



PQT/VCP Executive Summary of Prequalification Decision

KLYPSON 500 WG

(Clothianidin Indoor Residual Spray)

Prequalification Unit – Vector Control Products Assessment (PQT/VCP)

Regulation and Prequalification Department (RPQ)

Access to Medicines and Health Products (MHP)

World Health Organization (WHO)

1 Introduction

WHO's Prequalification Unit, Vector Control Product Assessment team (PQT/VCP) assesses vector control products and public health pesticide active ingredients to determine their acceptability and that they can be used safely, effectively and are manufactured to a high-quality standard. This is done by assessing product dossiers, inspecting manufacturing sites, and supporting quality-control testing of products. Products that meet prequalification requirements are added to the WHO list of vector control products.

WHO prequalification of vector control products primarily benefits populations most affected by vector-borne diseases by facilitating access to these prevention focused tools. The vector-borne diseases include malaria, and neglected tropical diseases such as Dengue, Chikungunya, Zika, Chagas, Lymphatic filariasis, Leishmaniasis, Human African trypanosomiasis, Onchocerciasis and Schistosomiasis.

This Executive Summary document conveys the decision for prequalification of the product KLYPSON 500 WG manufactured by Tagros Chemicals India Ltd. (PQ Ref# 004-019) in conjunction with the Letter of Prequalification. The PQT/VCP Decision Document presents the complete assessment. In some cases, the PQT/VCP Executive Summary may be published in advance of the PQT/VCP Decision Document.

2 Product Identification

KLYPSON 500 WG is a water dispersible granule (WG) formulation containing Clothianidin (CAS No. 210880-92-5; 500g/kg; 50%). Clothianidin, (*E*)-1-(2-chloro-1,3-thiazol-5-ylmethyl)-3-methyl-2-nitroguanidine, is a neonicotinoid insecticide already commercialized in crop protection and professional pest control in a variety of formulations. Tagros Chemicals India Ltd. submitted an application claiming equivalence of the proposed product to the prequalified product SumiShield 50WG (PQ Ref# 001-001) manufactured by Sumitomo Chemical Co., Ltd.

The product, KLYPSON 500 WG, is intended to be used for malaria vector control as an Indoor Residual Spray (IRS). This WG product is intended to be applied exclusively on the inner walls of dwellings at a rate of one 150 g sachet per 250 m². The target dose rate of the product is 300 mg clothianidin/m².

3 Assessment of Quality

3.1 Chemical and Physical Properties

Data on the chemical and physical properties of the active ingredients and the product KLYPSON 500 WG were provided. These data were obtained from studies conducted according to established standards and/or Good Laboratory Practices (GLP) and are considered complete. Product specific properties are summarized in Table 1. The WHO Specification 738/WG is available for use in support of QA/QC testing.

The sources of active ingredient are supported by existing WHO specifications.

Data on the manufacturing process and product composition for KLYPSON 500 WG have been provided and are adequate. The product is formulated in Gujarat, India.

The identified reference methods in Table 2 are appropriate for the determination of the active ingredient content in the product.

The quality component of the dossier is considered complete, and the assessment of the submitted information on quality supports the prequalification of the product.

Table 1 Chemical and Physical Properties for KLYPSON 500 WG

Data Requirement	Study Number	Test Method ID	Result
Active ingredient	RCC 9150	Clothianidin 738/WG/M/3, CIPAC Handbook N, p.17, 2012	Clothianidin concentration: initial: 506.5 g/kg After accelerated storage (2 weeks at 54 °C): 488.6 g/kg Certified limits: 475-525 g/kg No significant difference between clothianidin concentration values before and after storage stability test
Wettability	RCC 9147	MT 53.3.1, CIPAC Handbook F, p.165, 1995	Wettability: 5 seconds The formulation should be completely wetted in 1 min without swirling.
Wet sieve test	RCC 9150	MT 185, CIPAC Handbook K, p.149, 2003	Residue: 0.22% Maximum: 2% retained on a 75 µm test sieve. After accelerated storage (2 weeks at 54 °C) Residue: 0.24% No significant differences between wet sieve test results before and after storage stability test
Degree of dispersion	RCC 9150	MT 174, CIPAC Handbook F, p.435, 1995	Dispersibility: 83.49% Minimum 80% after 1 min of stirring. After accelerated storage (2 weeks at 54 °C) Dispersibility: 84.94% No significant difference between clothianidin degree of dispersion values before and after storage stability test
Suspensibility	RCC 9150	MT 184, CIPAC Handbook K, p.142, 2003	Suspensibility: 83.83% A minimum of 60% should be in suspension after 30 minutes in CIPAC Standard Water D at 30 ± 2°C. After accelerated storage (2 weeks at 54 °C) Suspensibility: 82.41% No significant difference between clothianidin suspensibility values before and after storage stability test
Persistent foam	RCC 9148	MT 47.3, CIPAC Handbook O, p.177, 2017	Persistent foam: 2 ml after 1 min Maximum: 70 ml after 1 min.
Dustiness	RCC 9150	MT 171	0.35 mg of collected dust The formulation shall have a maximum collected dust of 30 mg by the gravimetric method (the product is nearly dust free).

Table 1 Chemical and Physical Properties for KLYPSON 500 WG			
		CIPAC Handbook F, p.425, 1995	After accelerated storage (2 weeks at 54 °C) 0.35 mg of collected dust No significant difference between values before and after storage stability test.
Flowability	RCC 9149	MT 172.1, CIPAC Handbook O, p.187, 2017	100% of the formulation passed through a 5 mm test sieve. At least 99% of the formulation shall pass through a 5 mm test sieve after 20 drops of the sieve. After accelerated storage (2 weeks at 54 °C) 100% of the formulation passed through a 5 mm test sieve No significant difference between values before and after storage stability test.
Attrition resistance	RCC 9150	MT 178.2, CIPAC Handbook K, p.140, 2003	99.14% Minimum: 98% attrition resistance. After accelerated storage (2 weeks at 54 °C) 98.87% No significant difference between values before and after storage stability test.

Note: In supplement to the GLP study, Quality Control data generated by the applicant was submitted on 10 additional batches. All batches complied with the presented limits, including after accelerated storage.

Table 2. Details of the analytical method used to determine clothianidin in KLYPSON 500 WG product	
Quantification of Clothianidin	738/WG/M/3, CIPAC Handbook N, p.17, 2012

4 Assessment of Safety

Safety information is not required to be submitted for IRS products claiming equivalence.

5 Assessment of Efficacy

5.1 Background

The primary purpose for the use of a pesticide is the control of a pest, including disease transmitting vector. Vector control tools, including formulated pesticides, which provide effective management/control of vectors, may be used as part of a resistance management program. Vector control products for use in public health are a component of Integrated Vector Management (IVM), which is a program that relies on a suite of diverse interventions and implementation of best practices to manage the vector and chemical/behavioral resistance.

5.2 Efficacy Conclusions

Assessment of the submitted efficacy study performed in a lab setting revealed that there is sufficient evidence to demonstrate that KLYPSON 500 WG meets the efficacy requirements for prequalification. The efficacy study was performed according to recommended protocols using different mosquito species and strains from different locations.

The supporting data indicate that the product may have continued efficacy for a duration of up to 6-8 months depending on the mosquito strain, surface type and environmental conditions.

Overall, the data generated in Tanzania indicated that the product performance supports the claim of equivalence to the reference product. The observed performance against the susceptible *A. gambiae* (Kisumu) strain remained high, specifically for mortality, relying on post-exposure hold times of 72 and 120 hours. Similar observations were reported for the pyrethroid resistant *A. arabiensis* Kingani strain. The observed mortality on mud was low during months 7 and 8.

In the study, low mortality was observed from the time of application until month 2 for the proposed product and the positive controls on all substrates. However, the mosquito mortality increased to acceptable levels when the same samples were tested in the subsequent months. This indicates that the product can be considered effective against the species tested up to a duration of 8 months. This effectiveness can be only inferred for the first two months based on data collected from month 3 onward. The results for the proposed product and available information do not give any indication that the low mortality was attributable to the product itself.

6 Labelling

The proposed Declaration of Labelling has been reviewed by PQT/VCP and found to be consistent with the supporting information.

7 Post-Prequalification Commitments

There are no additional post-prequalification commitments associated with this decision of prequalification.

8 Pre-Qualification Listing Decision

The review of the dossier submitted for the product KLYPSON 500 WG has been completed by PQT/VCP. The results of the assessments show the product meets the claim of equivalency when used according to the directions for use on the label. The product is allowed inclusion on the list of prequalified vector control products.