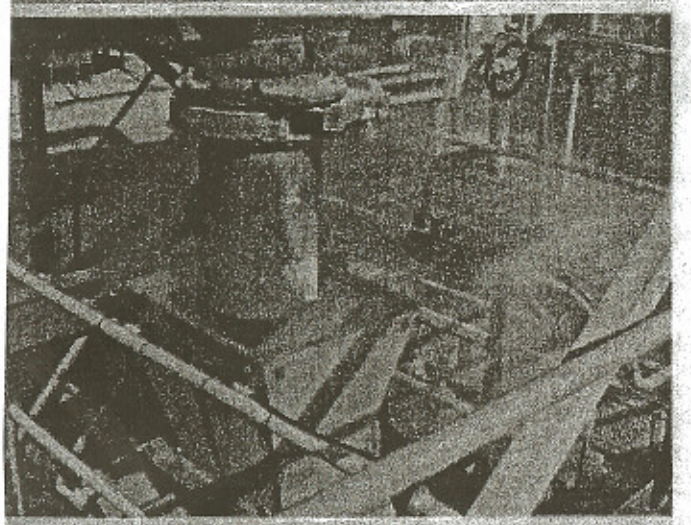

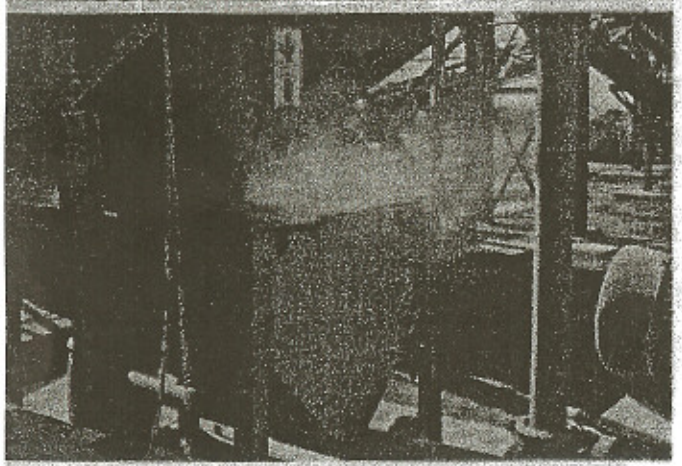

Mist removes dust

Dust suppression and cooling by fine mist has been practiced in the USA and Europe for decades. Two leading local industries have now implemented this clean and simple technology to eliminate airborne emissions risk, one being De Beers Geology Treatment Plant.

"We evaluated the Fogco dust suppression system in June by collecting respirable dust samples at two locations, two metres downstream of the points of dust generation," reported De Beers occupational hygienist Motelekoa Peter Huma. "Additional tests were also conducted by tyndallometer. With the suppression mist in operation, gravimetric samplers showed a 66.7% and 47.1% reduction respectively. Tyndallomter sampling showed an 87.9% reduction in dust concentration.

"The system was found to effectively control dust to within the Occupational Exposure Limit (OEL) of 5mg/m³ and the action limit of 2.5mg.m³."

How it works

Distributor Patrick Georgiades explains: "Fogco misting systems produce a high localised concentration of 10 micron water droplets to attract and suppress PM 10 and smaller dust particles, effectively removing breathable and fugitive dust from 0.1 to 1 000 microns."

The systems meet or exceed the EPA PM 10 standards for dust suppression. Components are corrosion resistant as well as UL and CE rated. Modular design allows simple installation of the filter, pump, pressure line and nozzles.

Heavy duty pumps range from 2 LPM to 12 LPM. Standard pump models are rated at 70 Bar or 7000 kPa operating pressure. Typical volatile suppression applications include asbestos, coal, crushing, silos, slag, conveyor belt drop points and construction sites.

Outdoor cooling

The cooling system at Sun City's Valley of the Waves was installed by Mist Systems. Typical industrial applications include perimeter cooling, overhead cooling, pre-cooling or mist rings upstream of cooling fans.

It works best in hot conditions of 29 to 42 degrees C. As some Pretoria restaurant patrons can attest, the "flash evaporation" cools up to 5 degrees C with virtually no noticeable increase in the relative humidity. It does not cause corrosion problems, since no water droplets form on nearby surfaces. Water consumption is minimal.

- Mist Systems is the authorised distributor in SA of Fogco Systems of the USA, founded in 1989. E-mail Gavin Yuter at gyuter@global.co.za or Patrick Georgiades at shandy@acc.co.za

Top: A cooling application. The mist generates cool air that circulates outdoors and indoors. Due to the 10 micron droplets, the mist does not cause any dripping.

Middle: Dust concentration was reduced by 89% at the De Beers IPC knockout bin discharge. Breathable and fugitive dust form 0.1 to 1000 microns is removed.

Bottom: A Mist System installation (silver nozzles in black pressure line) effectively controlling dust at the De Beers IPC crusher and knockout bin.

EVALUATION OF THE FOGCO DUST SUPPRESSION SYSTEM INSTALLED AT KIMBERLEY - GEOLOGY TREATMENT PLANT.

24 June 2002

Introduction.

A follow up re - evaluation of the effectiveness of the dust suppression system was conducted on 20/06/2002 and the results thereof are as follows: -

Method of evaluation/testing

Tests were conducted by collecting respirable dust samples at two different locations as indicated on the table below by positioning the gravimetric sampling pumps at distances of about 2 meters downstream of the points of dust generation.

Additional tests were also conducted by means of a tyndallometer at the knockout bin.

Two tests were conducted, one with the suppression system in operation and the other with the system not in operation and the results thereof are as follows: -

a) Gravimetric samplers

Locality	Without dust suppression (mg/m^3)	With dust suppression (mg/m^3)	Remarks
IPC crusher discharge	0.03	0.01	66.7% reduction in dust concentration
Knockout bin discharge	0.87	0.46	47.1% reduction in dust concentration

b) Tyndallometer

Locality	Without dust suppression (mg/m^3)	With dust suppression (mg/m^3)	Remarks
Knockout bin discharge	9.9	1.2	87.9% reduction in dust concentration.

b) From the tests conducted and physical observations made it could be concluded that the dust suppression system is effective enough to control dust to within acceptable limits of less than the occupational exposure limit (OEL) and action limit of $5mg/m^3$ and 2.5 mg/m^3 respectively.

It should however be emphasised that for the system to maintain its present effectiveness, all the necessary maintenance on the system should be carried out as stipulated by the supplier.

Molelekoa Peter Huma
Occupational Hygienist