

## European Metrology Research Project Announcement

### EMRP

European Metrology Research Programme  
Programme of EURAMET



The EMRP is jointly funded by the EMRP participating countries within EURAMET and the European Union

#### In Brief

- 3 year European research project on measurements of airborne contaminants in manufacturing environments
- improvements of analytical capabilities and reference standards are research goals
- stakeholders and collaborators are welcome to link themselves to the project

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#### Partners and Associates:

MIKES, Finland (Coordination)  
CMI, Czech Republic  
INRIM, Italy  
NPL, United Kingdom  
PTB, Germany  
VSL, the Netherlands  
HC Photonics Corporation, Taiwan

#### Project website address

<http://www.ptb.de/emrp/ind63-home.html>

#### Project name:

**MetAMC – Metrology for airborne molecular contamination in manufacturing environments**

Project code: EMRP IND-63

## Improving microfabrication by optically monitoring airborne molecular contamination

There is a clear demand from the industry for continuous measurement and control of airborne molecular contamination (AMC). Thus, in May 2013 and within the FP 7 framework the European Association of National Metrology Institutes will start a 2.9 Mio € project for a three year period to measure AMC with high accuracy and low detection levels via laser-based optical methods. It encompasses a multitude of national metrology institutes (NMI) and other stakeholders. Collaborators are welcome to link themselves to the project.

#### Motivation

Recent progress in quantitative molecular spectroscopy has brought the detection limits of typical contaminants to a level that meets the industrial need for AMC measurements. In particular, laser-based techniques have reached such technical maturity that their use in industrial environment has become realistic. However, the easy adsorbance of the common AMCs combined with their very low concentration make sampling, as well as transportation and generation of calibration gases, challenging which the project is addressing.

#### Goals

To meet these goals, the following tasks will be performed during the project, at best resulting in novel instrumentation to determine AMC at “ppm” and “ppb” levels:

- Compare state of the art optical spectroscopic techniques for AMC measurements.
- Optimizing the chosen techniques in clean room measurement campaigns at collaborator facilities.
- Develop AMC detection techniques beyond the state-of-the-art.
- Create reference materials at relevant concentration levels traceable to the SI-units.

#### Dissemination

The results of these technical work packages will be available to the European stakeholders in the semiconductor industry, in micro fabrication, e.g. of MEMS, and for manufacturers of optical instrumentation. It will provide new measurement instruments and services, by providing good practice guides on AMC, by organizing workshops and training courses, by participation in standards organizations or via IP protection.