

PARAQUAT DICHLORIDE WATER SOLUBLE GRANULES

FAO Specification 56/SG/S/F (2003)

1 DESCRIPTION

The material shall consist of granules containing technical paraquat dichloride complying with the requirements of the FAO specification 56/TK/S/F (2003) and, suitable carriers, together with an effective emetic and blue/green colourants, and may contain other safeners. It shall be homogeneous, free from visible extraneous matter and/or hard lumps, free flowing, and non-dusty. The active ingredient shall be soluble in water. Insoluble carriers and formulants shall not interfere with compliance with clause 4.2.

2 ACTIVE INGREDIENT

2.1 Identity tests (56/SL/M/2, CIPAC G, p.128)

The active ingredient shall comply with an identity test and, where the identity remains in doubt, shall comply with at least one additional test.

2.2 Paraquat dichloride content (*55+56/SG/M/-, CIPAC E, p.78)

The paraquat dichloride content (Note 1) shall be declared (g/kg) and, when determined, the average content measured shall not differ from that declared by more than the appropriate tolerances, given in the table of tolerances.

<u>Declared content in g/kg</u>	<u>Tolerance</u>
Above 25 up to 100	± 10% of the declared content
Above 100 up to 250	± 6% of the declared content

The upper limit is included in each range.

2.3 Emetic content(for method see Appendix 1)

PP 796: 2-amino-4,5-dihydro-6-methyl-4-propyl-s-triazole-(1,5a)pyrimidin-5-one

Not less than 0.3g/kg (Note 2)

3 RELEVANT IMPURITIES

3.1 By-products of manufacture or storage

3.1.1 Free 4,4'-bipyridyl (56/13/M/7.4, CIPAC 1A,p.1317)

Maximum: 1000ppm (0.1%w/w)

3.1.2 Total terpyridine content (for method see Appendix 2)

Maximum: 1.0ppm (0.0001%w/w)

4 PHYSICAL PROPERTIES

4.1 pH range (MT 75.3)

pH range of a 1% w/v dispersion: 6.0 to 8.0.

4.2 Degree of dissolution and solution stability (CIPAC MT 179)

Residue of formulation retained on a 75µm test sieve after dissolution in CIPAC Water D at 30 ± 2°C (Note 3).

Maximum: 2 % after 5 minutes

Maximum: 2 % after 18 hours

4.3 Persistent foam (CIPAC MT 47.2) (Note 4)

Maximum 30 ml after 1 minute

4.4 Dustiness (CIPAC MT 171) (Note 5)

Essentially non-dusty with a maximum of 1mg (0.0033% by weight) dust collected by the gravimetric method.

4.5 Flowability (CIPAC MT 46.3 / MT 172)

At least 98 % of the formulation shall pass through a 5 mm test sieve after 20 drops of the sieve.

4.6 Attrition resistance (CIPAC MT 178)

An attrition resistance of at least 99.5%

5 STORAGE STABILITY

5.1 Stability at elevated temperatures (MT 46.3)

After storage at 54 ± 2°C for 14 days the determined average active ingredient content shall not be lower than 97 % relative to the determined average content found before storage (Note 6 and the formulation shall continue to comply with the clauses for: manufacturing impurities (3.1), pH range (4.1), degree of dissolution and solution stability (4.2), dustiness (4.4), flowability (4.5), and attrition resistance (4.6).

6. CONTAINERS

Containers may be manufactured from suitable polymeric materials or metal, and must comply with pertinent national and international transport and safety requirements. Where metal is used containers shall be lined with suitable polymeric material, or the internal surfaces treated to prevent corrosion of the container and/or deterioration of the contents. The product must not be allowed to come into direct contact with metal.

NOTES

1. *Multiply the paraquat ion content as determined by CIPAC method 56/SL/M/3 by 1.38*
2. *An effective emetic must be included. No compound, other than PP796 has been found to be effective in meeting the following criteria:*
 - *It must be rapidly absorbed (more rapidly than paraquat) and be quick acting. Emesis must occur in about half an hour in at least 50% of cases.*
 - *It must be an effective (strong) stimulant of the emetic centre to produce effective emesis. The emetic effect should have a limited 'action period' of about two to three hours to allow effective treatment of poisoning.*
 - *It must act centrally on the emetic centre in the brain.*
 - *It must not be a gastric irritant because, as paraquat is itself an irritant, this could potentiate the toxicity of paraquat.*
 - *It must be toxicologically acceptable. It must have a short half-life in the body (to comply with the need for a limited action period).*
 - *It must be compatible with and stable in the paraquat formulation and not affect the herbicidal efficacy or occupational use of the product..*
3. *Unless other temperatures or waters are specified.*

4. *The mass of sample to be used in the test should be specified at the highest rate of use recommended by the supplier.*
5. *The optical method, MT 171, would not give reliable values at the levels of dust around the specified limit and should therefore not be used.*
6. *Samples of the formulation taken before and after the storage stability test should be analysed together after the test in order to reduce the analytical error.*

APPENDIX 1

Method for the determination of PP796

APPENDIX 2

Method for the determination of Total Terpyridyls