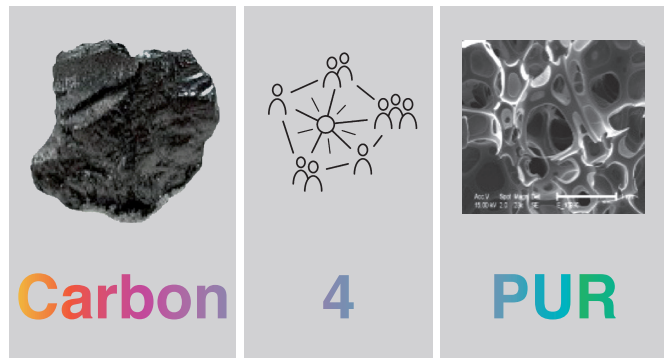


EXPECTED RESULTS

- ◆ Demonstration of an adjustable process for on-purpose and on-demand tailor-made production of high value polymers, taking into account all variables at the same time:
 - Steel plant flue gases characteristics
 - Material and process parameters
 - End product market requirements
- ▶ **Full value chain**
- ◆ Small piloting of the new process (20 t/y)

HOW TO ENGAGE

- ◆ **Participate in one of the stakeholder events** to get updated information on the project status, voice your opinion or see how you could become involved.
- ◆ **Become one of the assessed industrial sites for replication** and be involved in the feasibility studies and knowledge transfer.



CONSORTIUM

Covestro	covestro.com
Recticel	recticelinsulation.be
Megara Resins	megararesins.com
Universiteit Gent	lct.ugent.be
Universiteit Leiden	universiteitleiden.nl
DECHEMA	dechema.de
TU Berlin	reaction-engineering.tu-berlin.de
CEA	cea.fr
ArcelorMittal Mazieres Research	arcelormittal.com
South Pole	southpole.com
Grand Port Maritime de Marseille	marseille-port.fr
RWTH Aachen	catalyticcenter.rwth-aachen.de avt.rwth-aachen.de
PNO Consultants	pnoconsultants.com
Imperial College of Science, Technology and Medicine	imperial.ac.uk

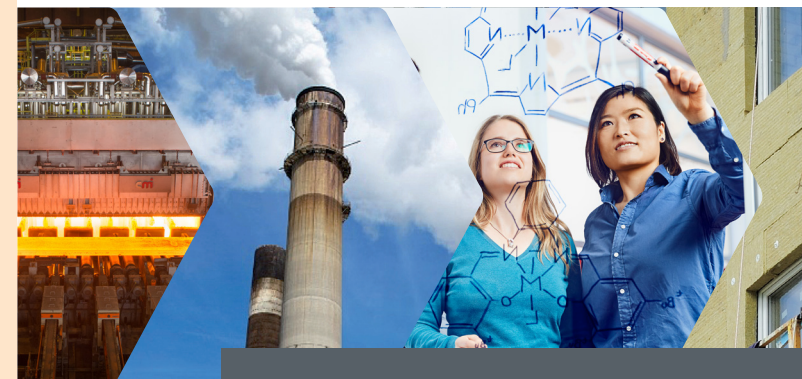
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Turning industrial waste gases (mixed CO/CO₂ streams) into intermediates for polyurethane for rigid foams/building insulation and coatings



ABOUT Carbon4PUR

The Carbon4PUR project explores industrial symbiosis between steel and chemical industry to produce polymer foams and coatings from steel off-gases.

Flue gases from steel manufacturing contain a mixture of carbon dioxide and carbon monoxide, valuable feedstock gases for chemical production. The ambition of Carbon4PUR, a 7.8 Mill. Euro Horizon2020 project with 14 partners from 7 countries, is to manufacture high value polyurethane materials from these flue gases.

The unique Carbon4PUR technology will valorise steel off-gas without previous cleaning or separation of the gas components.

OBJECTIVES

- ◆ **Develop and demonstrate (TRL 4-6)** an economically viable technology to transform the carbon from a **steel industry waste gas into "ready to use" C1 building blocks** for the production of high value intermediates.
- ◆ **Provide chemicals** and building blocks for the production of new, **sustainable polyurethane** (short: PUR) applications (rigid foam and coatings) as an example of high value polymers – **a novelty for waste CO/CO₂**.
- ◆ **Implement a direct conversion of mixed flue gases containing both CO and CO₂**: Avoid expensive "traditional" purification and conditioning methods. Mixed flue gases are provided by many industries, the Carbon4PUR project sets its focus on CO rich flue gases from the steel industry.
- ◆ **Reduce the carbon footprint of PUR intermediates by 20-60 %** compared to today's PUR products manufactured from crude oil due to the re-utilisation of anthropogenic CO and CO₂. With Carbon4PUR, the polyol producing industry will be able to **reduce up to 15-36 % of petrochemical epoxy compounds and 70 % of process energy**.
- ◆ **Demonstrate the economic feasibility, the environmental impact and social benefits** by an LCA and further assessments.
- ◆ **Prepare Industrial Symbiosis** between consortium partners in the Port Maritime de Fos (France).
- ◆ **Exploit and transfer project results to key stakeholders** and additional EU industries.

