TERMS OF REFERENCE FOR THE R&D PROJECT

1. Title: Development of Test Method for Bisphenol A (BPA) analysis in PTFE coating used on Utensils and Polymer used in Bottles.

2. Background:

PTFE is a synthetic fluoropolymer of tetrafluoroethylene, and it is commonly used as a non-stick coating for cookware and various industrial applications. However, BPA traces in this coating has been a topic of concern due to its potential to leach from these products and enter the human body, leading to exposure. Studies have suggested that BPA can mimic the action of the hormone estrogen in the body, potentially interfering with the endocrine system. As a result, BPA exposure has been associated with various health concerns, including reproductive issues, developmental problems, and other potential adverse effects.

In the above context, it is required that a standardized test method can be developed to find out the BPA traces in the coating used on utensils.

3. Objective:

This project will include conducting the laboratory visits, development of test method on '**Bisphenol A (BPA) analysis in PTFE coating used on Utensils and Polymer used in Bottles**' and collecting the test results, and submitting the report along with test method.

4. Scope:

4.1 Study the available literature like national and international standard such as ASTM, JIS, EN, ISO etc. available on the subject, research papers, any study conducted by other organisations, and companies' brochure. Identify the requirements and acceptance criteria which can be included in the test method.

4.2 Carry out on-site visits to laboratories and testing agencies to conduct a detailed examination of the testing methods employed for the analysis of Bisphenol A (BPA).

4.3 Prepare a detailed test method and carry out the method validation at various labs and observe the test results.

4.4 Prepare a comprehensive project report incorporating the points mentioned above.

5. Methodology:

5.1 Study the literature and analyse the findings.

5.2 Visit laboratories and make report on test equipment required, test method being used, testing charges, and testing time required.

5.3 Prepare the test method.

5.4 Analyse the data and test reports from NABL accredited labs and include the same in the project report.

6. Sampling plan:

6.1 Five laboratories each from govt. and pvt. sector shall be visited.
6.2 Five samples of coating and polymer each to be tested.

7. Deliverables:

7.1 Final project report in hard copy format as well as in soft copy, covering all aspects mentioned in the scope.

7.2 Questionnaire, discussion, visit reports, test reports collected from the labs to be appended with the final project report

8. Timeline:

The duration of the project is 6 months from the date of award of the project. The proposed indicative timeline stage-wise is given below:

S.No	Stage	Time from date of award of project (cumulative)
1	Literature review and identification of manufacturing base, testing laboratories, user/user industry, and discussion with BIS for the finalization of sampling plan	1 month
2	Visit to manufacturers, testing laboratories, users and importers and exporters and data collection	2 month
3	Mid-term Review	3 month
4	Preparation and submission of first draft report to BIS	5 month
5	Submission of final project report	6 month

Note: The proposer may submit the draft report to BIS without waiting for test report from independent laboratories if the test is of long duration test.

9. Support BIS will provide:

BIS will provide access to latest available editions of Indian standards and/ or international standards relevant to the project, on request.

10. **Relevant Sectional Committee and Nodal officer from BIS:**

Sectional Committee: MED 33 (Utensils, Cutlery and Domestic Hardware Sectional Committee)

Nodal Officer: Mr Lokraj Meena, Scientist B/ Assistant Director & Member Secretary, MED 33

Email: med@bis.gov.in