

Carbon monoxide (CO) is a highly poisonous, colourless and odourless gas produced as a result of incomplete burning of carbon-containing fuels in combustion processes, and can occur in a number of industrial and domestic settings including: chemical manufacturing processes; furnaces, kilns and foundries; exhaust gas of internal combustion engines, motor vehicles and fuel cell vehicles; domestic space and combustion heaters; and smoke.

Our client is searching for an innovative **technology to selectively remove / filter carbon monoxide (CO) from exhaust streams**, that has the ability to work in various complex systems, be stable until use, but compact enough to use in personal respirators / masks (e.g. for industry workers, scuba divers, fire-fighters, etc).

Carbon monoxide is one of a number of combustion gases and therefore solutions to reduce this have to be able to work in the presence of a wide range of other gases and particulates – i.e. not a clean environment.

Whilst there are a number of technologies that can remove carbon monoxide under certain conditions (such as adsorption and catalysis), there are a number of environmental factors that affect the performance. Potential solutions to address these factors could be found in new catalysts, processes to improve efficiency of existing catalysts, etc:-

Materials / Processes	Properties
<ul style="list-style-type: none"> • Emission control catalysts • Adsorption • Oxidation catalysts to convert carbon monoxide to carbon dioxide • Metals and metal oxides such as gold, palladium, platinum, titania, alumina, ceria, zirconia, iron oxide, zinc oxide and magnesium oxide • Nanoparticle based catalysts • Process to encapsulate reactive particles • Encapsulated liquids with permeable shell / membrane • Increase stability of oxidising agents (i.e. Hopcalite – <i>copper manganese oxide</i> - in presence of water vapour • Chemical additives for membranes, etc 	<ul style="list-style-type: none"> • High selectivity towards CO • Stable during storage – active only in presence of CO • Maintain performance under high flow rate (fast kinetics) – 1 litre/min • Able to function at room temperature • Non-toxic / no toxic by-products • Low cost • Ideally in granular form, but could be powder / liquid • Compact – either in film, membrane or paper format or dense foam / granules • Ability to work in complex environment (in the presence of other gases and particulates)

Our client is a £multi-million company interested in advanced materials for the filtration / removal of harmful gases from exhaust streams. They are continually investing in product development and have appropriate R&D facilities to develop appropriate innovative technologies. Eventual products will have global markets and client is searching for innovative technology and processes, and will consider any reasonable commercial arrangements including licensing in, purchasing, strategic alliances and partnering arrangements.

Please send preliminary information on any proposed opportunity – including a short description, technical and marketing advantages and initial suggestions on possible methods of co-operation to – Mrs Elaine Rhodes, Operations Manager. Thank you!