Technology Request

A large German chemical company is looking for technologies in catalytic oxidation of methane to carbon dioxide at low temperature

Summary

A large German chemical company is established worldwide in the production of specialty chemicals. The client is seeking new robust catalytic technologies for the oxidation of low concentrations of methane under varying conditions. The central challenge is to design highly active catalysts at lowest-reachable temperatures with good poison-resistance. Joint venture, license or research cooperation agreement are possible.

Creation Date	11 September 2017
Last Update	14 September 2017
Expiration Date	14 September 2018
Reference	TRDE20170911001

Details

Description

The large speciality chemicals maker from Germany is looking for partners with technologies in catalytic oxidation of methane to carbon dioxide at low temperature.

Methane is the main component of natural gas and a powerful contributor to climate change. Although it doesn't remain in the atmosphere as long as carbon dioxide, it is in fact 86 time more powerful than carbon dioxide when the atmospheric warming impact is considered over a 20 year period. The reduction of methane emissions is therefore a critical factor in the mitigation of global warming.

In order to reduce the emissions of methane from industrial sources the company is seeking robust catalytic technologies for the oxidative abatement of low concentrations of methane under varying conditions for a range of applications. Due to the high stability of the methane molecule an innovative catalytic approach is required. Potential application includes methane abatement in engines, gas turbines, mining and extraction technologies.

In these applications the thermal stability of the catalyst is important, however the central challenge is to design catalytic materials that exhibit the highest activity at the lowest temperature while remaining resistant to poisons present in the exhaust gases. The desired catalytic technologies should operate with significant conversion (>80% at GHSV = 50kh-1) with low concentrations of methane (1000-2000 ppm) at ~400°C with humidity (10-12%) and presence of S (1-2 ppm).

As legal framework for the cooperation a joint venture, license or research cooperation

agreement can be discussed.

Technical Specification or Expertise Sought

The specific reaction conditions are listed below:

- Low operating temperatures, typically below 450 °C, preferably between 350-400°C
- Low concentrations of methane (1000–2000 ppm)
- Large amounts of water vapour (10–12%) and CO2 (15%)
- Large excess of oxygen
- Presence of SOx (about 1-2 ppm) and NOx
- Significant conversion (>80% @ 50kh-1)
- Low humidity conditions (2-3%) with subsequently higher conversions (>90%)
- Space velocities up to 100kh-1
- Lifetime must be in the order of 1-2 years under load conditions

Stage of Development

Available for demonstration

Comments Regarding Stage of Development

Not interested in purely academic approach in an early stage.

IPR Status

Secret Know-how,Patent(s) applied for but not yet granted,Patents granted,Granted patent or patent application essential

Comment Regarding IPR status

The IP will be explored if joint-development is required.

Keywords

Technology

05001003	Inorganic Chemistry
10002013	Clean Production / Green Technologies

Market

08001009	Speciality/performance materials: producers and fabricators
08001015	Other speciality materials

NACE

C.20.1.5	Manufacture of fertilisers and nitrogen compounds

Network Contact

Issuing Partner

CONSELL GENERAL DE LES CAMBRES OFICIALS DE COMERC INDUSTRIA I NAVEGACIO DE CATALUNYA

Contact Person

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Open for EOI : Yes

Dissemination

Send to Sector Group

Materials

Client

Type and Size of Organisation Behind the Profile

Industry >500 MNE

Year Established

0

Turnover

>500M

Already Engaged in Trans-National Cooperation

Yes

Languages Spoken

English

Client Country

Germany

Partner Sought

Type and Role of Partner Sought

The company is open to global partners and partnership in the framework of a joint venture, license or research cooperation agreement.

Type of organisation sought might be enterprises as well as applied research organisations. The partner sought should already have a robust protected process. The development of that process into industrial scale usage will be discussed with the partner. A partner with interest, capabilities and resources to do this is most welcome, but not obligatory. No academic approach, an early stage prototype should already be available.

Type and Size of Partner Sought

SME 11-50,University,Inventor,R&D Institution,SME <10,251-500,SME 51-250,>500

Type of Partnership Considered

License agreement
Joint venture agreement
Research cooperation agreement

Attachments