



# Proficiency testing scheme for chemical analysis in household products in 2007-2010

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## ABSTRACT

The first proficiency testing (PT) scheme for chemical analysis. Determination of fluoride ion in toothpaste, has been provided since 1999 by the Division of Cosmetics and Hazardous Substances, Department of Medical Sciences, Ministry of Public Health. The purpose of this PT scheme was set up for the private laboratories in Thailand, to improve their laboratory quality management system. The scope of the PT scheme has been extended continuously, up to the present, the 7 of PT schemes have been provided in the area of chemical analysis in cosmetic products and household products. These PT schemes have been granted according to the ISO/IEC Guide 43-1-1997 : Proficiency testing by inter-laboratory comparison-Part 1 : Development and operation of proficiency testing schemes and ILAC G-13-2007 : Guidelines for the Requirements for the Competence of Providers of Proficiency Testing Schemes from the National Association of Testing Authorities, Australia in 2008 and 2010.

Key word : proficiency testing, chemical analysis, household products

## INTRODUCTION

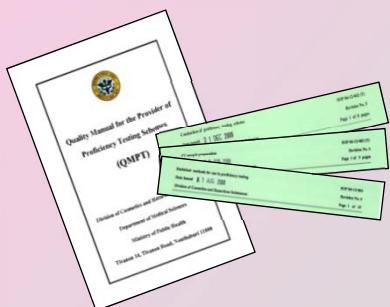
The Division of Cosmetics and Hazardous Substances is one of the divisions under the Department of Medical Sciences, Ministry of Public Health. Role and responsibilities of the division, assigned according to the Royal Thai Government Gazette, are reference laboratories in cosmetics and hazardous substances, research and development and risk assessment. In the role of reference laboratories, we do not only serve as a national laboratory in the area of cosmetics and hazardous substances (public health used) but also provide the laboratory quality assurance activities to strengthen the private laboratories in Thailand. The activities provided are training, technical advisory, and service of proficiency testing schemes. For proficiency testing participation, it's very important and needed to evaluate the laboratory performance especially to be accredited follow the international standard ISO/IEC 17025 – General requirements for the competence of testing and calibration laboratories. The role of proficiency testing scheme provider has been commenced in 1999 in the scheme Analysis of fluoride ion in toothpaste, followed the World Health Organization guideline on EQA – External Quality Assessment. By the policy of the department, the scope of PT scheme has been extended and the quality management of conducting the PT scheme has been continuously improved follow ISO/IEC Guide 43-1: Proficiency testing by inter-laboratory comparisons - Part 1 : Development and operation of proficiency testing schemes and ILAC G-13 : Guidelines for the Requirements for the Competence of Providers of Proficiency Testing Schemes .

## OBJECTIVE

The division has been accredited PT provider according to ISO/IEC Guide 43-1 : 1997 and ILAC G-13 : 2007 on seven proficiency testing schemes provided.

## ACTIVITIES

In the process of preparing to get the evaluation from accreditation body to ISO/IEC Guide 43-1 : 1997 and ILAC G-13 : 2007, the Quality Control Coordinator (QCC) had been assigned to check the ready of management system, prepare the Quality Manual and related documents, and perform self evaluation. The first revision of the Quality Manual of Proficiency Testing Provider (QMPT) issued on 20 September 2006 and has been revised by the reasons of having the new version of related international standard and amended to more appropriate uses to the latest revision of QMPT is revision 3, issued on 4 January 2008. The documents are very important for present the document control system, conducting the PT scheme and also for accreditation. Some of them are SOP 06-12-002 : Conducting of proficiency testing scheme, SOP 06-12-003 : PT sample preparation, SOP 06-12-004 : Statistical methods for use in proficiency testing, SOP 06-12-006 : Stability testing for PT sample. Subcontracting laboratory, responses to prepare and test the PT sample properties as homogeneity and stability, has to be also accredited to the ISO/IEC 17025.



Responsible by	Activities	From
TWG	10.1 Consideration to establish the annual PT scheme	
QCC	10.2 List of PT scheme	F 06-12-002
QCC	10.3 PT scheme schedule	F 06-12-003
Coordinator Admin.	10.4 PT Protocol and application from announcement	F 06-12-004,-005,-006
Coordinator Admin.	10.5 Application to PT scheme	F 06-12-005,-011
Coordinator Admin.	10.6 PT sample distribution (SOP 06-12-003)	F 06-12-007,-008,-009
TWG Coordinator	10.7 Evaluation of test results (SOP 06-12-004)	
Coordinator Admin.	10.8 Preparation of PT report	F 06-12-010
Coordinator Admin.	10.9 PT report distribution	F 06-12-012
QCC	10.10 Storage of PT scheme documentation	

When everything had been already prepared as mentioned in the requirements of related international standards, we proposed to get the accreditation to the National Association of Testing Authorities (NATA), Australia. The first accreditation was done on February 2008 and the extended scope accreditation on six schemes was on November 2009.

## RESULTS

The first accreditation on 28-29 February 2008, we had been granted on 5 June 2008 in the scheme – Analysis of anionic surfactant in cleaning household products. The second accreditation for scope extending on 26 November 2009, six of PT schemes in chemical analysis were granted. Five of them are schemes for cosmetics: fluoride in toothpaste, hydrogen peroxide in neutralizer, thioglycolic acid in waving product, sunscreen agent sun sunscreen products, and identification of prohibited substances in whitening product; hydroquinone, retinoic acid and mercury compound. One scheme of hazardous substances (pesticide) in public health use has been accredited; temephos in larvicide sand granules.



## SUMMARY

The provided Proficiency Testing Schemes accredited to international standard assure the participated laboratories to improve their performance or to request the evaluation to ISO/IEC 17025 from accreditation body. Division of Cosmetics and Hazardous Substances has intends to extend the scope of PT schemes required by the laboratories. We make enquiries to get their needs and satisfactory to the scheme conduction in order to do the improvement. The international standards for proficiency testing providers had been revised and now changed to the ISO/IEC 17043-2010 : Conformity Assessment- General requirements for proficiency testing, and it's the provider's responsibility to study and improve to conform the latest version of relevant standard.

## REFERENCES

1. ISO/IEC Guide 43-1 : 1997. Proficiency testing by interlaboratory comparisons - Part 1 : Development and operation of proficiency testing schemes.
- ILAC G-13 : 08/2007. Guidelines for the Requirements for the Competence of Providers of Proficiency Testing Schemes.
- ISO 13528 : 2005. Statistical methods for use in proficiency testing by interlaboratory comparisons.
- ISO/IEC 17043. First edition : 2010-02-01. Conformity Assessment – General requirements for proficiency testing.