

# Diesel Particulate Analysis

Diesel particulate matter (DPM) is small enough to pass through ventilation filters and into the lungs of people breathing the recycled atmosphere.



## Overview

Heavy machinery is often diesel powered to minimise fire risks, however, diesel engines produce exhaust gases which are fine, black, sooty particles known as diesel particulate matter (DPM). Diesel emissions include exhaust gases, a range of organic vapours and small amounts of metallic compounds.

Human exposure to DPM's can occur in vehicle workshops and areas where diesel equipment is used in confined areas including; underground, large tanks and storage sheds.

Diesel particulate matter is small enough to pass through ventilation filters and into the lungs of people breathing the recycled atmosphere. These particulates have been classed as potential carcinogens. Elemental Carbon is considered the best indicator for personal DPM exposure, and is regulated in many jurisdictions.

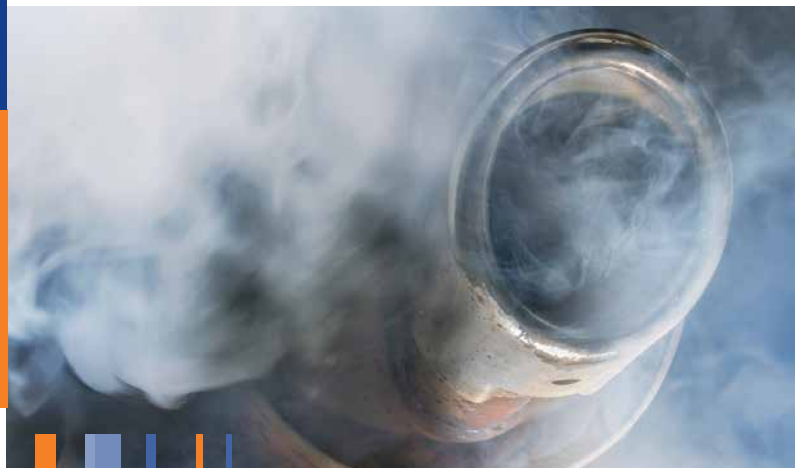
## Laboratory Analysis

A known volume of air is passed through a pre-cleaned quartz filter paper. A standardised punch subsamples the quartz filter paper, and it is analysed by thermal-optical instrumentation. Inorganic, organic and elemental carbon are separated by stepped temperature ramps and quantitatively converted to carbon dioxide by an oxidising oven. The produced carbon dioxide is mixed with hydrogen in a catalysed environment and quantitatively converted to methane. The concentration of methane produced is read using a flame ionisation detector.

By considering the volume of air sampled, the concentration of elemental carbon captured by the sampling can be calculated, and compared to appropriate exposure standards. Similarly, inorganic carbon, organic carbon and total carbon, as a sum of the three forms, can be reported.

## Accreditation

Eurofins is NATA approved to undertake the analysis of elemental carbon in accordance with NIOSH 5040.



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