Air Pollution
Pollution: Cars

Peter Evans
Cars are much more uniform than ships, and standard tests are used to assess their emissions. This car is being tested on a so called rolling road in a laboratory. A driver follows a standard cycle on a computer, and a sample of the exhaust gas is collected in a bag. By analysing the sample, the total emissions over a cycle can be determined. This test lies somewhere between phases one and two of the Lloyds register study. Unlike phase one, the car is taken through transient manoeuvres. But instantaneous emissions are not recorded, instead they're integrated across the entire cycle. Different cycles are used to simulate driving in urban and fast moving traffic. In the six years or so since Lloyds began their work, a great deal has changed. Take the measurement of airborne particles for example. We know that a high proportion of these come very largely from the back end of the cars and lorries that most of us are pleased to drive around in - and Birmingham, has not only its own traffic to consider, but all the thousands of vehicles that use the M6 as well. A monitoring station, strategically placed to sample air coming off the motorway as it cuts through the heart of the city, records the results hour by hour. Most of the equipment inside is familiar, very much like the instruments we saw used by the Lloyds research team in the Netherlands, with one interesting difference. This instrument, with a rather astonishing name of a tapered element oscillating micro balance, or TEOM for short. The measuring part of it literally vibrates, it works by recording minute changes in that vibration, as particles accumulate on the collector inside. From this, they can get almost real time measurements of particles in the air. Before this box of tricks came along, the best you could do was to record a daily average, not much use, if you're trying to track changes in level throughout the day.

Prof. John Ayres
Particles are important if, they get down into the lungs. To get down into the lungs, in general terms, they have to be less than ten microns in diameter, and a micron is a millionth of a metre, so these are pretty small, and certainly a ten micrometre particle is not visible to the naked eye. and probably we should be interested more in those particles less than one micron in diameter now. Those that get right out to the peripheral airways, and it is there where they can cause their effect.

Trevor Errington, Startatey Policy Division, Birmingham City Council
One of the problems is that, currently we're working almost blind. There's a real scarcity of long term data, there's not real trend, monitoring of trends that we can use. and so a lot of the transport policy responses to air quality problems, are very much based on hunches. A lot of the targets in terms of the amount of traffic on the road, whether people are using more public transport or not, at the end of the day you're trying to improve the environment. So we need accurate measures of what's happening to the environment, to know whether we're being successful.