

प्रारंभिक व्यावसायिक परीक्षण रिपोर्ट

INITIAL COMMERCIAL TEST REPORT

संख्या/No. CSIR/CMERI/FMTTC/2023/014

माह/Month: August, 2023

THIS TEST REPORT VALID UP TO

:

31st AUGUST, 2028



**GL21
2 IN 1 KNAPSACK SPRAYER**



कृषि मशीनरी प्रशिक्षण और परीक्षण केंद्र

Farm Machinery Training and Testing Centre

सीएसआईआर- केन्द्रीय यांत्रिक अभियांत्रिकी अनुसंधान संस्थान

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1.3 Battery (As per Sticker)

Type	: Sealed, Lead-Acid Battery
Make	: JIUHA
Model	: Not specified
Serial number	: LS2022CY1120
Capacity & rating	: 12V, 8AH/ 20HR
Country of origin	: Not Specified
Location	: Below the chemical tank.

1.4 Battery Charger from AC Supply

Make	: GALAXY
Model	: 90611A-B
Input voltage	: AC 220V 50/60 Hz
Output voltage	: DC 12 V
Output current	: 1.1 A
Country of origin	: Not specified

1.5 Pump

Type	: Diaphragm
Make	: GALAXY
Model	: Not specified
Se. number	: V22/15D
Method of drive	: Off/ On Switch
Working pressure, kg/cm ²	: 1 to 4
Rated pressure, kg/cm ²	: 3
Rated speed, rpm	: 2600
Discharge capacity at rated pressure, l/min	: 1.90
Country of origin	: Not specified
Mounting arrangement	: Battery, motor & pump is mounted below the chemical tank.

1.6 Chemical Tank

Material of construction	: Plastic
Size (mm)	: 370 x 360 x 165
Capacity (l)	: 26
Location	: Above battery, motor and pump mounting

1.7 Agitating Device

: Not provided.
However, there is a pump in equipment through which excess pumped spray solution returned to the tank. This returned spray solution full-fill the agitation of spray solution.

1.8 Nozzle

Type of nozzle	: Flat fan, Fixed hollow cone (4 hole & 8 hole), Double hole Nozzle type
Nozzle designation	: Not Marked
Number of nozzle	: 04

1.9 Mounting arrangement

: Battery, motor and pump is mounted beneath the chemical tank.



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- 1.10 Accessories (for operator's safety against pesticides) : Mask, hand gloves and goggles are provided.
- 1.11 Overall Dimensions, mm
- | | |
|--------|-------|
| Height | : 450 |
| Width | : 210 |
| Length | : 410 |
- 1.12 Total Mass, kg
- 1.12.1 Mass with all accessories and chemical tank, kg : 5.75
- 1.12.2 Mass with accessories and chemical tank full, kg : 23.75
- 1.13 Identification/Labeling plate : i) The following text is embossed on the tank of the sprayer

GALAXY
GL-21 2 in 1
KNAPSACK SPRAYER
18 LITRE CAPACITY
SIDDHARTH AGRO INDUSTRIES
ISO 9001: 2015

(i) Also one sticker containing

GALAXY GL-21
BATTERY OPERATED SPRAYER
SER. NO. 00005 BATCH: 2023
SIDDHARTH AGRO INDUSTRIES
201, SHREE RAM PLAZA, STATION ROAD, PATNA - 800001

is pasted on the tank.



[Handwritten signature]

2. CHECKING OF MATERIAL OF CONSTRUCTION

Sl. No.	Components	Materials (As per IS:11313-2007)	Observation	Remarks
1.	2.	3.	4.	5.
i)	Pump cylinder	Brass, stainless steel, engg. Plastic	Plastic	Conforms
ii)	Pressure chamber	Brass, stainless steel, engg. Plastic	Plastic	Conforms
iii)	Piston rod	Stainless steel, engg. plastic	Plastic	Conforms
iv)	Guide	Brass, stainless steel, engg. Plastic	Plastic	Conforms
v)	Piston or plunger	Cummetal, stainless steel, plastics, Rubber, vegetable tanned leather, chrome tanned leather	Plastic	Conforms
vi)	Spreeder	Brass, stainless steel, plastics	Plastic	Conforms
vii)	Valve assembly	Brass, Stainless Steel, plastics	Plastic	Conforms
viii)	Roller pump shaft	Stainless steel	Not applicable	--
ix)	Pump rollers	Nylon filled with lead	Not applicable	--
x)	Pressure regulators	Brass, stainless steel	Not applicable	--
xi)	Suction strainer	Brass, stainless steel, plastics	Plastic	Conforms
xii)	Strainer body	Brass, plastics	Plastic	Conforms
xiii)	Handle	Steel	Steel	Conforms
xiv)	Operating Lever	Steel	Steel	Conforms
xv)	Handle Pivot	Steel	Steel	Conforms
xvi)	Handle Grip	Plastic	Plastic	Conforms
xvii)	Gasket	Rubber, PVC, fibre	PVC	Conforms
xviii)	Spray nozzles	Brass, engineering plastic, stainless steel	Plastic	Conforms
xix)	Spray boom	Mild steel, Galvanized, iron Braided rubber	Not applicable	--
xx)	Hose	Synthetic rubber, P.V.C	PVC	Conforms
xxi)	Hose Nut	Brass, stainless steel, engg. Plastic	Plastic	Conforms
xxii)	Tank	Galvanized iron, Brass, Fiber glass reinforced plastics, plastics	Plastic	Conforms
xxiii)	Pipe for agitator	Galvanized iron, Brass, PVC	Not applicable	--
xxiv)	Piston (bucket) screw	Brass, stainless steel	Not applicable	--
xxv)	Crank case	Aluminum alloy	Not applicable	--
xxvi)	Roller pump body	Nickel resistant cast iron	Not applicable	--
xxvii)	Roller pump and plate	Nickel resistant cast iron	Not applicable	--
xxviii)	Roller pump rotor	Nickel resistant cast iron	Not applicable	--
xxix)	Piston pump crank shaft	Carbon steel	Not applicable	--



18. TEST FOR PRESSURE CHAMBER
(Vide Clause 7.1 of IS: 10134 - 1994)

1	Date of Test	: 24.07.2023
2	Test Condition	: Outlet end closed
3	Pressure applied	
	Hydraulic Pressure	: 7.5 kg/cm ²
	Pneumatic Pressure	: 4.3 kg/cm ²
4	Duration	: 1 minute each
5	Result	: No leakage, crack, deformation or breakage observed in pressure chamber during the test.

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

1	Date of Test	: 25.07.2023
2	Test Condition	: Discharge outlet closed
3	Pressure applied	: 7.5 kg/cm ²
4	Result	: No crack, deformation or breakage observed in operating lever during the test.

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

1. Date of test: 21.07.2023 to 28.07.2023
2. Total running time (hr): 48
3. Quantity of liquid collected during endurance: -

	Avg. discharge (ml/min)
a) First Collection	- 860
b) Second Collection	- 860
c) Third Collection	- 840
d) Fourth collection	- 850
e) Fifth Collection	- 845
f) Sixth Collection	- 855
g) Seventh Collection	- 850
4. Percentage variation of discharge from first to last collection: 1.17 %



23. 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

Report Prepared by	Sr. Technical Officer, CSIR-CMERI Farm Machinery Testing Centre	 15/08/2023
Report Verified by	Scientist, CSIR-CMERI Farm Machinery Testing Centre	 10/08/23
Report Approved by	In-Charge, CSIR-CMERI Farm Machinery Testing Centre	 10/8/2023
Report Approved for release by	Head, Business Development Group, CSIR-CMERI, Durgapur	 10/8/23

24. APPLICANT'S COMMENTS

Para No.	Our Reference	Applicant's Comments
24	22.1 – 22.16	Noted and will be rectify as per your recommendations

