WHAT SHOULD SCIENTISTS KNOW INTERCOMPARISON STUDIES?

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ABSTRACTS

Intercomparison studies are comparisons performed in accordance with predetermined conditions by two or more participants. The competence of individual participants is evaluated based on measurements of the same or comparable tasks. Laboratories use results from intercomparison studies to i) assure the accuracy of their measurements, ii) evaluate the quality control activities and iii) compare their results to those of other participants.

In its environmental aquis the European Commission (EC) sets a number of requirements for environmental data. The emission trading act for example is applied to carbon dioxide emissions from stationary installations. Installations belonging to the sphere of emissions' trading need emission permits, pursuant to which they have the right to emit carbon dioxide into the atmosphere. For CO2 emission monitoring, the EC has adopted decision 2004/156/EC, which specifies the minimum monitoring requirements and accuracy levels of the emission data. One measuring criteria for emission data is the calorific value, which is the measurement of heat or energy produced from fuel.

The Finnish environment institute (SYKE) has provided a wide range of intercomparison studies for environmental data for several decades. From interlaboratory comparison tests on calorific values of solid fuels arranged since 2008 for laboratories in Europe, it has been shown that about 2/3 of the participants obtain good results. Laboratories that have accredited quality management systems score better results than non-accredited ones.

The reliability of any results used in environmental monitoring and decision making depends on the quality of the production chain. End users should demand and get assurance on the good quality of measurement results from environmental parameters intended for further use in decision making. Participation in intercomparison studies and documented good performance in them is a major evidence of satisfactory adherence to set environmental data requirements for the end user.

REFERENCE

Leivuori, M., Rantanen, M., Björklöf, K., Tervonen, K., Lanteri S. and Ilmakunnas, M. Interlaboratory Proficiency Test 06/2014 - Gross and net calorific value in fuels. Reports of the Finnish Environment Institute 1/2015. hdl.handle.net/10138/153188

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