

MONSANTO CHEMICAL INTERMEDIATES COMPANY
INDUSTRIAL HYGIENE SECTION
LOSS PREVENTION AND SAFETY DEPARTMENT
TEXAS CITY, TEXAS

APRIL 21, 1981

THE DETERMINATION OF TOTAL AND RESPIRABLE
DUST BY FILTER

METHOD NO. IH-1 (TC)

MAP 001474

W.D. Martin

LAM023350

3. In order to measure respirable dust, the procedure is the same as that above with the exception of the addition of a cyclone to the filtering apparatus.

A M.S.A. cyclone and clamp designed to operate with the Dupont 4000 personnel pump is connected in line with and ahead of the filter cassette using tubing. In this configuration, the cyclone, rather than the cassette, is attached to a convenient location in the worker's breathing zone.

CALIBRATION

This method is a purely gravimetric procedure. Therefore, the only calibrations necessary are of the pump and the Cahn 21 balance. Both of these procedures are found in the respective owner's manual.

Bill Martin

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4/21/81

MAP 001475

LAM023351

APPENDIX TO TEXAS CITY INDUSTRIAL HYGIENE
METHOD IH-1

Sampling

The DuPont pump is calibrated with a soap bubble meter before and after the sampling according to paragraph C, Chapter I of the OSHA's Industrial Hygiene Technical Manual (OSHA Instruction CPL 2-2.20A, March 30, 1984). Dust measurements may be of short duration (10 mins, 20 L) or up to a full work shift (8 hours, 960 L). The Cahn balance is calibrated before use with the test weights provided with the instrument.

Analytical Procedure

The filters are kept in a dessicator and returned to it after sampling for at least one hour.

Special Precaution

Care should be taken to avoid any overloading of the filter, as evidence by any loose particulate.

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9/17/84

MAP 001476

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APRIL 21, 1981

THE DETERMINATION OF AIRBORN DUST PARTICLES USING
THE PIEZO BALANCE

METHOD NO. IH-2 (TC)

MAP 001477

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THE DETERMINATION OF AIRBORN DUST PARTICLES USING
THE PIEZO BALANCE

TEXAS CITY, TEXAS

METHOD NO. IH-2

SCOPE

This method measures both total and respirable dust. The dust is measured using the Thermo System's Model 3500 Piezo balance. This is an instrument which measures the mass concentration of smoke, fumes, dust, and other aerosols. Aerosol measurements over the range of 0.005 mg/M³ to 20 mg/M³ can be determined by this method.

PROCEDURE

The Piezo balance operator would typically enter the dusty or smoky area, make several measurements in the exposure zone of the area's occupants, and average the measurements.

The operation of the Piezo balance, itself, is quite simple yet sufficiently involved so as to preclude an adequate treatment here. The prospective operator should read Parts I, II and III of the owner's manual before attempting any measurements.

CALCULATIONS

No calculations are necessary because the Piezo balance is a direct measurement device.

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4/21/81

MAP 001478

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APPENDIX TO TEXAS CITY INDUSTRIAL HYGIENE
METHOD IH-2

Follow the instructions in the Operator's Manual in preparing the instrument for the measurements and the selection of the proper operating range (pp 6-14). The collection (pump) rate is fixed at 1 l/min and sampling time is used to change the operating range. This instrument is returned to Thermo-systems yearly for a factory calibration.

NOTE: Be sure and not reverse the soap and clean water (rinse) sponges in cleaning, rewetting, and replacing them (pp 22-23).

Dan N. Campbell
9/18/84

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