

Co-operation profile details from Enterprise Europe East of England

10 GB 41n8 3GCF - Technology that selectively removes or filters Carbon Monoxide (CO)

Technology collaboration REQUEST

Abstract

A UK manufacturer of filter products is searching for novel reactions or materials to selectively remove CO from exhaust streams, which could be used in a range from personal to industrial filters. Existing technologies are too sensitive to environmental factors. The company has resources for further technical development and commercialisation on a global basis. The nature of the agreement will depend on the stage of development.

Description

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. It 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.

A UK company is searching for an innovative technology to selectively remove/filter CO from exhaust streams that

- works in polluted environment;
- is stable until use;
- can be made compact enough for use in personal respirators.

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 amongst the following materials and processes:

- " 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 copper manganese oxide - in presence of water vapour
- " Chemical additives for membranes

Technical Specifications / Specific technical requirements:

- " 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)

Target partner expertise sought:

- Type of partner sought: industry, academia
- Specific area of activity of the partner: research into adsorption and catalysis
- Task to be performed by the partner sought: potential solutions may be licensed, developed further jointly or acquired under a commercial agreement. Interested parties are invited to provide a short non-confidential description on the technical and marketing advantages and initial suggestions on possible methods of co-operation.

Country of origin: United Kingdom

Listed under: Other Industrial Technologies \ Energy Topics \ Physical and Exact Sciences \ Chemistry & Chemical Engineering

Key dates:

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