

व्यावसायिक परीक्षण रिपोर्ट  
COMMERCIAL TEST REPORT

संख्या/ No.: PS-466/2643/2021  
माह/Month : January, 2021

THIS TEST REPORT VALID UP TO : 31<sup>st</sup> January, 2026



**SAARANSH, G-10  
HAND OPERATED KNAPSACK SPRAYER**



भारत सरकार

Government of India

कृषि एवं किसान कल्याण मंत्रालय

Ministry of Agriculture and Farmers Welfare

कृषि, सहकारिता एवं किसान कल्याण विभाग

Department of Agriculture, Cooperation and Farmers Welfare

उत्तरी क्षेत्र कृषि मशीनरी प्रशिक्षण एवं परीक्षण संस्थान

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PS-466/2643/2021	<b>SAARANSH, G-10 HAND OPERATED KNAPSACK SPRAYER (COMMERCIAL)</b>
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**8.2 STRENGTH TEST FOR CUT-OFF DEVICE**

Sr. No	Details	Condition
1	Condition of outlet	Closed
2	Hydraulic pressure	750 kPa
3	Duration of pressure retained	5 Minute
4	Observation	No drip or leak of cut off device through valve was observed during test.

**8.3 LEAKAGE AND RELIABILITY TEST FOR CUT-OFF DEVICE**

Sr. No	Details	Condition
1	Test Condition	Mounted on test setup
2	Hydraulic pressure retained	300 kPa
3	Operating cycles	5000 cycles at pressure 300 kPa and repeated for 500 cycles at a pressure of 600 kPa @ approx.15 cycles per minutes
4	Observation	No drip or leak of cut-off device through valve was observed during the test.

**8.4 MARKING ON CUT-OFF DEVICE**

- a) Manufacturer's name or recognized trade mark : Marked as Saaransh
- b) Batch or code number : Marked as 04
- c) Type of cut-off Device : Trigger type

**9. TEST FOR PRESSURE CHAMBER  
(Vide Clause 7.1 of IS 10134-1994)**

Date of test : 13.01.2021

Sr. No	Details	Condition
1	Test Condition	Outlet end closed
2	Pressure applied -Hydraulic pressure -Pneumatic pressure	7.5 kg/cm <sup>2</sup> 4.5 kg/cm <sup>2</sup>
3	Duration	1 minutes each
4	Result	No leakage, crack, deformation or breakage observed in pressure chamber during the test.

**10. TEST FOR OPERATING LEVER, HANDLE & PISTON ROD  
(Vide clause 7.6 of IS-10134:1994)**

Date of test : 13.01.2021

Sr. No	Details	Condition
1	Test Condition	Discharge outlet closed
2	Pressure applied	7.5 kg/cm <sup>2</sup>
3	Result	No distort, crack or break observed in handle, operating lever and piston rod during the test.



**11. ENDURANCE TEST OF SPRAYER**  
(Vide clause 8.1 of IS-10134:1994)

1. Date :26.12.2020 to 02.01.2021
  2. Total running time (h)- 48
  3. Quantity of liquid collected during endurance:-  
Avg. discharge (ml/min)
- |    |                    |   |       |
|----|--------------------|---|-------|
| a) | First Collection   | - | 347.5 |
| b) | Second Collection  | - | 352.5 |
| c) | Third Collection   | - | 337.5 |
| d) | Fourth collection  | - | 335.0 |
| e) | Fifth Collection   | - | 330.0 |
| f) | Sixth Collection   | - | 350.0 |
| g) | Seventh Collection | - | 340.0 |
| h) | Eighth Collection  | - | 350.0 |

**Remark :-** Percentage variation of discharge from first to last collection, 0.72%.

**12. TEST FOR STRAP AND ITS ASSEMBLY**  
(Vide Clause 7.3 of IS 10134-1994)

Date of test : 13.01.2021

The sprayer was filled with clean water to its specified capacity. The sprayer was hung from a solid support by its straps simulating its carriage on the shoulder of an operator. The tank was vertically raised to height of 300 mm and was allowed to drop freely and hung by straps.

**Observation:** No break of strap and brackets was found of during the test.

**13. TEST FOR NOZZLE**  
[Vide Annex F of IS: 3652-1995]

Date of test : 12.01.2021  
Type of Nozzle (apa) : Solid Cone Type

**13.1 TEST FOR DISCHARGE RATE OF NOZZLE**

The discharge rate of nozzle at a pressure of 300 kPa has been declared by applicant as 440 ml/min for fine cone spray pattern. The discharge rate corresponding to 300 kPa pressure was observed as under:-

- For fine cone spray pattern : 240 ml/min

**Remarks:-** The discharge rate for fine cone spray pattern does not conform to the requirement of IS: 3652:1995



**13.2 TEST FOR SPRAY ANGLE OF NOZZLE**

The spray angle of nozzle at a pressure of 300 kPa has been declared by applicant as 80 degree. The spray angle corresponding to 300 kPa pressure was observed as 74.6 degree.

Remarks:- Spray angle of nozzle at 300 kpa pressure does not conform to the requirement of IS:3652:1995.

**13.3 ENDURANCE TEST OF NOZZLE**

- i) Date : 04.01.2021 to 12.01.2021  
 ii) Total running time (h) : 48  
 iii) Quantity of liquid collected and spray angle observed during endurance test.

Sr. No.	No. of collection	Avg. discharge rate ml/min	Spray angle, degree
a)	First collection	220.0	75.2
b)	Second collection	217.5	72.6
c)	Third collection	225.0	73.2
d)	Fourth collection	215.0	71.9
e)	Fifth collection	225.0	73.9
f)	Sixth collection	232.5	74.6
g)	Seventh collection	227.5	73.2
h)	Eighth collection	225.0	75.9

Remarks : i) Percentage variation in discharge rate from first to last collection, 2.27 %.

ii) Percentage variation in spray angle from first to last collection, 0.93 %.

**13.4 SPRAY DISTRIBUTION PATTERN OF NOZZLE**

The liquid discharge from nozzle at 300 kPa pressure was collected in glass tubes of patternator. The spray pattern as per the quantity of liquid collected is represented in tabular form and in Fig. 1.

- 13.5 NOZZLE DESIGNATION** : **Not Specified**  
 Provision for strainer in nozzle : **Not provided**

- 13.6 MARKING OF NOZZLE**  
 Manufacturer's name or recognized trade mark : **Not Marked**  
 Batch or code number : **Not Marked**  
 Nozzle designation : **Not Marked**



**18. COMMENTS & RECOMMENDATIONS**

- 18.1** The Make, Model and Serial Number of pump is not specified. It should be specified.
- 18.2** The strainer is not provided in the nozzle. It may be provided.
- 18.3** The back rest cushion is not provided. It may be provided.
- 18.4** The pump volumetric efficiency does not meet the requirement of Indian Standard. It **MUST** be looked into.
- 18.5** The strap cushion is not provided. It may be provided.
- 18.6** The agitator is not provided in sprayer. It May be provided.
- 18.7** The discharge rate of nozzle at pressure of 300 Kpa for fine cone spray pattern does not conform to the requirement of IS: 3652-1995. It **MUST** be looked into.
- 18.8** Spray angle of nozzle at 300 Kpa pressure does not conform to the requirement of IS:3652-1995. It **MUST** be looked into.
- 18.9** Manufacturer's name or recognized trade mark, batch or code number and designation of nozzle is not marked. It **MUST** be looked into.
- 18.10** The strainer in cut-off device is not provided. It **MUST** be looked into.
- 18.11** A Suitable labelling plate ( Not Sticker ) needs to be provided with "interalia" following information
- i) Manufacturer Name
  - ii) Make
  - iii) Model
  - iv) Month & year of Manufacturer
  - v) Rated Pressure
  - vi) Discharge rate
  - vii) Country of origin




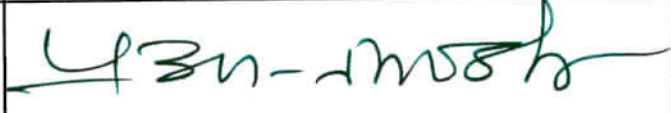
**19. TECHNICAL LITERATURE**

The following literature provided with sprayer for guidance to the user.

- i) Instruction Manual

However, the manual of sprayer needs to be updated as per IS : 8132 -1999

**TESTING AUTHORITY**

MAAN SINGH SENIOR TECHNICAL ASSISTANT	
P. K. PANDEY DIRECTOR	

**20. APPLICANT'S COMMENTS**

Para No.	Our Reference	Applicant's Comments
20.1	18.1, 18.2 18.8, 18.9, 18.10 & 18.11	Noted, we will do needful.
20.2	18.3	Noted, it is optional item
20.3	18.4, 18.5, 18.6, & 18.7	Noted, we will needful.

