# Chapter 7 Developments of Environmentally Certified Reference Material From the Brazilian Metrology Institute to Support National Traceability

### Andreia de Lima Fioravante

National Institute of Metrology Standardization and Industrial Quality, Brazil

### Evelyn de Freitas Guimarães

National Institute of Metrology Standardization and Industrial Quality, Brazil

### Fabiano Barbieri Gonzaga

National Institute of Metrology Standardization and Industrial Quality, Brazil

#### **Cristiane Rodrigues Augusto**

National Institute of Metrology Standardization and Industrial Quality, Brazil

#### **Claudia Cipriano Ribeiro**

National Institute of Metrology Standardization and Industrial Quality, Brazil

### Eliane Cristina Pires do Rego

National Institute of Metrology Standardization and Industrial Quality, Brazil

## Elaine Batista de Santana

National Institute of Metrology Standardization and Industrial Quality, Brazil

### Laura Alves das Neves

National Institute of Metrology Standardization and Industrial Quality, Brazil

### Lucas Junqueira de Carvalho

National Institute of Metrology Standardization and Industrial Quality, Brazil

**Renato Rubim Ribeiro de Almeida** National Institute of Metrology Standardization and Industrial Quality, Brazil

DOI: 10.4018/978-1-5225-5406-6.ch007

Copyright © 2019, IGI Global. Copying or distributing in print or electronic forms without written permission of IGI Global is prohibited.

Rodrigo C. de Sena National Institute of Metrology Standardization and Industrial Quality, Brazil

Marcelo de Almeida Dominguez National Institute of Metrology Standardization and Industrial Quality, Brazil

# Janaina Marques Rodrigues Caixeiro

National Institute of Metrology Standardization and Industrial Quality, Brazil

Valnei Smarçaro da Cunha National Institute of Metrology Standardization and Industrial Quality, Brazil

# Sidney P. Sobral

National Institute of Metrology Standardization and Industrial Quality, Brazil

# ABSTRACT

This chapter aims to present the developments performed by the Brazilian Metrology Institute (NMI)–Inmetro, considering the environmental demand. Inmetro addresses a great part of its activities to the study of the traceability transference based on production and dissemination of certified reference material (CRM) of different areas in chemistry. The chapter presents results from certification of the following reference materials developed: BTEX and PAH in solution, besides automotive emission gas mixtures and bioethanol. So, the achievements made are the growth in developing CRM in order to support the needs of the national industry and to disseminate traceability among the society. 18 more pages are available in the full version of this document, which may be purchased using the "Add to Cart"

button on the publisher's webpage: www.igi-

global.com/chapter/developments-of-environmentally-

certified-reference-material-from-the-brazilian-metrology-

institute-to-support-national-traceability/217767

# **Related Content**

# Automated Multi-Diode Laser System for WDM Couplers Insertion Loss Measurements

Sami D. Alaruri (2012). International Journal of Measurement Technologies and Instrumentation Engineering (pp. 1-7).

www.irma-international.org/article/automated-multi-diode-laser-system/78326

# Measurements and Characterization of Photovoltaic Modules for Tolerance Verification

C. Calò, A. Lay-Ekuakille, P. Vergallo, C. Chiffi, A. Trotta, A. Fasanellaand A.M. Fasanella (2011). *International Journal of Measurement Technologies and Instrumentation Engineering (pp. 73-83).* 

www.irma-international.org/article/measurements-characterization-photovoltaic-modules-tolerance/58072

# **Online-Questionaire Design Guidelines**

J. Lumsden (2007). Handbook of Research on Electronic Surveys and Measurements (pp. 44-64).

www.irma-international.org/chapter/online-questionaire-design-guidelines/20216

# Design, Measurements and Characterization of Smart Electronic Board for PV Streetlight Based on LED and High Intensity Discharge Lamps

Paolo Visconti, Daniele Romanello, Giovanni Zizzari, Vito Venturaand Giorgio Cavalera (2011). *International Journal of Measurement Technologies and Instrumentation Engineering (pp. 1-13).* 

www.irma-international.org/article/design-measurements-characterization-smartelectronic/62653

# Using Audience Response Systems to Develop Critical Thinking Skills

Robert Webkingand Felix Valenzuela (2006). *Audience Response Systems in Higher Education: Applications and Cases (pp. 127-139).* www.irma-international.org/chapter/using-audience-response-systems-develop/5393