Methane

CH4 , natural gas, methyl hydride, biogas

SPRI Emission Reporting Threshold

10,000 Kg/yr Pollutant Emissions to Air

Disclaimer

This sheet is a generic summary, designed to give the reader a basic level of background information about the substance in question. Great care has been taken to represent as effectively and correctly as possible the broad range of (not necessarily consistent) information which is available from a variety of sources. The reader must accept therefore that this sheet has no legal status and cannot be relied upon in any legal proceedings. SEPA disclaims any responsibility or liability whatsoever for errors and omissions in this sheet.

What is it?

Methane is a colourless gas. At low concentrations it is odourless, but it has a sweet smell at high concentrations. At mixtures more than about 5-15% in air, it is explosive. It has a lifetime of around ten years because it is only very gradually destroyed by other chemicals in air. Methane is one of a group of chemicals known as the volatile organic compounds (VOCs). It is produced both naturally and from man's activities.

What is it used for?

Methane is the major constituent of natural gas which is used for domestic and commercial heating and to generate electricity in power stations. It is also used in the chemical industry to produce many more complex chemical compounds.

Where does it come from?

One of the main sources of methane into the environment is from the natural decomposition of plant and animal matter in airless conditions. This occurs in marshes, rice paddies and the guts of animals. The UK's biggest man-made source of methane is from rotting rubbish in landfills. Methane is also released during the mining and distribution of fossil fuels (coal, oil and gas).

How might it affect the environment?

On a local scale, build up of methane poses an explosion hazard which can result in evacuation of areas over old landfills or mines. Compared to other volatile organic compounds (VOCs) methane does not contribute significantly to the formation of ground level ozone or photochemical smogs. The main impact of methane is on a global scale, as a greenhouse gas. Although levels of methane in the environment are relatively low, its high "global warming potential" (21 times that of carbon dioxide) ranks it amongst the worst of the greenhouse gases.

How might exposure to it affect human health?

At normal environmental concentrations, methane has no impacts on human health. At extremely high (artificial) concentrations in an enclosed space the reduction in oxygen levels could lead to suffocation.

What steps are being taken to limit the potential impacts?

In the UK (including Scotland), emissions of methane are controlled through the regulation of volatile organic compounds (VOCs) under the National Air Quality Strategy. Internationally, the main control over methane as a volatile organic compound (VOC) is through international UNECE Convention on Long-Range Transboundary AIr Pollution and the Basel Convention concerning the transboundary movement and disposal of hazardous wastes. Also, the United Nations Framework Convention on Climate Change (Kyoto Protocol, 1997) introduced measures (such as taxes on fossil fuels) designed to achieve reduction of greenhouse gas releases. Amongst the other signaturies from around the world, the UK government (including Scotland) is committed to reaching targets of reduction of methane emissions by 2008-2012.