

# Green Topics

## Air-pollution measurement service from Mintek\*

Mintek now offers a service for the accurate measurement and analysis of air pollution in South Africa.

'The deteriorating air quality and general degradation of the environments in industrialized and urban regions of South Africa have been of concern for more than a decade', says Mintek's Dr Johann Engelbrecht. 'The accompanying effect on health, visibility, and damage to property and the environment have prompted the public, authorities, and industry to take appropriate action. A recent study conducted by the Medical Research Council on schoolchildren in the Vaal Triangle, clearly demonstrated the relationship between the deficient quality of the air in that area, and the resultant respiratory diseases.

'Mintek's involvement over the past five years has been in the sampling and chemical analysis of aerosol samples from polluting sources, as well as the ambient atmosphere in the Vaal Triangle, and the Eastern Transvaal Highveld. Three reports: 'Pilot Study in Source Apportionment of Atmospheric Particulates in the Vaal Triangle'; 'The Establishment of Chemical Source Profiles, and their Applications to the Apportionments of Aerosols in the Vaal Triangle'; and 'The Establishment of Chemical Source Profiles from Industrial and other Emissions on the Eastern Transvaal Highveld' have been published, and a further project 'Ambient Sampling and Source Apportionment in the Vaal Triangle' has recently been completed'.

The ambient air-sampling campaign in the Vaal Triangle (Vaalamb) spanned a period of one year, during which time samples of respirable airborne particles were collected for week-long periods at three sampling stations in the

commercial centres of Vereeniging, Vanderbijlpark, and Sasolburg. The major conclusion reached were:

- The annual national ambient quality standard for respirable dust was exceeded at all three sampling stations in the Vaal Triangle.
- Of the three sampling stations, Vereeniging has the worst air quality, followed by Vanderbijlpark, and Sasolburg.
- The percentage contributions by the source types at each of the ambient air-monitoring sites are similar.
- Minor variations occur due to contributions by certain local sources e.g. domestic coal combustion and iron arc-furnace dust to the air pollution in Vereeniging and Vanderbijlpark, and power-station flyash to the air pollution in Sasolburg.
- The air quality in the Vaal Triangle deteriorates significantly in the winter months, and the 24-hour national ambient air quality was below the minimum standard on several occasions during this season.
- Domestic coal combustion is the largest contributor to air pollution in the Vaal Triangle. This is followed by soil dust, secondary ammonium sulphate, iron arc-furnace dust, and power-station flyash.
- Although the proportions of domestic coal combusted is very small when compared to that consumed by power stations or by the synthetic fuel industry, its contribution to the poor urban air quality in the Vaal Triangle is the greatest. Dr Johann Engelbrecht can be contacted on (011) 709-4111 for more details. ◆

## The ramifications of the Omai 'mishap'<sup>†</sup>

The Omai disaster has been described as 'another black eye for the mining industry'. The companies involved, Cambior and Golden Star Resources, point out that an independent report on the environmental impact of the leakage found no evidence that any animals died as a result of the spill. Only 400 fish in the Omai river died, and the flow of water in the Essequibo river was so powerful that the cyanide was diluted immediately and remained below the level permitted in Canada's drinking water. However, the fact remains that for reasons still unexplained, there was a major engineering failure at the Omai dam, and it was not the only one in recent times. The disaster at the Harmony Gold Mine, which resulted in 17 deaths did not attract nearly as much international comment as did the the Omai mishap, probably because two North American companies are involved at Omai, and the

North American environmental lobby is the strongest and most active in the world. Mining companies are finding it increasingly difficult in many parts of the world to gain permits to mine the minerals they have discovered. The failure of the Omai and Harmony dams will make it even more difficult because the industry cannot guarantee that waste dams will not fail. If the various enquiries into these two failures could arrive at clear reasons for the failure of the dams, the industry could take steps to avoid similar incidents in the future. Although the mining industry is more environmentally aware and can employ new technology to prevent damage, poorly designed and operated mines remain to threaten the environment. The Omai mine is due to resume production in December 1995, pending the findings of a commission of enquiry and government approval. ◆

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