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COMMERCIA
3. TEST FOR DISCHARGE RATE OF PUMP
(Vide Clause 8.3 of IS – 11313 : 2007)

1. Date of test : 12.10.2017
2. Atmospheric conditions :
   a) Temperature : 33 °C
   b) Relative humidity : 60 %
   c) Pressure : 97.4 kPa

3. Data recorded

<table>
<thead>
<tr>
<th>Speed of Pump (rpm)</th>
<th>Pressure (kg/cm²)</th>
<th>Test No.</th>
<th>Delivery from the discharge line (ml/min)</th>
<th>Overflow</th>
<th>Average discharge from the discharge line (ml/min)</th>
<th>Discharge rate of pump (ml/min)</th>
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<td>4</td>
<td>1580</td>
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</tbody>
</table>

Minimum discharge rate = 1567.5 ml/min at 4 kg/cm²
Maximum discharge rate = 2686.25 ml/min at 1 kg/cm²
Discharge at rated pressure = 1877.5 ml/min at 3 kg/cm²

4. TEST FOR VOLUMETRIC EFFICIENCY
(Vide Clause 8.4 of IS – 11313 : 2007)

Rated pressure, kg/cm² : 3
Avg. discharge of water at rated pressure, l/min : 1.872
Avg. discharge of water at no-load, l/min : 2.995
Avg. pump speed at no-load, rev/min : 3036
Avg. pump speed at rated pressure, rev/min : 2601
Volumetric efficiency of pump, % : 73 %

16. COMMENTS & RECOMMENDATIONS

16.1 The sprayer serial number is not marked. It **MUST** be marked.

16.2 Battery charger make, model and country of origin is not marked. It **MUST** be marked.

16.3 The make, Serial No, Motor voltage, Max current, speed of motor is not specified. It **MUST** be specified.

16.4 Pump make, model, serial number and country of origin is not marked. It **MUST** be marked.

16.5 The strainer nozzle is not provided. It should be provided.

16.6 The cut-off device and spray lance batch or code number is not marked. It **MUST** be marked.

16.7 The material used for different components of sprayer is not declared. It should be declared.

16.8 The volumetric efficiency of pump does not meet the requirement of Indian Standard. It **MUST** be improved.

16.9 Agitator is not provided. It may be provided.

16.10 The strap width and strap cushion thickness does not meet the requirement of Indian Standard. It **MUST** be looked into.

16.11 The discharge rate of nozzle for fine cone and jet spray pattern does not meet the requirement of Indian standard. It **MUST** be looked into.

16.12 The spray angle of nozzle does not meet the requirement of Indian Standard. It **MUST** be looked into.

16.13 The spray lance is not marked. It **MUST** be marked.

16.14 The current drawn by motor at no load and on load was observed as 0.85 and 1.70A respectively which does not conform to requirement of IS-14459:1997.

16.15 Time required to full charge the battery with AC charger is observed as 7.09 to 8 hours.

16.16 The area of strainer does not meet the requirement of Indian standard. It **MUST** be looked into.

16.17 The spraying operation time after fully charging the battery was observed as 8.02 to 9 hours.

16.18 During the pump chamber hydraulic test the motor stopped beyond 5.0 kg/cm² pressure against the pressure requirement of 7.5 kg/cm² and the test could not be conducted. This **MUST** be looked into and improved.

16.19 The nozzle designation does not meet the requirement of Indian Standard. It **MUST** be improved.

16.20 The nozzle batch or code number is not marked. It **MUST** be marked.
16.21 The cut off device is not marked. It **MUST** be marked.

16.22 The material of pump inlet port end fitting does not meet the requirement of Indian Standard. It should be looked into.

16.23 A suitable labeling 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**

Operator, maintenance & parts manual of sprayer was provided during the test. However, the manual should be updated as per IS : 8132-1999, with the inclusion of safety instructions regarding handling of poisonous agro-chemicals, safety precautions before, during and after spraying.

**TESTING AUTHORITY**

<table>
<thead>
<tr>
<th>R. K. NEMA</th>
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<tbody>
<tr>
<td>SENIOR AGRICULTURAL ENGINEER</td>
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<tr>
<th>P. K. PANDEY</th>
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<tbody>
<tr>
<td>DIRECTOR</td>
<td>[Signature]</td>
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18. **APPLICANT'S COMMENTS**

<table>
<thead>
<tr>
<th>Para No.</th>
<th>Our Reference</th>
<th>Applicant's Comments</th>
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<tr>
<td>18.1</td>
<td>16.1</td>
<td>Serial number will be marked in all future supplies.</td>
</tr>
<tr>
<td>18.2</td>
<td>16.2</td>
<td>Battery charger making will be marked in our all future supplies.</td>
</tr>
<tr>
<td>18.3</td>
<td>16.3</td>
<td>Specification of motor will be marked in future supplies.</td>
</tr>
<tr>
<td>18.4</td>
<td>16.4</td>
<td>Pump make, Serial number and country of origin will be marked in all future supplies.</td>
</tr>
<tr>
<td>18.5</td>
<td>16.6</td>
<td>Cut off device &amp; spray lance will be marked in all future supplies.</td>
</tr>
<tr>
<td>18.6</td>
<td>16.8</td>
<td>We will improve volumetric efficiency in future supplies.</td>
</tr>
<tr>
<td>18.7</td>
<td>16.10</td>
<td>We will increase the strap width and strap cushion thickness.</td>
</tr>
</tbody>
</table>