PLAINTIFF'S
EXHIBIT
DUP-1197

OPERATION OF THE MODEL 440-B UNICO "MIGHTY-MITE" ASBESTOS DUST SAMPLER

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I. Prepare Filter

A. Remove plug from filter deck end and attach the open tubulature to the gum rubber sampling hose. Slight moistening of the plastic tubulature assists with hose attachment. Excessive moistening will cause hose to immediately slip off.

B. Remove the top (uppermost) section of the filter assembly without disturbing the reel of the center ring against the filter paper on the filter support deck. Do not remove the plug from this top section at any time before attachment of the sampling hose in preparation for sample collection.

C. After the sampling has been completed, replace the top section with plug in place and seal securely. Tape the plugs in place by passing tape around the unit axially several times under slight tension. Any self-adhesive tape will serve.

D. Identify each plastic filter case by applying a label containing the site serial number and date sample was taken. Label to be applied on filter case shelf for protection in handling.

E. Wrap the filter unit in paper toweling or other bulky paper packing and place in the mailing container.

F. Do not attempt, under any circumstances, to remove or replace the filter membrane or use a filter which has been exposed by either plug becoming dislodged or by separation of either assembly member before use. The background blank supplied with each lot of filters is valid only for sealed sampling units.

II. Prepare "Mighty-Mite" Air Sampler

A. Insert a fully charged battery into the bracket located on the inside of the front panel.

1. Make sure the positive (+) pole is in contact with the positive contact of the bracket. Although the principle will operate on reversed polarity, excessive strain and wear will soon destroy the pump assembly.

II. Prepare "Mighty-Mite" Air Sampler (continued)

2. If the pump fails to start when the rheostat is advanced from the "on" position, check the battery contacts for open circuit due to distortion or bending of the bracket.

3. Failure to start also may be due to a discharged battery.

a. Neglecting to recharge after last use.

b. Accidentally discharged - rheostat left in the "on" position.

c. Dead battery - not rechargeable - return for repair.

d. Fault in the charger (see charger instructions).

e. Check by replacing the dead battery with a freshly charged unit.

4. If a hum is heard, but air is not drawn through the rotameter, the motor-pump linkage has failed - return for repair.

B. Install the clothing clip just under the filter unit.

C. Attach the open end of the sampling hose to the right hand (500-1500 cc/min. range) rotameter tubulature. Again, moistening the bore of the hose will facilitate assembly.

1. The plug must be securely in place at all times in the left hand (LPM) rotameter. Leakage at this point may prevent drawing sufficient air through the right hand rotameter and will rapidly consume the charge in the battery and reduce sampling time.

III. Install the Assembly

A. Pass the wearer's trouser belt through the loops provided in the rear of the Unico "Mighty-Mite" air sampler.

1. The selection of location is up to the discretion of the wearer, unless the job assignment will determine the location. In any event, locate in a position which will least interfere with the employee's work motions, and which will involve the least potential damage to the sampler unit.

III. Install the Assembly (continued)

B. Attach the filter unit to the wearer's clothing as close as practical to his breathing zone by means of the fabric clip. If the air sampler is worn in back, the sampling hose should be brought up over either the right or left shoulder.

1. Adjust hose length, position and attachment to the clothing to eliminate loops which may catch on protruding objects in the work environment. Extra loops to further secure the hose can be fabricated quickly from self-adhesive tape and attached to the clothing with safety pins.

IV. Sampling

A. Advance the rheostat on the right lower corner of the Unico "Mighty-Mite" until the rotameter indicates 1200 cc/min. (1200 cc/min. = 1.2 LPM = 0.0424 $ft.^3$/min. = 2.54 $ft.^3$/hr.) or the calibration valve equivalent to 1200 cc/min. (see calibration furnished).

1. The rotameter is calibrated to read the bottom of the floor.

2. Failure to attain required pumping rate may be due to:

a. Forgetting to remove top of filter unit to expose the filter.

b. Insufficient charge in the battery.

c. Obstruction in the sample hose.

d. Malfunction in the pump itself - worn piston or valves - foreign material producing a binding action (keep solvents and liquid chemicals out of this pump!). Return to Construction Division Safety Office for repair.

e. Obstruction in the rotameter - the left hand rotameter can be used <u>if</u> a calibration is available.

The rotameter can be cleaned by removing the top retaining stud (great care must be exercised to avoid loss of the stainless steel float) and swabbing with a pipe cleaner dipped in Xylene. However, this is not a recommended field repair - return to headquarters for repairs unless an emergency requires immediate action.

IV. Sampling (continued)

B. Record the time at start. If for any reason sampling is interrupted, record the stop and restart times, as the total running time is required to calculate the sample size (0.0424 $ft.^3$/min. x minutes = $ft.^3$ = sample size).

C. Check the sampling rate at least once every hour and re-adjust the rheostat to provide the required sampling rate if necessary. Record the rate found if different than the calibrated value (required to correct the sample volume).

D. Ambient temperature and relative humidity should be recorded on work sheet.

E. Disconnect the filter and prepare for shipping (See I-C) after finish of sample period.

F. Remove battery and place in charger.

V. Battery Charger

A. Open charger case and place battery in the bracket - observe polarity - be sure the positive (+) end is in contact with the positive clip.

1. Reversed polarity may cause the battery to explode.

B. Then, plug into a 110 volt AC outlet and charge at least 16 hours before re-use.

C. Never connect the charger to the 110 volt AC circuit without a battery in place, or remove a battery from the charger without first disconnecting from the 110 volt AC source. The rectifier elements will burn out in a few minutes unless a battery is in place with the current turned on.

D. The batteries may be left on charge indefinitely as a fully charged battery ceases to draw charging current.

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