



APMP-APLAC Joint Proficiency Testing Programme  
(APLAC T102)  
Pesticides in Fruit Juice



**FINAL REPORT SUMMARY**

**APMP-APLAC Joint Proficiency Testing Programme**

**(APLAC T102)**

**Pesticides in Fruit Juice**

Organized by

Government Laboratory of Hong Kong (GLHK)

12 December 2016



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## Summary

1. This proficiency testing programme (APLAC T102) was organized by the Government Laboratory of Hong Kong (GLHK) under the auspices of the APMP-APLAC Joint PTWG. The purposes of the study were (i) to assist participating laboratories in demonstrating capability in measuring the mass fractions of two pesticides (i.e. endosulfan sulfate and carbofuran) at  $\mu\text{g}/\text{kg}$  levels in the proficiency test sample of fruit juice (i.e. tomato juice) by various analytical techniques.; and (ii) to identify problems and opportunities for self-improvement.
2. A total of 80 laboratories from 39 economies enrolled in the PT programme and 71 of them returned the Result Proforma to GLHK within the extended scheduled timeline.
3. The reference values for the pesticides provided by GLHK were used as the assigned values for evaluating the performance of the participants in this PT programme. The reference value of carbofuran was the gravimetrically spike value. The reference value of endosulfan sulfate was determined by isotope dilution mass spectrometry (IDMS) with the support of relevant Calibration and Measurement Capabilities (CMCs) of GLHK on organochlorine pesticides as registered in the BIPM Key Comparison Database (KCDB). The standard deviation for proficiency assessment was derived from the Horwitz Equation [1]. The z-scores were used to show the performance of participants with respect to the assigned values of the analytes of interest.
4. Assigned values and standard deviations for proficiency assessment on the two analytes are summarized as follows:

	<b>Carbofuran</b>	<b>Endosulfan sulfate</b>
	$\mu\text{g}/\text{kg}$	$\mu\text{g}/\text{kg}$
<b>Assigned value</b>	516	473
<b>Standard deviation for proficiency assessment</b>	91	85



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5. Participants' z-scores on the two analytes are summarized as follows:

z-Score	Number of Participants (Percentage)	
	Carbofurn	Endosulfan sulfate
$ z  \leq 2.0$	48 (79%)	47 (70%)
$2.0 <  z  < 3.0$	6 (10%)	8 (12%)
$ z  \geq 3.0$	7 (11%)	12 (18%)
<b>Total:</b>	<b>61 (100%)</b>	<b>67 (100%)*</b>

\*One participant reported that the result for endosulfan sulfate was less than limit of quantitation and performance was not evaluated.