AND SAFETY ISSUES
RELATED TO NANOMATERIALS
FOR A SOCIALLY RESPONSIBLE APPROACH*

7-10 November, 2016

Minatec - Grenoble, France

BOOK OF ABSTRACT

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INTERNATIONAL CONFERENCE

HEALTH AND SAFETY ISSUES

RELATED TO NANOMATERIALS

FOR A SOCIALLY RESPONSIBLE APPROACH

MINATEC, GRENOBLE - France

7-10 November 2016

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THANKS TO THE SUPPORT RECEIVED FROM OUR VOLUNTEER TEAM:

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Welcome

Dear Colleagues,

Nano objects represent a powerful “enabling technology” leading to revolutionary breakthroughs in many different areas vital for humanity including medicine, energy, environment, etc. and also preserving the rare mineral resources by rendering matter more efficient.

For one of the first time in the science history, risks have been taken into account since the very beginning of the manufactured nanomaterials and Nanosafety is now considered as a specific new scientific area, gaining in importance and maturity each days thanks to our dynamic community spread all over the world.

Following the successful outcome of the four past international conferences on Safe Production and Use of Nanomaterials: Nanosafe 2008, 2010, 2012 and 2014, the **Platform NanoSafety “PNS”** has the pleasure to welcoming you again to Minatec, Grenoble, for this fifth edition with some of the most famous specialists in the field.

This year, the subtitle of the conference has been slightly changed to “**Health and Safety Issues Related to Nanomaterials**” in order to welcome inboard two new topics: **Urban Nanoparticles** and some aspect of **Nanomedicine**, in addition to the usual issues addressed in previous Nanosafe conferences such as Detection and Characterization, Expology, Release from Nano-enabled Products, Safer by Design Nanomaterials and Process, Risk Management, Nanoproducts to waste, Toxicology, Environmental Interactions, Regulation and Standardization and Nano Responsible Development.

Furthermore, three 3 round tables are organized in order to promote friendly discussions between attendees: **Nano-Responsible Development, Urban Particles Mitigation: What is Reasonably Possible, Nanomedicine: Benefice/Risk.**

This conference represents the opportunity to exchange about Nanosafety issues with other researchers from more than 28 countries.

Enjoy this new edition!

The Nanosafe 2016 Organizers



François TARDIF



*Jean-François
DAMLENCOURT*



Philippe CHARLETY



Gaëlle CHARLIER



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**DEVELOPING PARAMETERS FOR LOCAL MULTIMODE AMBIENT AEROSOL MODELS
INCLUDING NANOMETER MODE**

Paolo Tronville¹, Richard Rivers², (1) Politecnico di Torino DENERG, Corso Duca degli Abruzzi, 24 10129 Turin, Italy (2) EQS, inc., 1262 Bassett Ave., Louisville, Kentucky 40204, USA

The particle count, surface and mass in an occupied space can be modeled when the outdoor and recirculation airflows are known, along with the particle-size distribution for outdoor air, internal generation rates as a function of particle size, and the efficiency of the filter system as a function of particle size. Data on outdoor air particle-size distribution is rarely available, but two measures of particle mass concentration, PM_{2.5} and PM₁₀, are often available for both urban and rural locations.

Many studies have shown that outdoor air aerosol size distributions are well modelled by sums of two or three log-normal distributions, with essentially all the mass contained in the two larger modes, the accumulation mode and the coarse mode. Other studies have also shown that the geometric mean diameter and standard deviations of the accumulation and coarse modes are, in general, related by simple functions.

This paper shows how these relationships can be combined with the known characteristics of PM_{2.5} and PM₁₀ samplers to create reasonable models of outdoor air aerosol-size distributions, and thus allow calculation of aerosol mass effects in occupied spaces. Means of estimating the parameters of aerosol modes with mean sizes below 100 nm and the efficiencies of filters in that range are described. These estimates allow extension of indoor-air modeling to include aerosol surface, which is predominately due to particles with diameters below 100 nm. Sources of the necessary data for all size ranges are examined.