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Indian Standard
METHODS OF TEST FOR
MANUALLY-OPERATED SPRAYERS
(First Revision)

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

October 1994
AMENDMENT NO. 1 MAY 2002
TO
IS 10134 : 1994 METHODS OF TEST FOR MANUALLY-OPERATED SPRAYERS
(First Revision)

(Page 5, clause 6.2.1, line 1) — Delete the words 'one minute or'.

(Page 5, clause 6.2.2.1) — Substitute the following for the existing:

'6.2.2.1 The length of one stroke shall be measured by subjecting the pump to normal working pressure within a fluctuation of ± 20 percent.'

(FAD 59)

Reprography Unit, BIS, New Delhi, India
FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Crop Protection Equipment Sectional Committee had been approved by the Food and Agriculture Division Council.

A number of Indian Standard specifications for manually-operated sprayers have been formulated. These standards included requirements and their methods of tests. Most of the tests were common to most of the sprayers. With a view to unify and to avoid repetition as well as to provide an easy reference, it was found desirable to publish this standard.

This standard was first published in 1982. This first revision has been brought to incorporate the latest developments in the field.

While preparing this standard, due consideration has been given to the methods of tests stipulated in Equipment for Vector Control published by World Health Organization and also to the work done at Mechanical Engineering Research and Development Organization (CSIR), Ludhiana.

In reporting the result of a test or analysis made in accordance with this standard, if the final value, observed or calculated, is to be rounded off, it shall be done in accordance with IS 2:1960 ‘Rules for rounding off numerical values (revised)’. 
Indian Standard

METHODS OF TEST FOR MANUALLY-OPERATED SPRAYERS

(First Revision)

1 SCOPE

1.1 This standard prescribes methods of tests for the following manually-operated sprayers/pumps:
   a) Compression knapsack sprayers, non-pressure retaining type;
   b) Knapsack sprayer, piston type;
   c) Foot sprayer;
   d) Rocker sprayer;
   e) Stirrup type sprayer; and
   f) Atomizer type sprayer.

2 REFERENCE

The following Indian Standard is a necessary adjunct to this standard:

IS 3624 : 1987 Pressure and vacuum gauges (second revision).

3 SAMPLING AND RUNNING-IN

3.1 Sampling

The sprayers/pumps for certification or for commercial test report shall be selected by the certifying or testing authorities from production lot. The sprayers/pumps shall be new and shall be in a condition generally offered for sale. For confidential test report, the manufacturers may submit the sample to testing authority. The manufacturer shall supply all the relevant information necessary for conducting the test.

3.2 Running-in

In order to overcome variation in initial performance, the sprayer/pump may be run-in before start of actual test. The lubrication and adjustments of the components shall be done in accordance with the manufacturer's recommendations.

4 TESTS

4.1 Relevant tests/observations; from the following, shall be made in a particular sprayer/pump:

4.1.1 General Tests (see 5)
   a) Visual examination (see 5.1),
   b) Checking of dimensions (see 5.2), and
   c) Checking of material of construction (see 5.3).

4.1.2 Performance Tests (see 6)
   a) Discharge rate (see 6.1),
   b) Volumetric efficiency (see 6.2),
   c) Pressure development (see 6.3),
   d) Leakage (see 6.4),
   e) Spray throw (see 6.5), and
   f) Spray coverage (see 6.6).

4.1.3 Tests for Components (see 7)
   a) Pressure chamber (see 7.1);
   b) Pump cylinder (see 7.1);
   c) Tank leakage (see 7.1);
   d) Hose and hose connection (see 7.2);
   e) Strap and its assembly (see 7.3);
   f) Gasket (see 7.4);
   g) Spring (see 7.5);
   h) Operating lever, handle and piston rod (see 7.6);
   i) Handle, piston rod, foot rest and stirrup (see 7.7);
   k) Frame, piston rod, pedal lever or handle lever and extension (see 7.8);
   m) Valve assembly (see 7.9);
   n) Tank impact (see 7.10); and
   p) Tank fatigue (see 7.11).

4.1.4 Endurance Test (see 8)

5 GENERAL TESTS

5.1 Visual Examination

The equipment shall be visually examined with respect to the requirements given in the relevant Indian Standard. Conformity or otherwise of the requirements shall be reported.

5.2 Checking of Dimensions

Dimensional requirements given in the relevant Indian Standard shall be measured and reported. Conformity or otherwise of the dimensions shall also be reported.

5.3 Checking of Material of Construction

The material of construction of various parts of the sprayer shall be checked and reported. Conformity or otherwise of the material for various components given in the relevant Indian Standard shall also be reported. The test for conformity of material and their composition should be carried or conformity may be valid from the test certification.

6 PERFORMANCE TESTS

6.1 Test for Discharge Rate

6.1.0 This test shall be conducted on stirrup type sprayer, foot sprayer, rocker sprayer, knapsack sprayer – piston type and atomizer sprayer.

6.1.1 For Stirrup Type Sprayer

6.1.1.1 The hydraulic agitator-cum-relief valve shall be
taken out from its housing and the opening in the housing shall be sealed.

6.1.1.2 The sprayer shall be rigidly mounted on the test bench (see Fig. 1) so that its suction side shall be submerged into a container filled with clean water.

6.1.1.3 The piston rod or the handle of the sprayer shall be connected to an adjustable crank mechanism operated by a motor through a speed-step-down drive so as to give a movement of 16 ± 1 cycles for minute to the piston rod in such a manner as to maintain the proper alignment between the piston rod and pump cylinder.

6.1.1.4 One end of a hose of 2 m length shall be connected to the discharge outlet of the sprayer and the other end to the inlet end of a straight rigid tube of 75 cm length and of 6 mm internal diameter.

6.1.1.5 A pressure regulator shall be fitted at the outlet end of the rigid tube to adjust the pressure.

6.1.1.6 An extension tube of suitable shape may be fitted at the outlet end of the pressure regulator for collecting the discharge of water in a container.

6.1.1.7 A pressure gauge (see IS 3624 : 1987), having full scale reading from 0 to not exceeding 2.5 times and not less than 1.5 times the normal working pressure of the sprayer, shall be fitted in the rigid tube at a distance of 15 cm from the inlet end of the pressure regulator on its upstream side.

6.1.1.8 The rigid tube with the pressure gauge and the pressure regulators shall be mounted on a separate test bench, other than the one with the driving unit, in order to eliminate vibration.

6.1.1.9 The crank mechanism shall be adjusted so as to utilize the full stroke of the sprayer.

6.1.1.10 The piston rod shall be operated at a constant speed of 16 ± 1 cycles per minute.

6.1.1.11 The pressure regulator shall be adjusted to develop a pressure of 300 kPa and 75 kPa within a fluctuation of ± 20% when tested for agricultural and public health purposes respectively. Additional pressure chamber may be mounted to reduce the pressure fluctuations during test.

6.1.1.12 The discharge of water in one minute shall be collected and measured.

6.1.1.13 The above test shall be repeated four times and the average value of the measured discharge shall be calculated.

![Diagram of test setup](image-url)
6.1.2 For Foot and Rocker Sprayer

6.1.2.1 The sprayer shall be rigidly mounted on the test bench (see Fig. 2 and Fig. 3).

6.1.2.2 One end of the suction hose shall be connected to the suction spout of the sprayer and the other end with the strainer shall be submerged into a container filled with clean water.

6.1.2.3 The pedal lever in case of foot sprayer and handle lever or extension in case of rocker sprayer shall be connected to an adjustable crank mechanism operated by a motor through a speed-step down drive so as to give movement of 16 ±1 cycles per minute to the piston rod in such a manner as to maintain the proper alignment between the piston rod and pump cylinder.

6.1.2.4 One end of a hose of 2 m length shall be connected to one of the delivery spouts of the sprayer and the other end to the inlet end of a straight rigid tube of 75 cm length and of 6 mm internal diameter. The other delivery spout shall be plugged.

6.1.2.5 A pressure regulator shall be fitted at the outlet end of the rigid tube to adjust the pressure.

6.1.2.6 An extension tube of suitable shape may be fitted at the outlet end of the pressure regulator for collecting the discharge of water in a container.

6.1.2.7 A pressure gauge (see IS 3624: 1987), having full scale reading from 0 to not exceeding 2.5 times and not less than 1.5 times the normal working pressure of the sprayer, shall be fitted in the rigid tube at a distance of 15 cm from the inlet end of the pressure regulator on its upstream side.

6.1.2.8 The rigid tube with the pressure gauge and the pressure regulator shall be mounted on a separate test bench, other than the one with the driving unit, in order to eliminate vibration.

6.1.2.9 The crank mechanism shall be adjusted so as to utilize the full stroke of the sprayer.

6.1.2.10 The piston rod shall be operated at a constant speed of 16 ±1 cycles per minute.

6.1.2.11 The pressure regulator shall be adjusted to develop a pressure of 600 kPa within a fluctuation of ±20 percent. Additional pressure chamber may be mounted to reduce the pressure fluctuations during test.
6.1.2.12 The discharge of water in one minute shall be collected and measured.

6.1.2.13 The above test shall be repeated four times and the average value of the measured discharge shall be calculated.

6.1.3 For Knapsack Sprayer, Piston Type

6.1.3.1 The hole for agitation purpose, in case of hydraulic type agitator, shall be sealed.

6.1.3.2 The sprayer shall be rigidly mounted on the test bench (see Fig. 4) in such a way that its handle shall be operated in the direction it is designed for operation.

6.1.3.3 The handle of the sprayer shall be connected to an adjustable crank mechanism operated by a motor through a speed-step-down drive so as to give movement of 16 ± 1 cycles per minute, in such a manner as to maintain the proper alignment between the piston rod and pump cylinder.

6.1.3.4 One end of a hose of 2 m length shall be connected to the discharge outlet of the sprayer and the other end to the inlet end of a straight rigid tube of 75 cm length and of 6 mm internal diameter.

6.1.3.5 A pressure regulator shall be fitted at the outlet end of the rigid tube to adjust the pressure.

6.1.3.6 An extension tube of suitable shape may be fitted at the outlet end of the pressure regulator for collecting the discharge of water in a container.

6.1.3.7 A pressure gauge (see IS 3624 : 1987) having full scale reading from 0 to not exceeding 2.5 times and not less than 1.5 times the average working pressure of the sprayer, shall be fitted in the rigid tube at a distance of 15 cm from the inlet end of the pressure regulator on its up stream side.

6.1.3.8 The rigid tube with the pressure gauge and the pressure regulator shall be mounted on a separate test bench, other than the one having driving unit, in order to eliminate vibration.

6.1.3.9 The crank mechanism shall be adjusted so as to utilize the full stroke of the sprayer.

6.1.3.10 The tank of the sprayer shall be filled up to its specified capacity with clean water and the piston rod or pressure chamber (as the case may be) shall be operated at a constant speed of 16 ± 1 cycles per minute.

6.1.3.11 The pressure regulator shall be adjusted to develop a pressure of 300 kPa within a fluctuation of ± 20 percent.

6.1.3.12 The discharge of water in one minute shall be collected and measured.
6.1.3.13 The above test shall be repeated four times and the average value of the measured discharge shall be calculated.

6.1.4 For Atomizer Sprayer

6.1.4.1 The sprayer complete with nozzle, etc, shall be rigidly mounted on the test bench. The handle of the sprayer shall be connected to an adjustable crank mechanism operated by a motor through a speed-step down drive so as to give movement of 60 ± 2 cycles per minute to the piston rod. The crank mechanism shall be adjusted so as to utilize the full stroke of the sprayer.

6.1.4.2 The reservoir shall be filled with kerosene oil to two-thirds of its capacity. The piston rod shall be operated at a constant speed of 60 ± 2 cycles per minute. The liquid discharged from the nozzle in 2 minutes shall be collected and measured.

6.1.4.3 The above test shall be repeated four times and the average value of the measured discharge shall be calculated.

6.1.4.4 The discharge of liquid per minute shall be calculated from the average value obtained in 6.1.4.3.

6.2 Test for Volumetric Efficiency

6.2.0 This test shall be conducted for stirrup type sprayer, foot sprayer, rocker sprayer and knapsack sprayer.

6.2.1 The discharge of water in one minute or 10 successive strokes shall be collected and measured in accordance with 6.1 for particular sprayer. Repeat the test four times and calculate average value of the measured discharge. Calculate the volume of water in one cycle, that is, in one discharge stroke from the average measured discharge.

6.2.2 Calculate the piston displacement by measuring the inner diameter of the pump cylinder and the actual length of one stroke. The inner diameter of the pump cylinder shall be measured below the bell mouth of the cylinder.

6.2.2.1 The length of one stroke shall be measured by subjecting the pump to a pressure of 300 kPa within a fluctuation of ± 20 percent.

6.2.3 Divide the value obtained in 6.2.1 by the value obtained in 6.2.2 and express the result in percentage.

6.2.4 The volumetric efficiency shall be recorded in the test report.

6.3 Test for Pressure Development

6.3.0 This test shall be conducted for compression knapsack sprayer non-pressure retaining type.

6.3.1 The discharge outlet of the sprayer shall be plugged.
6.3.2 The tank shall be filled up to two-thirds of its capacity with clean water.

6.3.3 A pressure gauge (see IS 3624 : 1987) having full scale reading from 0 to not exceeding 2.5 times and not less than 1.5 times the pressure (normal working pressure of the sprayer) to be read shall be fitted on the tank.

6.3.4 The handle of the sprayer shall be operated continuously up to maximum of 100 strokes.

6.3.5 The pressure developed in the tank shall be read in the pressure gauge and recorded.

6.3.6 The above test shall be repeated for a minimum of four times and average value reported.

6.4 Test for Leakage

6.4.0 This test shall be conducted for atomizer sprayer.

6.4.1 The piston assembly and stopper shall be removed.

6.4.2 The outlet of the reservoir and the reservoir filler hole shall be sealed.

6.4.3 A hose shall be attached to the opening of the pump cylinder and be pneumatically pressurized to an internal pressure of 34 kPa.

6.4.4 The pressure shall be retained for a period of 2 minutes and the hose is immersed in water.

6.4.5 During this test, sprayer shall not show any sign of leakage or oozing.

6.5 Test for Spray Throw

6.5.0 This test shall be conducted for atomizer sprayer.

6.5.1 The sprayer shall be firmly secured. An area faced with blotting paper or any other suitable paper one metre in diameter or sides shall be kept in a vertical plane at a horizontal distance of 1.5 m from the tip of the nozzle of the spray.

6.5.2 The reservoir of the sprayer shall be filled with kerosene oil to two-third of its capacity. A small quantity of suitable colouring material, such as waxoiline red OS, not materially affecting the viscosity of the kerosene oil shall be added.

6.5.3 The discharge of the sprayer should be 12 ± 2 ml of oil per minute. The sprayer shall be operated at an approximate speed of 60 cycles per minute.

6.5.4 The sprayer shall be allowed to continue for a period of about 2 minutes.

6.5.5 The sprayer shall be deemed to have passed the test if the spray reaches the paper.

NOTE: The test shall be conducted at a place free from draught.

6.6 Test for Spray Coverage

6.6.0 This test shall be conducted for atomizer sprayer.

6.6.1 The test method as given in 6.5.1 to 6.5.3 shall be followed except that the distance of the paper from the tip of the nozzle shall be kept as 545 mm.

6.6.2 The spray shall be allowed to continue for a period of about 15 seconds.

6.6.3 The area of spray impression on the paper shall be measured within a period of 5 minutes after the ejection of the spray.

6.6.4 The sprayer shall be deemed to have passed the test if the area of spray impression is not less than 50 cm².

7 TESTS FOR COMPONENTS

7.1 Test for Leakage and Deformation of Pressure Chamber, Pump Cylinder and Pressure Tank

7.1.1 Pneumatic Test

A hose shall be attached to the opening of the pressure chamber or pump cylinder or tank. In case there are a number of openings, other than the one to which the hose is attached shall be sealed. The pressure chamber or pump cylinder or tank shall then be pneumatically pressurized to a minimum of one and a half times the normal working pressure of the sprayer and the pressure shall be retained for a period of one minute. The component shall be disconnected, immersed in water and examined for any leakage and deformation.

7.1.1.1 The pressure chamber or pump cylinder or tank shall be deemed to have passed this test if no leakage or deformation is found during this test.

7.1.2 Hydraulic Test

With the similar connection as that of 7.1.1, the pressure chamber or pump cylinder or tank shall be pressurized to a static hydraulic pressure of a minimum of two and a half times the normal working pressure of the sprayer and the pressure shall be retained for a period of one minute. The pressure chamber or pump cylinder or tank shall be examined for any leakage or deformation.

7.1.2.1 The pressure chamber or pump cylinder or tank shall be deemed to have passed this test if no leakage or deformation is found during the test.

7.2 Test for Hose and Hose Connection

The inlet of the hose shall be connected to a hydraulic pump through hose connection. The other end of the hose shall be connected to the appropriate cut-off device. The outlet of the cut-off device shall be closed, that is, no discharge is allowed. A minimum hydrostatic pressure of 1.5 MPa, using water as a liquid, shall be developed in the hose assembly and the pressure shall be retained for a period of 1 minute.

7.2.1 The hose and hose connection shall be deemed to have passed this test if no leakage, crack or breakage is observed during the test.

7.3 Test for Strap and Its Assembly

7.3.0 This test shall be conducted in case of the knapsack sprayers.

7.3.1 The tank shall be filled with clean water to its specified capacity.

7.3.2 The sprayer (without discharge line) shall be hung from a solid support by its strap(s) simulating its carriage on the shoulder of an operator.

7.3.3 Raise the tank vertically to a height of 300 mm and allow to drop freely and hang by the strap(s).
7.3.4 Repeat the operation given in 7.3.3 for 24 times.
7.3.5 The assembly shall be deemed to have passed this test if none of its parts (straps, brackets, etc) break.

7.4 Test for Gasket
7.4.1 All the gaskets in the sprayer shall be immersed in a test mixture of 60 percent kerosene, 5 percent benzene, 20 percent toluene and 15 percent xylene for a period of 72 hours at a temperature of 27 to 33°C and then dried in air at the same temperature range for 24 hours. The gaskets then be placed in their original positions.
7.4.2 The sprayer complete with its discharge line shall be operated at its normal working conditions for one hour.
7.4.3 The gaskets shall be deemed to have passed this test if no leakage from the points where they are fitted is observed.

NOTE - Gasket test shall be conducted at the end of all the tests with new set of gaskets.

7.5 Test for Spring
7.5.0 This test is applicable for the spring(s) provided in foot sprayer.
7.5.1 The free length of the spring(s) shall be measured.
7.5.2 The springs shall be scragged to its solid height by continuously applying 16 strokes per minute for 90 minutes.
7.5.3 The free length of the spring shall be measured after conducting the operations given in 7.5.2.
7.5.4 The spring(s) shall be deemed to have passed this test if the difference in free length of the spring(s) before and after scragging does not exceed 5 percent.

7.6 Test for Operating Lever, Handle and Piston Rod
7.6.0 The test shall be conducted in case of knapsack sprayer, piston type.
7.6.1 The discharge outlet of the sprayer shall be closed, that is, no discharge shall be allowed from the sprayer and the handle shall be operated to develop the pressure in the sprayer until a pressure of minimum two and a half times the normal working pressure is developed. (In case it is not possible to develop the minimum pressure of two and a half times the normal working pressure by the operation of handle, the pressure shall be developed in the sprayer from any other source).
7.6.2 When the handle, operating lever and piston rod are operated at this pressure these shall not distort, crack or break.

7.7 Test for Handle, Piston Rod, Foot Rest and Stirrup
7.7.0 This test shall be conducted in case of stirrup type sprayer.
7.7.1 Carry out the test as given in 7.6.1.
7.7.2 These parts shall not break, deform or crack when the force is exerted at test pressure by moving the handle.

7.8 Test for Frame, Piston Rod, Handle Lever and Extension
7.8.0 This test shall be conducted in case of foot and rocker sprayer.
7.8.1 Carry out the test as given in 7.6.1.
7.8.2 Frame, piston rod and pedal lever in case of foot sprayer; and frame, piston rod, handle lever and extension in case of rocker sprayer shall not break, deform or crack when the force is exerted on them at test pressure.

7.9 Test for Valve Assembly
7.9.0 This test shall be conducted for compression non-pressure retaining type knapsack sprayers.
7.9.1 The piston rod with piston assembly shall be taken out.
7.9.2 The discharge outlet shall be connected to a hydraulic pump through hose connection (see Fig. 5).

7.9.3 The opening other than the discharge outlet shall be sealed.
7.9.4 The tank shall be pressurized to a static hydraulic pressure of minimum two and a half times the normal working pressure of the sprayer and the pressure is retained for a period of 2 minutes.
7.9.5 The valve assembly shall be deemed to have passed this test if no drop in pressure is observed during the test.

Fig. 5 Valve Assembly Leakage Test
7.10 Test for Tank and Skirt Impact
7.10.0 This test shall be conducted in case of compression knapsack sprayer.
7.10.1 The tank shall be filled with clean water up to two-third of its capacity and pressurized pneumatically to the normal working pressure of the sprayer.
7.10.2 The tank shall be allowed to drop for a total number of 25 times from a height of 600 mm in following positions as shown in Fig. 6:
   a) Seven times with its long axis horizontal and the lance brackets, if fitted, positioned to break the fall;
   b) Six times with the long axis vertical and the skirt positioned to break the fall;
   c) Six times with the long axis inclined at 75° to the horizontal and a section of skirt positioned to break the fall; and
   d) As in (c) above with the position of impact diametrically opposite.

   ![Fig. 6 IMPACT (DROP) TEST](image)

7.10.3 The platform on which the tank is dropped, shall consist of a plain solid teak or similar hard wood plank of 60 mm thickness, placed on a hard level surface.
7.10.4 Caution shall be exercised in performing this test to avoid possible injury due to explosion of the tank. A metal cage shall be constructed to enclose the tank during drop.
7.10.5 During and after the above test, the following shall not occur:
   a) Neither the bottom of the tank nor any other part of the sprayer shall extend below the bottom of the skirt; and
   b) The tank shall not burst.
7.11 Test for Tank Fatigue
7.11.1 This test shall be conducted for tank of compression knapsack sprayer.
7.11.2 The pump assembly and the discharge line shall be taken out from the sprayer.
7.11.3 An opening of the tank shall be connected to the manifold through a hose and a shut-off cock (see Fig. 7).
7.11.4 The tank under test shall be completely filled with clean water.
7.11.5 The opening of the tank, other than the one to which hose is connected, shall be sealed.
7.11.6 The manifold shall be filled with clean water through the filler hole to a point within approximately 20 cm of the filler hole. The water level in the manifold may be checked by observing the flow of water from the fittings. The filler hole and the vent fittings of the manifold shall be plugged.
7.11.7 Air pressure, from a power-driven compressor and reservoir, equal to the normal working pressure of the sprayer within a range of ± 10 percent shall be applied to the top of the manifold through an air filter or pressure regulating valve or air lubricator and an electrically-operated three-way valve (see Fig. 7).
7.11.8 A timer switch shall also be connected in the circuit to open and close the three-way valve within a range of 3 to 5 times a minute.
7.11.9 When electric energy is applied to the three-way valve, compressed air flows from the source into the manifold at a pressure determined by the setting of the regulating valve. When the valve is de-energized, the air flows out of the manifold to the atmosphere.
7.11.10 The tank shall be subjected to 1 200 such pressure cycles. A counter may be connected in the circuit to indicate the number of pressure cycles.
7.11.11 The tank shall be deemed to have passed this test if no leakage, cracks or deformation of the tank occurs during the test.

8 TEST FOR ENDURANCE
8.1 For Stirrup Type, Foot, Rocker and Knapsack Sprayers
8.1.1 The sprayer or pump shall be operated in accordance with the method given in respective discharge rate test (see 6.1) for a minimum period of 48 h without measuring the liquid. The period should be covered minimum with continuous stretches of 6 h.
8.1.2 The sprayer or pump shall be deemed to have passed this test, if no leakage or breakdown is observed during the test.

   NOTE - For routine and acceptance check, the sprayer or pump shall be run for a minimum period of 5 minutes instead of 48 h.

8.2 For Compression Knapsack Sprayer, Non-pressure Retaining Type
8.2.1 The tank of the sprayer shall be filled with clean water up to two-thirds of its capacity. A pressure of minimum 400 kPa but not exceeding 600 kPa shall be created by opening the pump at its full stroke either manually or mechanically. The pressure shall then be released to atmospheric pressure by opening the cut-off device and by discharging the liquid through nozzle or spray lance. The test shall be repeated to a minimum of 100 times.
8.2.2 The sprayer shall be deemed to have passed this test if no leakage, deformation or breakdown occurs during the test.

   NOTES
1 For acceptance test, the sprayer shall be subjected to the above test for a minimum of 5 times instead of 100 times.
2 For routine check, each sprayer shall be subjected to this test for a minimum period of 5 minutes by discharging water through the nozzle. During this period no part or joint of the sprayer shall show leakage.

8.3 For Atomizer Sprayer

8.3.1 The sprayer shall be operated in accordance with the method given for discharge rate (see 6.1.4), at its full stroke for a minimum period of 8 h.

8.3.2 The sprayer shall be deemed to have passed this test, if no leakage, deformation or breakdown is observed during the test.

NOTE - For routine and acceptance check, each sprayer shall be operated for a minimum period of 5 minutes.
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Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition.

This Indian Standard has been developed from Doc No. FAD 25 (319).

Amendments Issued Since Publication

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