

प्रारंभिक व्यावसायिक परीक्षण रिपोर्ट

**INITIAL COMMERCIAL TEST REPORT**

**THIS TEST REPORT VALID UP TO**

संख्या/No. **CSIR/CMERI/FMTTC/2022/017**

माह/Month: November. 2022

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



**BATTERY OPERATED SPRAYER  
AMJ001/12AHBR - ASPEE MAJESTIKK**



कृषि मशीनरी प्रशिक्षण और परीक्षण केंद्र

**Farm Machinery Training and Testing Centre**

सीएसआईआर- केन्द्रीय यांत्रिक अभियांत्रिकी अनुसंधान संस्थान

**CSIR - Central Mechanical Engineering Research Institute**

महात्मा गांधी एवेन्यू, दुर्गापुर

**Mahatma Gandhi Avenue, Durgapur**

पश्चिम बंगाल - **713209**

**West Bengal - 713209**

**Website: <https://cmeri.res.in>**

**E-mail: [sub\\_mandal@cmeri.res.in](mailto:sub_mandal@cmeri.res.in)**

**Telephone: +91-343-2546749; 9434921623**

**Fax: +91-343-2546745**

**1. SPECIFICATIONS****1.1 General**

Type	: Battery Operated Knapsack Sprayer
Make*	: ASPEE Agro Equipment Pvt. Ltd.
Model*	: AMJ001/12AHBR – ASPEE MAJESTIKK
Brand	: ASPEE
Serial No.	: 000001
Name of manufacturer	: ASPEE Agro Equipment Pvt. Ltd. Opp. Gram Panchayat Office, Chikhali Road, Antalia, Village, Bilimora- 396321, Ta – Gandevi, Dis- Navsari, GUJARAT
Year of manufacture	: October-2022
Capacity of sprayer, l	: 16
Working pressure, kg/cm <sup>2</sup>	: 4.2 (60 PSI)

**1.2 Motor (As per Sticker)**

Type	: D C Motor
Make	: ASPEE
Serial number	: B2020/06D
Motor operating voltage	: 12 V, D C
Motor power	: <b>Not Specified</b>
Max. Current*	: 2.8 A
Rated speed*, rpm	: <b>Not specified</b>

**1.3 Battery (As per Sticker)**

Type	: Sealed, Lead-Acid Battery
Make	: ASPEE
Model	: <b>Not specified</b>
Serial number	: 0202207KS
Capacity & rating*	: 12V, 12 Ah
Country of origin	: <b>Not Specified</b>
Location	: Below the chemical tank.

**1.4 Battery Charger from AC Supply**

Make	: ASPEE
Model	: Not specified
Input voltage*	: AC 110V - 220V
Output voltage *	: DC-12 V
Output current*	: 1.7 A
Country of origin	: INDIA

**1.5 Pump**

Type	: Diaphragm
Make*	: ASPEE
Model	: <b>Not Specified</b>
Sr. number	: B2020/06D
Method of drive	: Directly connected to motor
Working pressure*, kg/cm <sup>2</sup>	: 4.2
Rated pressure*, kg/cm <sup>2</sup>	: <b>Not Specified</b>
Rated speed, rpm	: <b>Not Specified</b>
Discharge capacity at rated pressure*, l/min	: 4

### 11. ENDURANCE TEST OF SPRAYER

(Vide clause 8.8 of IS-11313:2007)

1. Date of test : 31.10.2022 to 07.11.2022
2. Total running time (hr): 50
3. Quantity of liquid collected during endurance: -  

	Avg. discharge (ml/min)
a) First Collection	- 1710
b) Second Collection	- 1720
c) Third Collection	- 1710
d) Fourth collection	- 1720
e) Fifth Collection	- 1730
f) Sixth Collection	- 1710
g) Seventh Collection	- 1720
4. Percentage variation of discharge from first to last collection, 0.58 %

### 12. TEST FOR PUMP CHAMBER

(Vide Clause 7.1 of IS 10134-1994)

Date of test : 03.11.2022

Sr. No.	Details	Condition
1	Test Condition	Outlet end closed
2	Pressure applied	Motor stopped beyond 5.0 kg/cm <sup>2</sup> pressure against the pressure requirement of 12.5 kg/cm <sup>2</sup> .
	-Hydraulic pressure	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 & 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 & RECOMMENDATIONS




- 17.1 The sprayer year of manufacture is not marked. It should be marked.
- 17.2 The 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 of battery charger is not specified. It should be specified.
- 17.5 The model, rated pressure, 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 and the length of 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 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 length of projected skirt/stand 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 Trade mark, nominal length, batch or code number. It **MUST** be marked.
- 17.15 The manual does not all the requirement given in 7.1 of IS 3652:1995. It **MUST** be looked into.
- 17.16 The area of the strainer used in cut-off device is does not meet the requirements of Indian Standard. It **MUST** be looked into
- 17.17 Time required to full charge the battery with AC charger is observed as 8 hrs to 8 hrs. 30 mins.
- 17.18 The spraying operation time after fully charging the battery was observed as 6hrs. 30 min. to 6 hrs. 40 mins.

CSIR/CMERI/FMTTC/2022/017	ASPEE MAJESTIKK AMJ001/12AHBR BATTERY OPERATED KNAPSACK SPRAYER (INITIAL COMMERCIAL TEST)
---------------------------	---

### 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 Chief Scientist	
Dr. SUBRATA KUMAR MANDAL Senior Principal Scientist	
Md. IMRAN SHEKH 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, 17.10, 17.11, 17.12	Noted
	17.13, 17.14, 17.15, 17.16, 17.17	Noted.
	17.18	Noted.

