

व्यावसायिक परीक्षण रिपोर्ट
COMMERCIAL TEST REPORT

संख्या/ No.: PS-301/2055/2017
माह/Month : October, 2017



**THUSARA-002
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-301/2055/2017	THUSHARA-002 HAND OPERATED KNAPSACK SPRAYER (COMMERCIAL)
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	-Gasket	Synthetic rubber, fibre, leather, PVC	PVC	Conforms
	-Gland packing	Asbestos rope	Not available	Does not conform

Clause No.	Specified requirement	Observations	Remarks
Cl. 4.4 IS 3906:1995	The material used for different components shall be declared by the manufacturer in the manual.	Declared in the specification sheet.	Conforms

3. RUNNING - IN

Though the applicant has not recommended running-in, with the consent of the applicant the running-in of the sprayer was conducted for one hour in order to overcome variation in initial performance. Lubrication and the adjustment of the components was done as per applicants recommendation.

4. TEST FOR DISCHARGE RATE (Vide Clause 6.1.3 of IS 10134-1994)

1. Date of test : 31.08.2017
2. Atmospheric conditions :
 - a) Temperature : 32 °C
 - b) Relative humidity : 59 %
 - c) Pressure : 97.6 kPa

3. Data recorded

No. of hand strokes per minute	Pressure (kPa)	Test No.	Delivery from the discharge line (ml/min)	Overflow (ml/min)	Average delivery from the discharge line (ml/min)	Discharge rate of pump (ml/min)
16	300	1	420	Nil	412.5	412.5
16	300	2	400	Nil		
16	300	3	410	Nil		
16	300	4	420	Nil		

Average discharge rate : 412.5 ml/min at 300 kPa pressure

5. TEST FOR VOLUMETRIC EFFICIENCY (Vide Clause 6.2 of IS 10134-1994)

Date of test : 03.09.2017

Sl. No.	Details		Observation
1.	Discharge of water in one minute	:	412.5 ml
2.	No of cycle in one minute	:	16
3.	Actual volume of water in one cycle	:	25.78 ml
4.	Inner diameter of pump cylinder	:	44.04 mm
5.	Stroke length at 300 kPa pressure	:	21.50 mm

15. CONFORMITY TO INDIAN STANDARDS

- i) IS: 10134-1994-Method of test for manually operated sprayer : **Does not conform in toto**
- ii) Spray nozzle and spray gun as per IS:3652-1995 (Reaffirmed 2011) : **Does not conform in toto**
- iii) IS: 2643-2005-Pipe threads where pressure-tight joint are not made on the threads-dimensions, tolerance and designation : **Does not conform in toto**

16. COMMENTS & RECOMMENDATIONS

- 16.1 The sprayer serial number is not marked. It **MUST** be marked.
- 16.2 The agitator is not provided. It should be provided
- 16.3 Material of handle, operating lever and handle pivot does not meet the requirement of Indian Standard. It **MUST** be looked into.
- 16.4 The material of cushion does not meet the requirement of Indian Standard. It **MUST** be looked into.
- 16.5 Material of spray lance does not meet the requirement of Indian Standard. It **MUST** be looked into.
- 16.6 The material of spring of cut-off device does not meet the requirement of Indian Standard. It **MUST** be looked into.
- 16.7 The volumetric efficiency of sprayer was observed as 79 % , which is not within the requirement of relevant Indian Standard.
- 16.8 The spray lance is not marked. It **MUST** be marked.
- 16.9 The cut-off device is not marked. It **MUST** be marked.
- 16.10 The discharge rate of nozzle for fine cone spray pattern does not conform to the requirement of IS: 3652:1995. It **MUST** be looked into.
- 16.11 The nozzle is not marked. It **MUST** be marked.
- 16.12 The spray angle of nozzle at 300 KPa pressure does not conform to the requirement of IS: 3652:1995. It **MUST** be looked into.
- 16.13 During the strap drop test the buckle / bracket of strap assembly found failed to hold the strap in its position. It should be improved.
- 16.14 The dimension of strap does not meet the requirement of Indian Standard. It **MUST** be looked into.

- 16.15 The aperture size of removable strainer on the filling cap does not meet the requirement of Indian Standard. It **MUST** be looked into.
- 16.16 Material of cushion does not meet the requirement of Indian Standard. It **MUST** be looked into.
- 16.17 The cut-off device is not marked. It should be marked.
- 16.18 The maximum trigger actuation torque does not conform to the requirement of IS: 3652:1995. It **MUST** be looked into.
- 16.19 The internal diameter of the spray lance does not meet the requirement of Indian Standard. It **MUST** be looked into.
- 16.20 The strap cushion thickness does not meet the requirement of Indian Standard. It **MUST** be looked into.
- 16.21 The back rest cushion is not provided. It should be provided.
- 16.22 The area of strainer and strainer aperture size on cut off does not meet the requirement of Indian Standard. It **MUST** be looked into.
- 16.23 The sprayer does not conform to the relevant Standard in toto. It **MUST** be looked into.
- 16.24 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 pressure
 - vi. Discharge rate
 - vii. Country of origin