

Procedure for NPL 'on-demand' proficiency testing scheme

The following procedure is followed when NPL carry out a bilateral, 'on-demand' proficiency testing scheme with an external laboratory:

1. NPL prepare and validate a Primary Reference Gas Mixture (PRGM).
2. The PRGM is sent (without the certificate) to the external laboratory.
3. The external laboratory measures the composition of the PRGM and reports their results by email to NPL. An amount fraction and expanded uncertainty must be provided for each component, but the results can be submitted in any format.
4. NPL provides the external laboratory with a comparison of their results against the gravimetric composition of the mixture. This will show:
 - a. The difference between the gravimetric and measured amount fractions for each component;
 - b. Whether the values agree within their stated uncertainties;
 - c. If requested by the customer, Z-Scores and E_n -scores calculated according to ISO 13528.
5. NPL also provides the external laboratory with a certificate showing the composition of the PRGM.
6. The external laboratory retains the PRGM for future use.