

TEST CONDITIONS AND PROCEDURES USED: To simulate an operators position during normal use, all noise measurements were taken at a distance of 2.5 feet (.76 meters) from the machines.

Indoor tests were performed in a laboratory of 48 X 33 X 10 feet (14.6 X 10.1 X 3.0 meters) at an ambient air temperature of 70° F (21° C).

DESCRIPTION

This chemical applicator is an electric hand portable aerosol applicator with three rugged nylon nozzles. This device is intended for application of both oil based (following necessary precautions) and water based chemical treatments including wettable powders and wet flowables. The body and tanks are made of high density chemical resistant polyethelene. The applicator is useful for dispensing most chemicals which are labeled for aerosol or mist application such as disinfectants, deodorizers, germicides and insecticides in locations such as hospitals, schools, nursing homes, greenhouses, stables, warehouses, homes, and farm buildings. The particle sizes generated range from 7 to 30 microns MMD depending on the flow rate and viscosity of the materials. Specific tables are provided in the instruction manual.

WORKING PRINCIPLES

The machine consists of a blower assembly, a nozzle system, a nozzle housing, a formulation tank and a metering valve. The various components are identified in the cutaway views shown in Figure 1. The blower is a single stage axial compressor driven by a universal motor operating at a speed of 20,000 RPM. The blower moves a large amount of air through the nozzle system consisting of three individual nozzles, each of which has two sets of directing vanes. One vane set causes the air to be rotated clockwise and the other causes the air to be rotated counterclockwise. The intersecting action of the circular forces shears the material being dispensed into small particles. Further, the air rushing by the specially shaped liquid tubes creates a negative pressure in the liquid tube. This negative pressure causes the liquid to be drawn from the formulation tank through the control valve and into the nozzle system where it is pneumatically sheared into aerosol or mist sized droplets. After break-up, the droplets are driven away from the machine by the air passing through the nozzle system.

Generally, the sizes of the output droplets increases with increasing flow rate and with increasing viscosity. By measuring the flowability of the formulation, the rate of liquid through the machine and the particle sizes corresponding to these flow rates can be determined with reasonable accuracy.

OPERATION PREPARATION

Proper application of formulation with this machine requires 7 basic steps as follows:

1. Determine the APPLICATION RATE of the formulation from the formulation label.
2. Measure and calculate the ENCLOSED VOLUME to be treated.
3. Multiple the APPLICATION RATE by the ENCLOSED VOLUME to arrive at the AMOUNT REQUIRED.
4. Measure the FLOWABILITY of the liquid under the temperature conditions at which the liquid is to be applied.
5. Use the MACHINE FLOW RATE table to determine an appropriate particle size and MACHINE FLOW RATE and set the MACHINE VALVE SETTING accordingly.
6. Divide the AMOUNT REQUIRED by the MACHINE FLOW RATE to find the APPLICATION TIME in minutes.
7. Apply the formulation for the time determined by Step 6.

LIQUID FLOWABILITY MEASUREMENT

1. Place a sample of the formulation liquid to be dispensed in the relative FLOWABILITY METER provided with the machine such that the liquid level is above the top line.
2. Hold the meter vertical and allow the liquid to flow through the brass orifice at the outlet end of the meter into an appropriate container.

- Using a stopwatch or a watch with a sweep second hand, determine the FLOWABILITY TIME in seconds that it takes for the liquid level to fall from the top line to the bottom line.

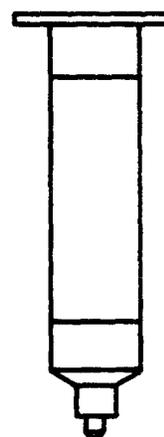
NOTE:

PERIODICALLY CALIBRATE THE FLOWABILITY METER USING PLAIN WATER. WATER SHOULD FLOW THROUGH THE ORIFICE SUCH THAT THE TIME BETWEEN THE TOP LINE AND THE BOTTOM LINE IS 32 ± 2 SECONDS.

- Use this value and Tables 2 and 5 to determine an appropriate MACHINE FLOW RATE.

APPLICATION

- Determine the Metering Valve setting and Application Time. See instructions under "Preparation".
- Set the Metering Valve to the setting determined in "Preparation" section.
- Place sufficient formulation in the formulation tank to ensure that the filter remains submerged during the entire application time. The tank has a one gallon (3.8 liter) capacity.
- Plug the machine into an appropriate power source as specified on the Machine Identification label.
- Turn the machine power switch to the ON position to begin application.
- To interrupt spraying, turn power switch to the OFF position but do not close the metering valve. When spraying is finished, close metering valve before turning switch to the OFF position. This will clear out lines and prevent chemicals from dripping from the nozzles.



— LINE NO. 1

**COUNT SECONDS IT TAKES
FLUID TO DRAIN FROM LINE
NO. 1 TO LINE NO. 2
(FLOWABILITY TIME).**

— LINE NO. 2

WARNING:

WHEN A FLAMMABLE LIQUID IS SPRAYED, THERE MAY BE DANGER OF FIRE OR EXPLOSION, ESPECIALLY IN ENCLOSED ROOMS OR AREAS.
DO NOT USE FORMULATIONS HAVING A HIGHLY FLAMMABLE BASE SUCH AS GASOLINE OR BENZENE.

WETTABLE POWDERS AND FLOWABLES

This machine is also usable for dispensing wetttable powders and liquid flowables. When using these, the optional pick-up filter P/N 39021 should be used. BEFORE placing materials in the tank, they should be thoroughly mixed using appropriate shakers or blenders to ensure maximum time of suspension of the solid materials. Only as much material as needed at the time should be placed in the machine.

MAINTENANCE

- Periodically clean the Formulation Tank using a hot water/detergent solution. Fully open the Machine Valve and operate the machine for 3 to 5 minutes. flushing the solution through the valve, lines, and nozzle.
- Examine the electric cord for evidence of damage and replace any damaged cord immediately.
- After 500 hours of operation. carefully remove the Blower Assembly and examine the brushes and the commutator of the Blower Motor. If brushes or commutator are damaged, replace Blower Assembly.

4. If necessary to disassemble the Machine Flow Valve for cleaning, be careful not to enlarge the Metering Orifice or damage the taper of the Valve Stem, as this will affect the calibration of the machine.

