

Collaborative Effort by the ASEAN Reference Material Network in Organising Accuracy-Based Proficiency Testing Programmes





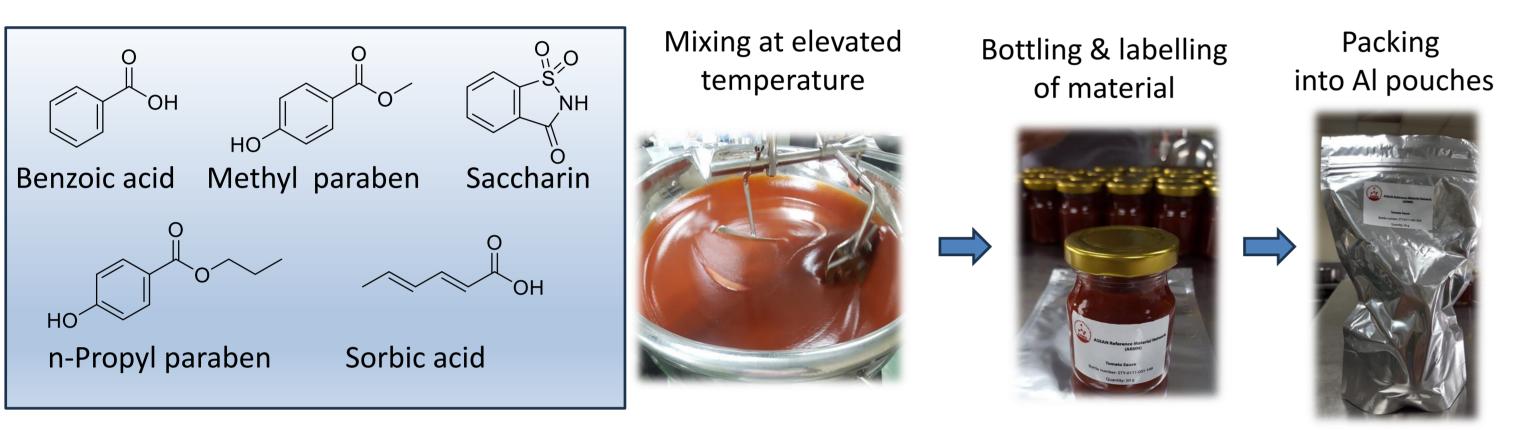
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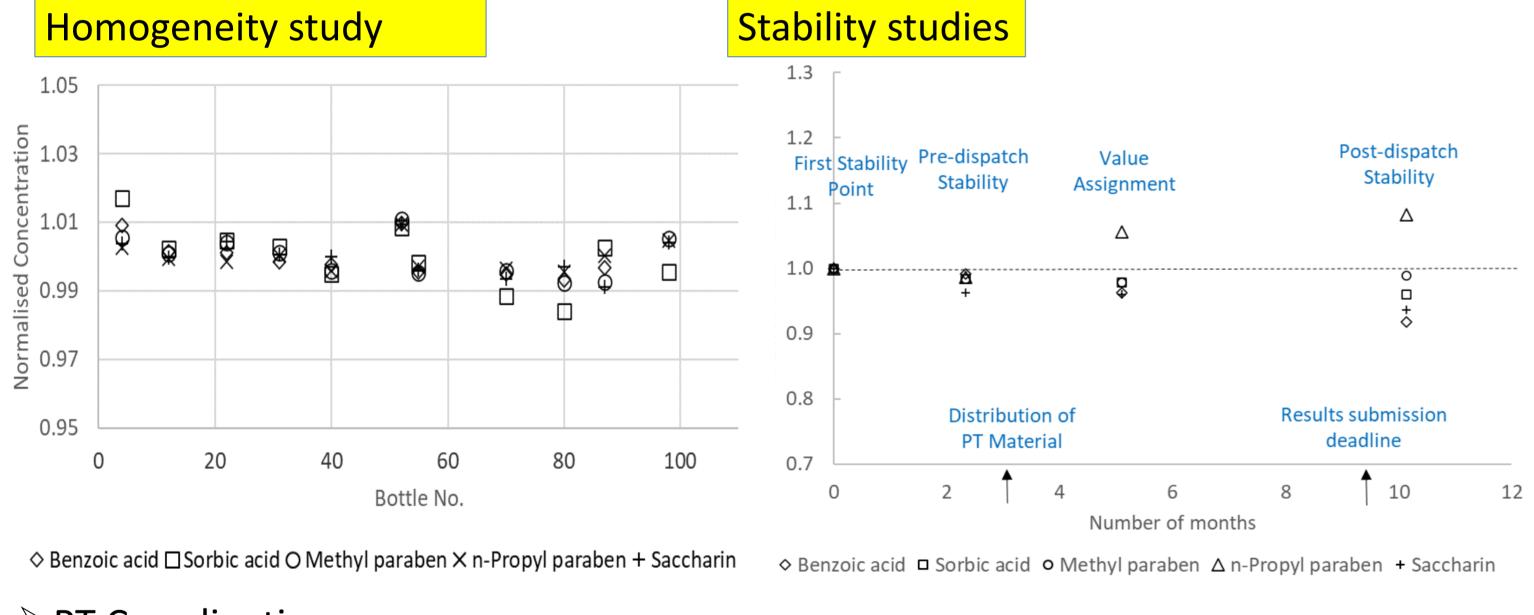
Introduction Indonesia National Measurement Standards, National Standardization Agency of Indonesia (SNSU-BSN) Established Malaysia National Metrology Institute of Malaysia (NMIM) in 2016 Department of Chemistry Malaysia (KIMIA) **Philippines Industrial Technology Development Institute** Department of Science and Technology (ITDI-DOST) National Metrology Centre A*STAR (NMC A*STAR) Singapore Comprises Organisation Health Sciences Authority of Singapore (HSA) 10 institutes of accuracyfrom 7 National Institute of Metrology (Thailand) (NIMT) **Thailand** based PT economies Thailand Institute of Scientific and Technological **ARMN** programme in ASEAN Research (TISTR) Vietnam Metrology Institute (VMI) Vietnam **Brunei Darussalam** Ministry of Health (MOH) Joint ARMN institutes that have co-organised accuracy-based PT production of reference programmes: material

PT Programme on Additives in Food Sauce (2020)

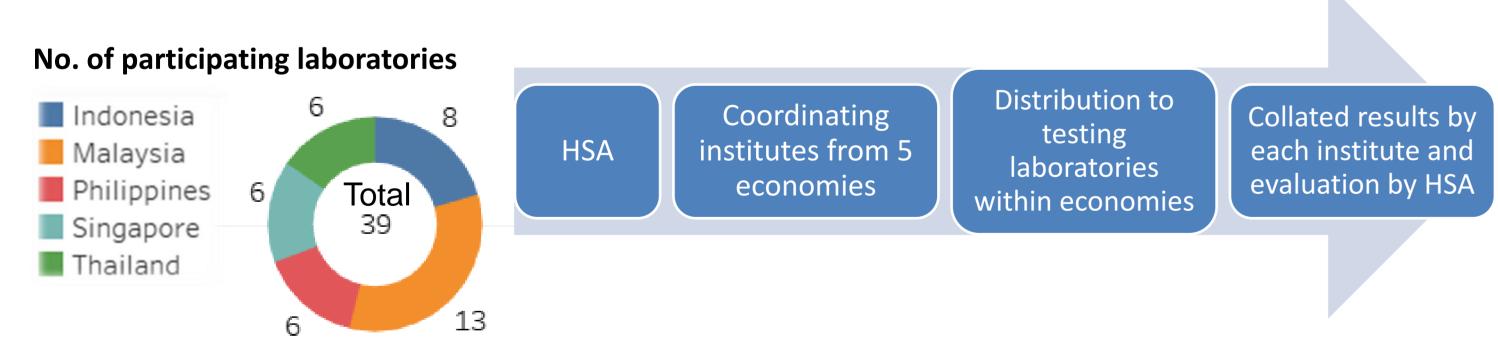
> Preparation of PT samples performed by TISTR:



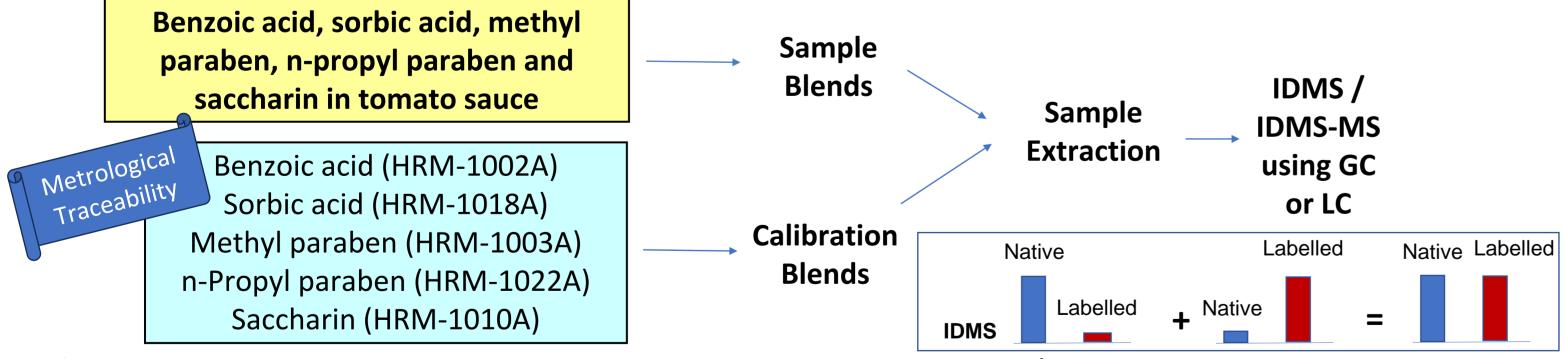
> Homogeneity and stability studies performed by HSA (results were evaluated following ISO 13528:2015):



> PT Coordination:

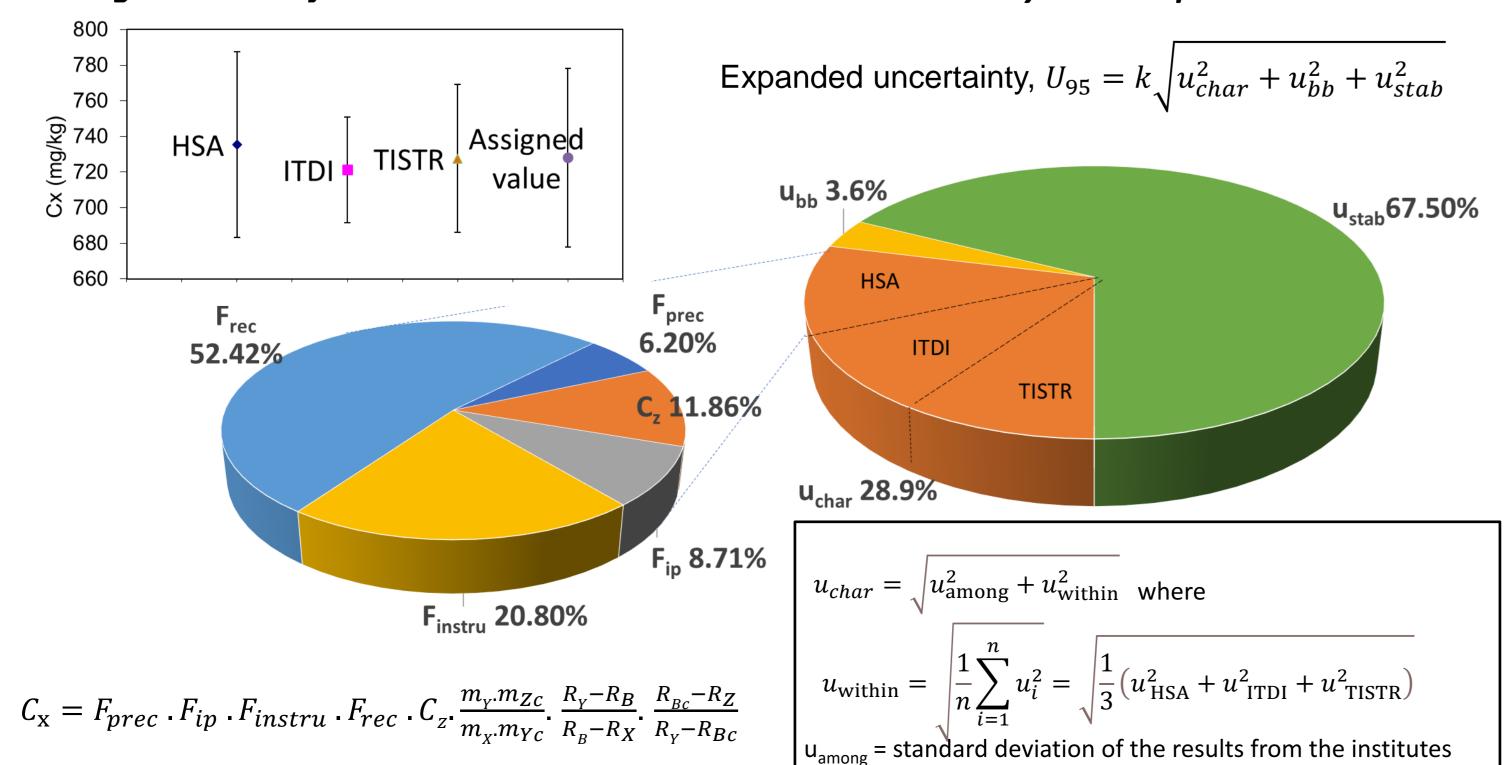


> Assigned values* for the five analytes jointly determined by HSA, TISTR and/or ITDI:

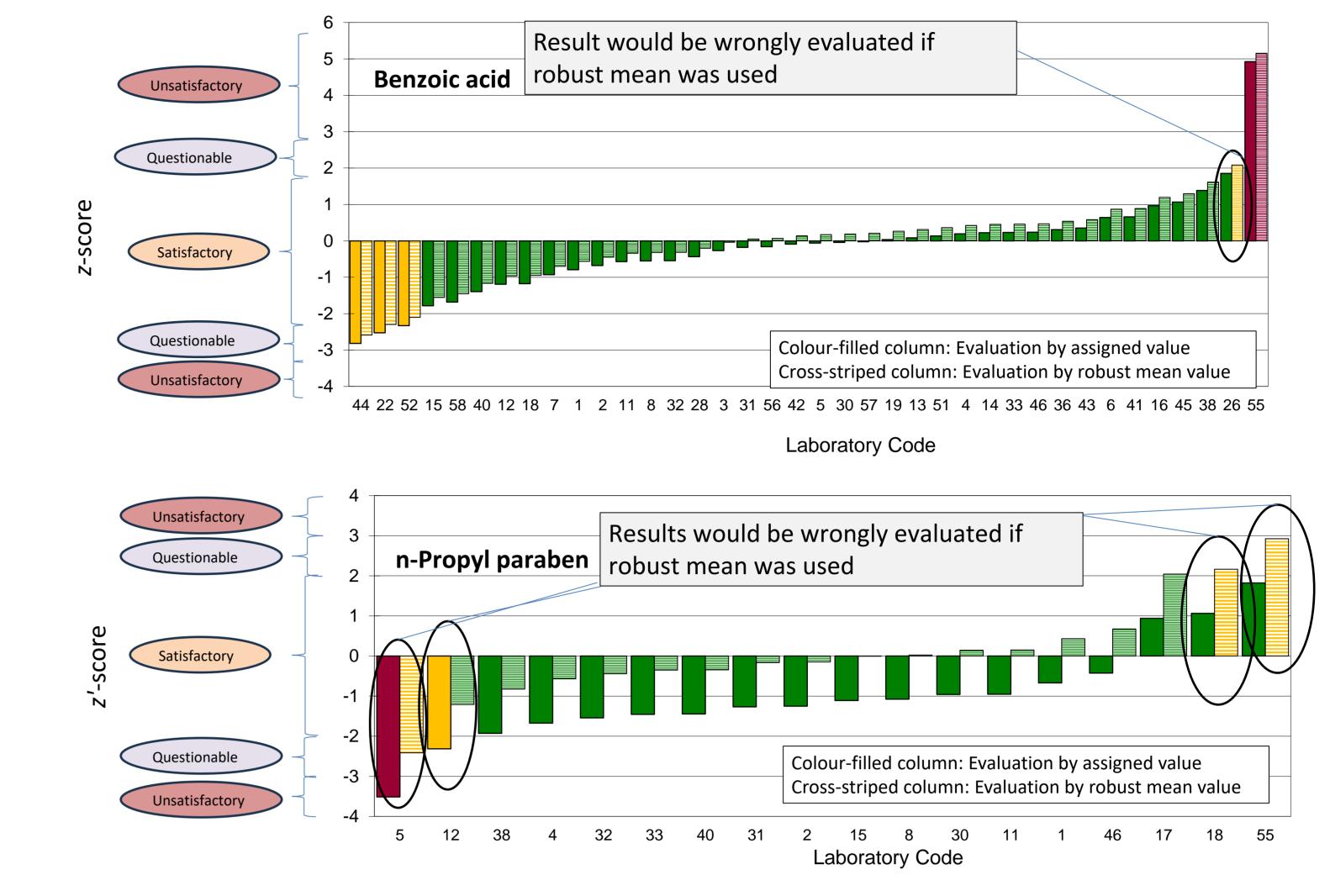


* Calculated based on arithmetic mean of results reported by HSA, ITDI and/or TISTR

Assigned value of benzoic acid and its measurement uncertainty as example:



Evaluation of participating laboratories' results using independently determined SI traceable assigned values (not consensus approach):

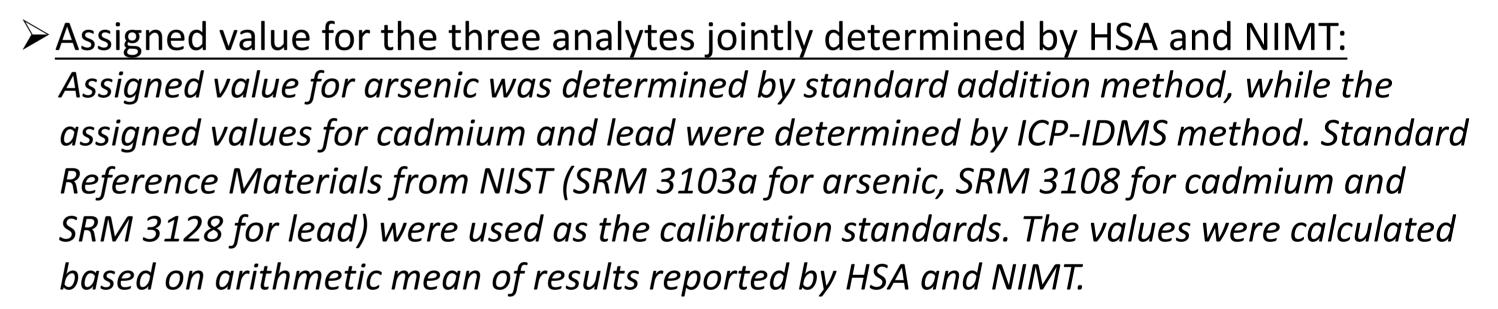


PT Programme on Toxic Elements in Lipstick (2021)

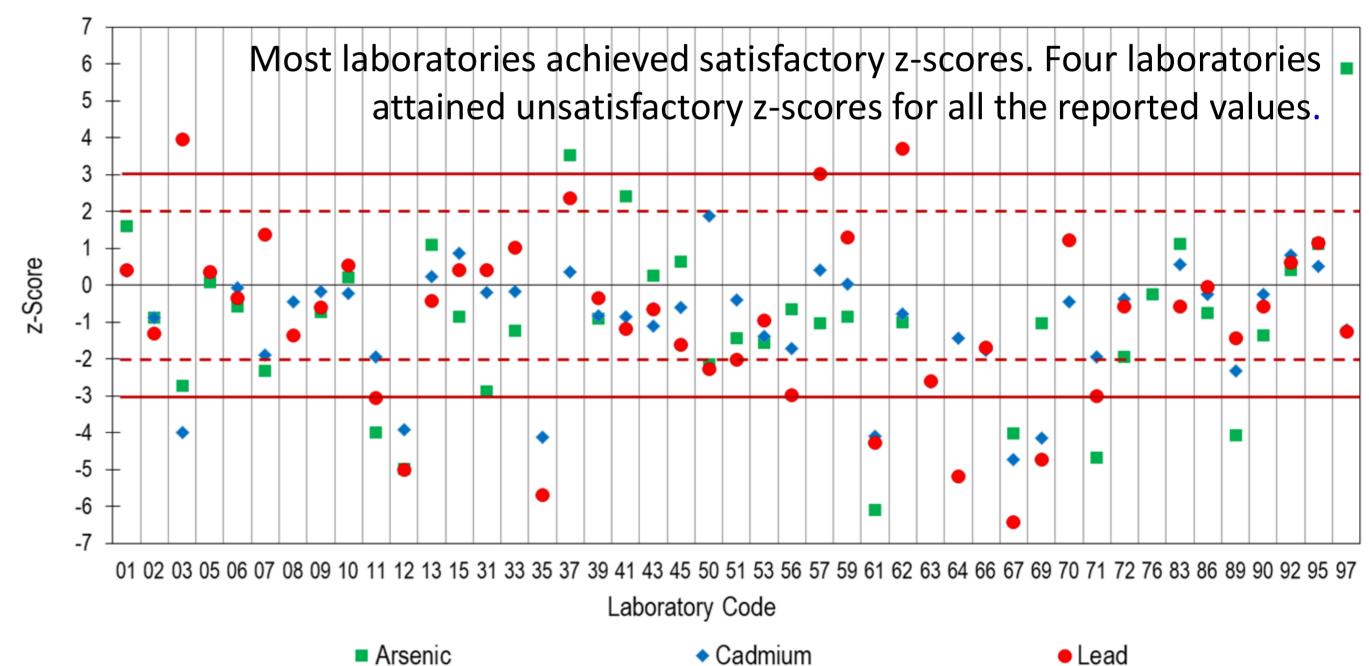
> Homogeneity performed by HSA and stability studies performed by NIMT.

> PT Participation:

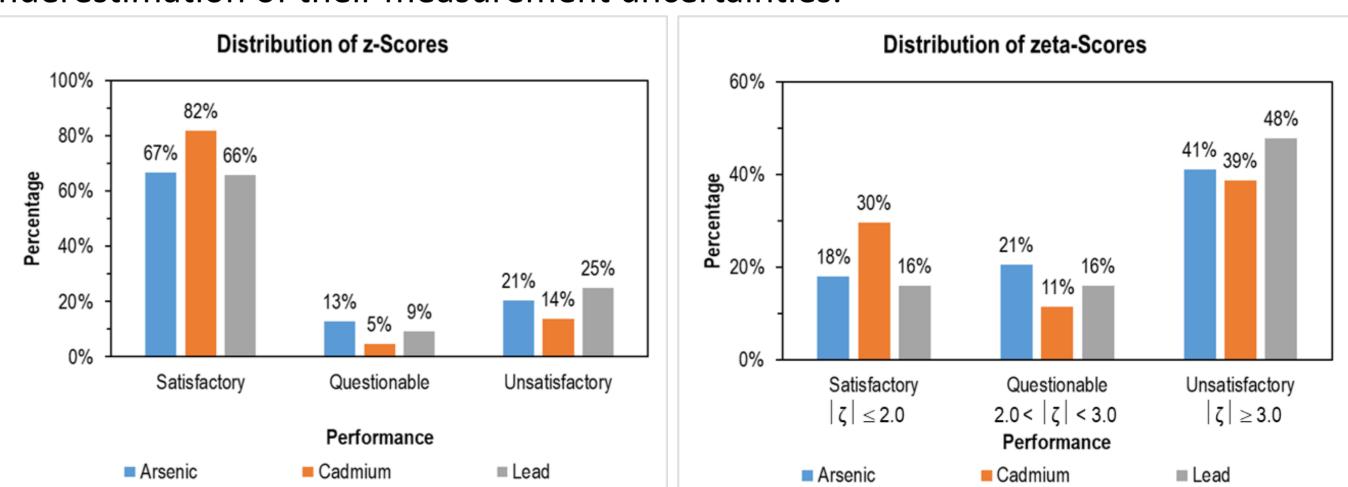
45 Cosmetic testing laboratories from Indonesia, Malaysia, Philippines and Singapore participated in this programme.



➤ Evaluation participating laboratories' results independently using <u>determined assigned values (not consensus approach):</u>



High percentage of laboratories attaining unsatisfactory ζ -scores suggested underestimation of their measurement uncertainties.



Cadmium

Conclusion

This coordinated effort, gathering a larger number of participating laboratories, enabled a broader understanding of the laboratories' measurement capabilities across multiple ASEAN economies with less manpower and resources commitments from each institute. The remaining PT materials were made available as ASEAN reference materials (ARMs) for quality control or method validation.

Reference

P. S. Cheow, T.L. Teo, T.J. Fortune, B.A. Ebarvia, S.N.N.S. Hashim, D. Styarini, J. Wang, E.M. Gui, T. Lu, T. Mungmeechai, P. Tangtrirat, A. Dacuya, A.R. Veranga, G. Amandy, H.L. Li, Y. Aristiawan, C. Elishian, A. Hindayani, "Efficient delivery of metrological services by institutes through accuracy-based proficiency testing programme on additives in food sauce for laboratories in the Southeast Asian region." Accreditation and Quality Assurance, 27 (2022): 205-222.