

DUSTWATCH FALL-OUT DUST
MONITORING UNIT EXPLODED VIEW
AND ASSEMBLY INSTRUCTIONS

ILLUSTRATION N^o **EHE 0624**

FALL-OUT DUST MONITORING USING **DustWatch**

MONITORING UNITS (Provisional patent 2000/3790)

.....

1.0 INTRODUCTION

The monitoring of fall-out dust emanating from a given direction or source is undertaken worldwide utilising several methods, including direct gravimetric sampling and other filtration techniques that all give an artificial result of the amount of airborne dust, which may or may not end up precipitated as fall-out dust.

The present method to establish precipitant dust is the ASTM 1982 "Standard Method for Collection and Analysis for Dust Fall (settleable particulates)" with equivalent European and Din standards.

While open buckets partly filled with a capture medium will accumulate all precipitating dust, this does not establish dust fall emanating from a given direction unless the bucket is closed to any dust from other directions.

2.0 DUSTWATCH

The DustWatch series of monitor units have been developed as practical, almost failure-proof devices that are not dependant on external power supplies, battery supplies or solar energy systems and which will operate in the most hostile and unforgiving climates for many years with a minimum of basic maintenance.

The units are limited to only one moving part and are totally wind operated, making them an ideal choice for isolated locations as well as both permanent and temporary installations.

The aerodynamics of the units permits wind classification and thus +1mm particulate or grits are prevented from being captured.

DustWatch units have the added advantage of permitting site-specific directionality adjustment to suit required monitoring.

The units are available in twin-bucket models that monitor a wind direction together with the opposing wind direction as a control, in addition to 4-bucket units that can either monitor four incoming wind directions or two prevailing wind directions with opposing winds as controls.

3.0 OBTAINED DATA

In all cases the monitor units capture fall-out dust from the atmosphere, with this being caught up in the distilled water that is used as a capture medium. In order to prevent the build-up of algae a fungicide can be used in the water when sampling over longer periods than one week.

Once the water/dust has been filtered through a preweighed filter, the sample can be desiccated and weighed.

Results are indicated as a mass in milligram per m² per day and the results can be compared with results indicated in the various standards applicable under whichever method is being used.

As an added advantage, the filters can be stored in Petri dishes for analysis individually or as composite samples giving an indication of the chemical or mineral components of the various dusts related to individual wind directions.

Our sketch drawing EHE 0625 outlines a diagram indicating how the twin and four bucket units can be used and what sort of information can be gleaned from the monitoring.

Our sketch drawing EHE 0626 indicates a typical assessment filtration arrangement using a vacuum pump and Buchner funnels.

4.0 DUSTWATCH UNIT SUPPLY AND ASSEMBLY

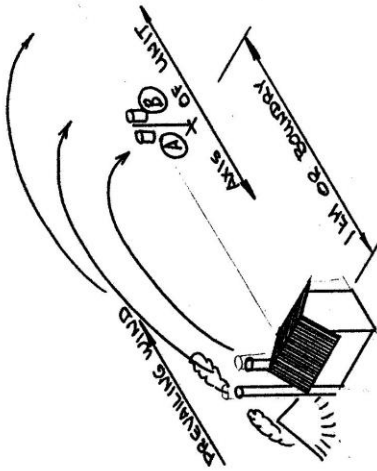
For ease of transport, most units are supplied in a knockdown form and can be assembled to drawing EHE 0624, which is supplied together with each unit. Alignment of the units to the prevailing wind or features of the site must be carried out with care to permit good sampling results.

Detailed sampling procedures can be supplied to assist clients with developing and drawing up monitoring programmes. Training of the operators and assistance with setting up can be undertaken if required.

	AMS HADEN INSTRUMENT AND MINING SERVICES PROP: R. HADEN INSTRUMENT SERVICES (PTY) LTD	BUILDING 5, BERGZICHT OFFICE PARK, CNR CHRISTIAAN DE WET ROAD & ROOIBOK AVENUE, ALLEN'S NEK EXT 45 P O ADDRESS: SUITE 247, PRIVATE BAG X09, WELTEVREDEN PARK, 1715 TEL: (011) 475-2064 FAX: (011) 475-2062 E-MAIL: haden@mweb.co.za
REG. NO. 73/13108/07		

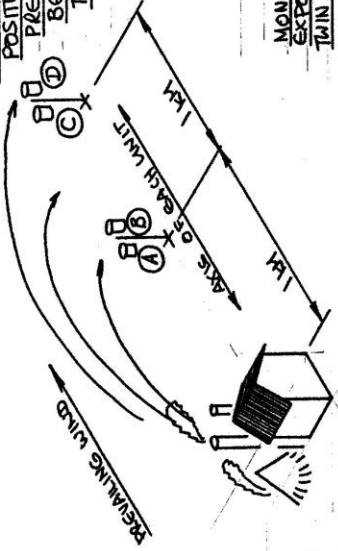
Use of DustWatch diagram comes here

A BUCKET = EXPORT DUST
 B BUCKET = IMPORT DUST
 NET EXPORT = A - B BUCKETS



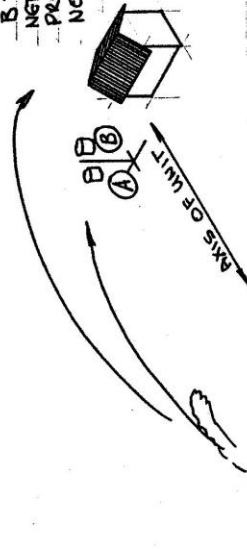
MONITORING YOUR DUST EXPORT USING A SINGLE TWIN BUCKET DUSTWATCH UNIT.

EXPORT = A + C
 IMPORT = B + D
 NET EXPORT = (A + C) - (B + D)
 POSITION WHERE MAXIMUM PRECIPITATION OCCURS CAN BE LOCATED BY MOVING THE UNITS.



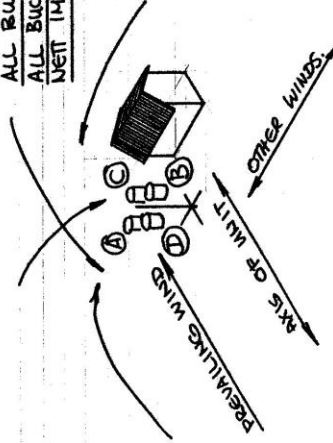
MONITORING YOUR DUST EXPORT USING MULTIPLE TWIN BUCKET DUSTWATCH UNITS.

A BUCKET = IMPORT DUST
 B BUCKET = EXPORT DUST
 NET IMPORT = A - B BUCKETS
 PREVAILING WINDS ARE NOT CONSIDERED



MONITORING YOUR DUST IMPORT FROM A KNOWN SOURCE USING A SINGLE TWIN BUCKET DUSTWATCH UNIT.

ALL BUCKETS FACING THE WINDS = IMPORT
 ALL BUCKET ON OPPOSITE SIDE = EXPORT
 NET IMPORT = IMPORT BUCKET - EXPORT BUCKET



MONITORING YOUR DUST IMPORT FROM ALL DIRECTIONS USING SINGLE OR MULTIPLE BUCKET DUSTWATCH UNITS.

DUSTWATCH FALL-OUT DUST MONITORING PURPOSES AND TYPICAL EMISSION CRITERIA TO BE CONSIDERED IN UNIT LOCATION.



ILLUSTRATION N^o.

EHE 0625

