

प्रारंभिक व्यावसायिक परीक्षण रिपोर्ट
INITIAL COMMERCIAL TEST REPORT

संख्या/No. CSIR/CMERI/FMTTC/2022/005

माह/Month: May, 2022

THIS TEST REPORT VALID UP TO : 31ST MAY, 2027



**ASPEE 12AHBR
BATTERY OPERATED KNAPSACK SPRAYER**



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

Telephone: +91-343-2546749; 9434921623

Fax: +91-343-2546745

CSIR/CMERI/FMTTC/2022/005	ASPEE 12AHBR BATTERY OPERATED KNAPSACK SPRAYER (INITIAL COMMERCIAL TEST)
---------------------------	---

Manufacturer	:	ASPEE Agro Equipment Pvt. Ltd. Opp. Gram Panchayat Office, Chikhali Road, Antalia, Village, Bilimora- 396321, Ta – Gandevi, Dis- Navsari, GUJARAT
Test requested by	:	Manufacturer
Selected for test by	:	The applicant
Method of selection	:	The sprayer is selected as per direction laid down in the Ministry's order no. 13-1/2021 – M&T(I&P), dated 3 rd Feb 2022.

1. SPECIFICATIONS

1.1 General

Type	:	Battery Operated Knapsack Sprayer
Make*	:	ASPEE
Model*	:	AGDM001/12AHBR – GREEN MAGIC
Serial No.	:	Not Specified
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	:	November-2021
Capacity of sprayer, l	:	20
Working pressure, kg/cm ²	:	Not specified

1.2 Motor (As per Sticker)

Type	:	D C Motor
No. of Motor	:	02
Make	:	ASPEE
Serial number	:	Not specified
Motor operating voltage	:	12 V, DC
Motor power	:	Not Specified
Max. Current*	:	7.5A
Rated speed*, rpm	:	Not specified

1.3 Battery (As per Sticker)

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

1.4 Battery Charger from AC Supply

Make	:	ASPEE
Model	:	Not specified
Input voltage*	:	AC 110 - 240V
Output voltage *	:	DC 12 V
Output current*	:	1.2 A
Country of origin	:	Not specified

**10. ENDURANCE TEST OF SPRAYER
(Vide clause 8.8 of IS-11313:2007)**

1. Date of test: 07.02.2022 to 17.02.2022
2. Total running time (h)-50
3. Quantity of liquid collected during endurance: -

	Avg. discharge (ml/min)
a) First Collection	- 4260
b) Second Collection	- 4285
c) Third Collection	- 4210
d) Fourth collection	- 4225
e) Fifth Collection	- 4280
f) Sixth Collection	- 4255
g) Seventh Collection	- 4310
4. Percentage variation of discharge from first to last collection, 1.17 %

**11. TEST FOR PUMP CHAMBER
(Vide Clause 7.1 of IS 10134-1994)**

Date of test : 18.02.2022

Sr. No.	Details	Condition
1	Test Condition	Outlet end closed
2	Pressure applied -Hydraulic pressure -Pneumatic pressure	Motor stopped beyond 5.60 kg/cm ² pressure against the pressure requirement of 7.5 kg/cm ² . 4.5 kg/cm ²
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 5.60 kg/cm² hydraulic pressure and therefore sprayer **does not conform** to the requirement laid down in clause 7.1 of IS: 10134:1994.

**12. 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 : 18.02.2022

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.

15. CONFORMITY TO INDIAN STANDARDS

- | | | |
|------|---|---------------------------------|
| i) | IS 11313:2007* Hydraulic power sprayers- : specification | Does not conform in toto |
| ii) | IS 10134:1994* Method of test for manually operated sprayer | Does not conform in toto |
| iii) | Spray nozzle and spray gun as per IS:3652-1995* (Reaffirmed 2011) | Does not conform in toto |
| iv) | IS: 3906:1995* (Reaffirmed 2001) Crop protection equipment – Hand-operated Knapsack Sprayer, Piston type - specification | Does not conform in toto |
| v) | IS: 2643-2005* Pipe threads where pressure-tight joints are not made on the threads-dimensions, tolerance and designation | Does not conform in toto |

**This is battery operated Knapsack Sprayer and the above mentioned standards are not the correct standard for the certain test.*

16. COMMENTS & RECOMMENDATIONS

- 16.1 The sprayer year of manufacture is not marked. It should be marked.
- 16.2 The serial number and working pressure of the sprayer is not specified. It should be specified.
- 16.3 The serial number, motor power and rated speed of motor is not specified. It should be specified.
- 16.4 The model, serial number and country of origin of battery is not specified. It should be specified.
- 16.5 The model and country of origin of battery charger is not specified. It should be specified.
- 16.6 The model, serial number, working pressure, rated speed and country of origin of pump is not specified. It should be specified.
- 16.7 The material used for pump inlet port end fitting does not meet the requirements of Indian standard. It must be looked into.
- 16.8 The spray gun is not marked and designated. It must be marked and designated.
- 16.9 The nozzle is not marked and designated. It should be marked and designated.
- 16.10 During the pump chamber hydraulic test, the motor stopped beyond 5.60 kg/cm² pressure against the pressure requirement of 7.5 kg/cm². Thus the sprayer does not meet the requirement of Indian Standard.
- 16.11 The tank capacity of sprayer does not meet the requirement of IS: 3906-1995. It must be looked into.
- 16.12 The length of discharge outlet does not meet the requirements of Indian standard. It must be looked into.
- 16.13 The manual not mate with the requirement given in 7.1 of IS 3652:1995. It must be looked into.
- 16.14 Time required to full charge battery with AC charger is observed as 9 to 10 hours.

- 16.15 The spraying operation time after fully charging the battery was observed as 1.45 to 2 hours.
- 16.16 The thickness of the wall of the barrel of the spray gun does not meet with the Annex E of IS: 3652-1995. It must be looked into.
- 16.17 The total length of the spray gun and diameter of the connecting rod of the spray gun does not meet with the Annex E of IS: 3652-1995. It must be looked into.
- 16.18 The spray angle of the nozzle does not meet with the declared value of the manufacturer. It must be looked into.
- 16.19 The current drawn by motor at no load and on load was observed 1.3 Amp and 2.62 Amp respectively which does not conform to requirement of IS: 14459: 1997.
- 16.20 A suitable labelling plate (not sticker) needs to be provided with, inter alia, following information; -
- i. Manufacturer's name
 - ii. Make
 - iii. Model
 - iv. Month & year of manufacture
 - v. Rated speed
 - vi. Rated pressure
 - vii. Discharge rate
 - viii. Power rating
 - ix. Country of origin

17. 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	<i>Anjali</i> 20/05/2022
Dr. SUBRATA KUMAR MANDAL Senior Principal Scientist	<i>Subrata Kumar Mandal</i> 20/5/2022
Md. IMRAN SHEKH Senior Scientist	<i>Imran</i>

18. APPLICANT'S COMMENTS

Para No.	Our Reference	Applicant's Comments
18	16.1, 16.2, 16.3, 16.4, 16.5, 16.6, 16.7, 16.8, 16.9, 16.10, 16.11, 16.12, 16.13, 16.14, 16.15, 16.16, 16.17, 16.18, 16.19, 16.20	Noted the same and will take the necessary corrective action

