TERMS OF REFERENCE FOR R&D PROJECT

Food and Agriculture Department
Pesticides Sectional Committee, FAD 01

1 Title of the Project

Development of the LC based test method for determination of active ingredient in technical grade triallate and its formulation and validation of newly developed test method.

2 Background

2.1 Bureau of Indian Standards has developed 2 Indian Standards related to triallate; IS 9357 : 1980 'triallate, technical – Specification', IS 9358 : 1980 'triallate emulsifiable concentrate – Specification', which can be accessed at https://standardsbis.bsbedge.com/ free of cost.

2.2 In the recent years, it has been observed that due to introduction of new technology, advance instruments and latest test methods, the existing test methods (Volumetric method) given in the standards are not applicable in present scenario. These test methods do not give the appropriate results and therefore, are not being used by the manufacturer.

2.3 Considering the above-mentioned change in technology, the committee decided to establish the LC based test method used for determination of active ingredient in technical grade triallate and its formulation. Further, the newly developed test method is required to be validated.

3 Objective of the Project

3.1 To establish a new test method used for determination of active ingredient in technical grade triallate and its formulation. The newly developed test method should be applicable for technical grade and its formulations (including EC and other formulations being used).

3.2 To validate the newly established test method.

4 Scope

4.1 Study of existing literature related to published research conducted, international/ regional guidelines & standards related to determination of a.i. in triallate.

4.2 Visit to at least 2 laboratories/research institute working on research and development of test methods related to triallate.

4.3 Visit to preferably 2 large scale and 2 small scale stakeholders involved in production of technical grade triallate and its formulations.

4.4 Collection of representative field samples of technical grade triallate and its formulations (500 g or 500 ml each).

4.5 Collection of available information under commercial production system related to the product.

4.6 Comparative analysis of existing commercial best practices with the proposed recommendations regarding the use of LC based test method.

4.7 Development of LC based test method for determination of active ingredient in triallate and its formulations.

4.8 Inter lab comparison (ILC) of the requirement of active ingredient with existing test method (volumetric method) and newly developed method (LC based method) by 5 labs (2 Government and 3 Private labs).

4.9 Validation of the newly developed test method as per relevant parts of ISO 5725 'Accuracy (trueness and precision) of measurement methods and results'.

5 Research Methodology

5.1 Conduct a thorough literature review for existing national and international guidelines, regulatory stipulations and standards related to the said test method.

5.2 Conduct pan India data collection on various available commercial technical grade triallate and their formulation with respect to market share, major producers/suppliers, user feedback.

5.3 Conduct primary survey through structured interview/ structured questionnaires with laboratories/research institute working on development of new test methods related to triallate.

5.4 Conduct primary survey through structured interview/ structured questionnaires with large scale and small-scale commercial stakeholders for collection of information/database regarding the use of test method.

5.5 During visit to commercial stakeholders, observe and record the best practices, observe and record the issues faced, observe and record sustainability aspects addressed during the production of the product.

5.6 Prepare report comprised of research findings and data collected as per the deliverables of this project for updating the Indian Standards, triallate; IS 9357 : 1980 'triallate, technical – Specification', IS 9358 : 1980 'triallate emulsifiable concentrate – Specification'.

5.7 Develop the LC based test method for determination of active ingredient in triallate and its formulations.

5.8 Conduct the inter lab comparison (ILC) of the requirement of active ingredient with existing test method (volumetric method) and newly developed method (LC based method) by 5 labs (2 Government and 3 Private labs).

5.9 Validate the newly developed test method as per relevant parts of ISO 5725 'Accuracy (trueness and precision) of measurement methods and results'.

6 Deliverables

Detailed project report of the work done, in hard copy and digital formats, as per the scope specified under 4, with the following as appendices:

a) Research findings and data collected regarding the development of new test method and validation.
b) Test results generated during the development and validation of the test method.

7 Timeline and Method of Progress Review

7.1 Timeline for the project is 6 months from the date of award of the project.

7.2 Stages of review:

Stage	Timeline
Stage I : Primary Report covering the review of the literatures and existing stipulations, sampling plan, complete plan regarding the development of the test method.	First month
Stage II : Visit to relevant laboratory/research institute, large scale stakeholders, small scale stakeholders, data collection, compilation of the data.	Second Month
Stage III : Development of the LC based test method used for determination of active ingredient in triallate, inter lab comparison and its validation.	Third Month to Fifth Month
Stage IV : Complete report including data from testing of field samples	Fifth month

At the end of 6th month, project allottee to submit final project report incorporating recommendations/feedback of Committee.

> ***Note****: The timelines given above are indicative and calculation of time will start from the date of award of sanction letter for the project to the Project leader.*

8 Support from BIS

8.1 Access to Indian and International Standards

8.2 Letters from BIS to concerned stakeholders for support in research project.

9 Nodal Officer

Sh. Kuldeep Mittal, Scientist-B/Assistant Director, FAD, BIS may be contacted at fad1@bis.gov.in for any queries on the research project.