

प्रारंभिक व्यावसायिक परीक्षण रिपोर्ट

**INITIAL COMMERCIAL TEST REPORT**

संख्या/No. CSIR/CMERI/FMTTC/2022/016

माह/Month: November. 2022

**THIS TEST REPORT VALID UP TO**

:

**30<sup>TH</sup> NOVEMBER, 2027**



**BATTERY OPERATED KNAPSACK SPRAYER  
AGM001/12AHBR - GREEN MAGIC**



कृषि मशीनरी प्रशिक्षण और परीक्षण केंद्र

**Farm Machinery Training and Testing Centre**

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## I. SPECIFICATIONS

## I.1 General

|                                      |                                                                                                                                                               |
|--------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type                                 | : Battery Operated Knapsack Sprayer                                                                                                                           |
| Make*                                | : ASPEE Agro Equipment Pvt. Ltd.                                                                                                                              |
| Model*                               | : AGM001/12AHBR – GREEN MAGIC                                                                                                                                 |
| Brand                                | : ASPEE                                                                                                                                                       |
| Serial No.                           | : 1009                                                                                                                                                        |
| Name of manufacturer                 | : ASPEE Agro Equipment Pvt. Ltd.<br>Opp. Gram Panchayat Office, Chikchali Road,<br>Antalia, Village, Bilimora- 396321, Ta –<br>Gandevi, Dis- Navsari, GUJARAT |
| Year of manufacture                  | : July 2022                                                                                                                                                   |
| Capacity of sprayer, l               | : 20                                                                                                                                                          |
| Working pressure, kg/cm <sup>2</sup> | : 4.2 (60 PSI)                                                                                                                                                |

## I.2 Motor (As per Sticker)

|                         |                 |
|-------------------------|-----------------|
| Type                    | : D C Motor     |
| Make                    | : ASPEE         |
| Serial number           | : Not specified |
| Motor operating voltage | : 12 V, D C     |
| Motor power             | : Not Specified |
| Max. Current*           | : 2.2 A         |
| Rated speed*, rpm       | : Not specified |

## I.3 Battery (As per Sticker)

|                    |                             |
|--------------------|-----------------------------|
| Type               | : Sealed, Lead-Acid Battery |
| Make               | : ASPEE                     |
| Model              | : Not specified             |
| Serial number      | : 02022007KS                |
| Capacity & rating* | : 12V, 12 AH                |
| Country of origin  | : Not Specified             |
| Location           | : Below the chemical tank.  |

## I.4 Battery Charger from AC Supply

|                   |                              |
|-------------------|------------------------------|
| Make              | : ASPEE                      |
| Model             | : Not specified              |
| Input voltage*    | : 50Hz-60Hz – 110V – 240V AC |
| Output voltage*   | : 12 V-DC                    |
| Output current*   | : 1.7 A                      |
| Country of origin | : Not specified              |

## I.5 Pump

|                                              |                               |
|----------------------------------------------|-------------------------------|
| Type                                         | : Diaphragm                   |
| Make*                                        | : ASPEE                       |
| Model                                        | : Not Specified               |
| Sr. number                                   | : Not Specified               |
| Method of drive                              | : Directly connected to motor |
| Working pressure*, kg/cm <sup>2</sup>        | : 4.2                         |
| Rated pressure*, kg/cm <sup>2</sup>          | : Not Specified               |
| Rated speed, rpm                             | : Not Specified               |
| Discharge capacity at rated pressure*, l/min | : 3.6                         |



**11. ENDURANCE TEST OF SPRAYER**

(Vide clause 8.8 of IS-11313:2007)

1. Date of test : 26.10.2022 to 02.11.2022
2. Total running time (hr): 50
3. Quantity of liquid collected during endurance:-  
Avg. discharge (ml/min)
  - a) First Collection - 1950
  - b) Second Collection - 1930
  - c) Third Collection - 1940
  - d) Fourth collection - 1960
  - e) Fifth Collection - 1950
  - f) Sixth Collection - 1945
  - g) Seventh Collection - 1940
4. Percentage variation of discharge from first to last collection, 0.51 %

**12. TEST FOR PUMP CHAMBER**

(Vide Clause 7.1 of IS 10134-1994)

Date of test : 02.11.2022

| Sr. No. | Details                                                        | Condition                                                                                                                                     |
|---------|----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| 1       | Test Condition                                                 | Outlet end closed                                                                                                                             |
| 2       | Pressure applied<br>-Hydraulic pressure<br>-Pneumatic pressure | Motor stopped beyond 5.0 kg/cm <sup>2</sup> pressure against the pressure requirement of 12.5 kg/cm <sup>2</sup> ,<br>7.50 kg/cm <sup>2</sup> |
| 3       | Duration                                                       | 1 minutes each                                                                                                                                |
| 4       | Result                                                         | No leakage, crack deformation or breakage observed in pump chamber during the test.                                                           |

Remarks: Tendency of stalling of motor was observed beyond 4.90 kg/cm<sup>2</sup> hydraulic pressure and therefore sprayer does not conform to the requirement laid down in clause 7.1 of IS-10134:1994.

**13. TEST FOR HOSE AND HOSE CONNECTION**

(Vide Clause 5.14.3 of IS 11313:2007 &amp; Clause 7.2 of IS 10134-1994)

Date of test : 01.11.2022

| Sr. No. | Details                    | Condition                                                                           |
|---------|----------------------------|-------------------------------------------------------------------------------------|
| 1       | Test condition             | Outlet end closed                                                                   |
| 2       | Hydraulic pressure applied | 1.5 MPa                                                                             |
| 3       | Duration                   | 1 minutes                                                                           |
| 4       | Result                     | No leakage, crack or breakage observed in hose and hose connection during the test. |



## 17. COMMENTS &amp; RECOMMENDATIONS

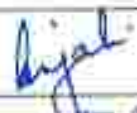
- 17.1 The sprayer year of manufacture is not marked. It should be marked.
- 17.2 The serial number, motor power and rated speed of motor is not specified. It should be specified.
- 17.3 The model and country of origin of battery is not specified. It should be specified.
- 17.4 The model and country of origin of battery charger is not specified. It should be specified.
- 17.5 The model, serial number, rated speed and country of origin of pump is not specified. It should be specified.
- 17.6 The material used for pressure regulator does not meet the requirements of Indian standard. It MUST be looked into.
- 17.7 The material used for pump inlet port end fitting does not meet the requirements of Indian standard. It MUST be looked into.
- 17.8 The material used for disc, tip does not meet the requirements of Indian standard. It MUST be looked into.
- 17.9 The cut off device is not marked with recognized trade mark, Batch or code number & type. It must be looked into.
- 17.10 The nozzle is not marked with batch or code number & type. It should be marked.
- 17.11 During the pump chamber hydraulic test, the motor stopped beyond 5.0 kg/cm<sup>2</sup> pressure against the pressure requirement of 12.5 kg/cm<sup>2</sup>. Thus the sprayer does not meet the requirement of Indian Standard.
- 17.12 The tank capacity of sprayer does not meet the requirement of IS: 3906-1995. It MUST be looked into.
- 17.13 The length of discharge outlet does not meet the requirements of Indian standard. It MUST be looked into.
- 17.14 The lance is not marked with nominal length, batch or code number. It MUST be marked.
- 17.15 The length of operating trigger of cut-off-device from the pivot axis is not within the requirement of the relevant Indian Standard. It MUST be looked into.
- 17.16 The average size of the side of the strainer used in cut-off device is does not meet the requirements of Indian Standard. It MUST be looked into.
- 17.17 The maximum trigger actuation torque is beyond the limit specified as per IS:3652-1995. It MUST be looked into.
- 17.18 Time required to full charge the battery with AC charger is observed as 8 to 8.5 hours.
- 17.19 The spraying operation time after fully charging the battery was observed as 6hrs, 30 min. to 6 hrs, 45 mins.



**18. TECHNICAL LITERATURE**

The operator, maintenance & parts manual of sprayer was provided during the test which found adequate, however, the manual should be updated as per IS: 8132:1999, with the inclusion of safety instructions regarding handling poisonous agrochemical and first aid.

**TESTING AUTHORITY**

|                                                        |                                                                                     |
|--------------------------------------------------------|-------------------------------------------------------------------------------------|
| Dr. ANJALI CHATTERJEE<br>Chief Scientist               |  |
| Dr. SUBRATA KUMAR MANDAL<br>Senior Principal Scientist |   |
| Mr. IMRAN SHEKH<br>Senior Scientist                    |  |

**19. APPLICANT'S COMMENTS**

| Para No. | Our Reference                            | Applicant's Comments                                              |
|----------|------------------------------------------|-------------------------------------------------------------------|
| 17       | 17.1                                     | Noted, will mark in regular production                            |
|          | 17.2, 17.3, 17.4, 17.5, 17.6, 17.7, 17.8 | Noted.                                                            |
|          | 17.9                                     | Noted, will mark in regular production                            |
|          | 17.10, 17.11                             | Noted.                                                            |
|          | 17.12                                    | Noted. The tank capacity is provided as per customer requirement. |
|          | 17.13                                    | Noted                                                             |
|          | 17.14                                    | Noted, will mark.                                                 |
|          | 17.15, 17.16, 17.17, 17.18, 17.19        | Noted.                                                            |

