CIPAC MT STATUS REPORT

02/03/2015

MT 190 Release properties of microencapsulated lambda cyhalothrin formulations

Allocated to GB

CIPAC methods published in:

CIPAC L, p. 140

CIPAC 46th meeting, June 2002 in Rome

Mr Seymour presented the results from a pilot study to determine the release rate of lambda-cyhalothrin and the 'free AI' present. It was reported it was important to control rolling rate, temperature, solvent composition and the diameter of the bottle used. Formulations with slow and fast release profiles were considered. The method was able to differentiate 'good' from 'poor' formulations for both free AI and release rate. The results indicated that the agitation mechanism was also a key parameter and must be gentle and reproducible otherwise there is risk of capsule rupture. It was confirmed the method was applicable only to lambda-cyhalothrin slow release formulations.

CIPAC 47th meeting, June 2003 in Bucharest

Mr. Parker presented a CIPAC collaborative study on the method of measurement of the release properties and "free a.i". in CS fomulations for public health applications of lamda- cyhalothrin. Data were available from a total of 14 laboratories each of which tested 4 formulations. Each formulation was tested 4 times with 2 independent replicate samples being tested on each of 2 separate days. 4 measurements were recorded on each sample: Free AI and three release property measurements taken at 15, 30 and 180 minutes.
Two laboratories were completely eliminated from the evaluation of results due to significant deviation from the test protocol (use of rollers of much slower speed). It was noted that one laboratory had used a rotary evaporator instead of a roller and still received satisfactory results but that was not recommended for future use. Mr. Hill commented that it appears to be a good method for a wide range of capsules for the free a.i. determination but not so much for assessing the release rate.
Decision The method for release rate was accepted as **provisional** with the conditions of having a more accurate description of the method and also to include the limitations of the method.

CIPAC 48th meeting, June 2004 in Brno

Decision The method for release rate was accepted as **full** CIPAC method.

CIPAC 58th meeting, June 2014 in Liège

Mrs De Benedictis presented some information about issues that had been found with the CIPAC MT method for the determination of the release rate of pirimiphos-methyl
Analysis of the same batches in different labs led to different release rates. Two factors were considered as potential causes:

- Type of roller (smoothness of the rolling motion / vibrations)
- Temperature during rolling

Tests have been done to prove / disprove these hypotheses
Two different types of rollers compared.

- Same bottle dimensions and rolling speed as described in the method
- Conclusion: The type of roller does not have a significant influence
- However, if a different roller is used than the two here, there may be more significant differences

In order to test the hypothesis that the temperature during rolling is the primary cause of the differences, a preliminary test at different temperatures was performed (all other parameters were kept the same):

- Release rate after 15 minutes is quite independent of the temperature
- Experiments were conducted with the same batch at different temperatures.
    - Release rate after 15 minutes is quite independent of the temperature

Propose to only determine the release rate after 15 minutes and to change the specification accordingly:

- This value gives sufficient evidence that the AI is released slowly from the capsules.
- From the analytical point of view there is no need to be able to control the temperature of the bottle on the roller.
- Some labs may have difficulties to keep such equipment between 20 °C and 25 °C.
- As a consequence, the method has been changed to only refer to a rolling time of 15 minutes

Mrs De Benedictis concluded that the next steps were to

- Firstly decide whether or not to change the published specification accordingly.
- If the change is being adopted, CIPAC method 190.2 would have to be changed as described.

No comments were received from the meeting: