



Grant Agreement no. 768919



**“Carbon4PUR - Turning industrial waste gases
(mixed CO/CO₂ streams) into intermediates for polyurethane
plastics for rigid foams/building insulation and coatings”**

Research and Innovation Action

Topic: [SPIRE-08-2017] Carbon dioxide utilisation to produce added value chemicals

Deliverable 8.7:
***Dissemination and Communication
report and plan update***

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Disclaimer

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The Carbon4PUR Consortium

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4.	Universiteit Gent	UGent	Belgium
5.	Universiteit Leiden	UL	Netherlands
6.	Dechema Gesellschaft für chemische Technik und Biotechnologie e.V.	Dechema	Germany
7.	Technische Universität Berlin	TUB	Germany
8.	Commissariat à l'énergie atomique et aux énergies alternatives	CEA	France
9.	ArcelorMittal Maizières Research SA	AMMR	France
10.	South Pole Carbon Asset Management Ltd.	SPG	Switzerland
11.	Grand Port Maritime de Marseille	MFPA	France
12.	Rheinisch-westfälische technische Hochschule Aachen*	RWTH	Germany
13.	PNO Consultants BV	PNO	Netherlands
14.	Imperial College of Science Technology and Medicine	ICL	UK

* At the RWTH two departments are involved: RWTH-AVT (Aachener Verfahrenstechnik) and RWTH-CAT (Catalytic Center)

Acronyms and Definitions

Acronym	Defined as
CCS	Carbon capture and storage
CCU	Carbon capture and utilisation
ETS	Emission Trading System
EU	European Union
FQD	Fuel Quality Directive
GHG	Greenhouse gas
KPI	Key performance indicator
LCA	Life cycle assessment
PUR	Polyurethane
Tbd	To be determined

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1. Introduction

This deliverable provides a report on the undertaken communication and dissemination activities and an update to the [dissemination and communication plan](#) D8.3, explaining the changes to the communication and dissemination activities during the remaining duration of Carbon4PUR. Please refer to D8.3 for the reasoning and planning of the dissemination and communication activities.

At the end of the project, a final report on all communication and dissemination activities will be published as deliverable D8.8.

2. The Carbon4PUR project

Carbon4PUR aims at turning industrial waste gases (byproduct exhaust gas streams and flue gas streams of steel industry/mixed CO/CO₂ streams) into intermediates for polyurethane plastics for rigid foams/building insulation and coatings.

The industrially driven, multidisciplinary consortium will develop and demonstrate a novel process based on direct chemical steel mill gas mixture conversion. The interdisciplinary consortium consists of 14 partners from seven European countries and across sectors: four industries (COV, Recticel, Megara, AMMR), five universities (UGent, UL, TUB, RWTH, ICL), one association (Dechema), one research organization (CEA), two service providers (PNO, SPG) and the Grand Port Maritime de Marseille-Fos.

Both the consortium and the work are organized along the full value chain starting with the provision and conditioning of industrial emissions from a steel (AMMR, UGent) to a chemical company (COV) in line with the concept of industrial symbiosis exemplarily at *Marseille Fos*, going through the transformation into chemical building blocks (CEA, RWTH and COV), which will be further transformed into polymer intermediates (RWTH, COV) and flow into desired sustainable polyurethane applications of rigid foams and coatings (Recticel, Megara). LCA and technology evaluation will be done (UL, RWTH, TUB, SPG) and replication strategies to transfer the technology to other applications will be elaborated (Dechema, PNO, ICL).

The distinctive feature of the developed process is avoiding resource-intensive separation of the gas components before the synthesis, and developing a chemo-catalytic process to deal directly with the gas mixture. The challenge and innovation is coming up with an adjustable process in terms of on-purpose and demand tailor-made production of required products, taking into account all variables at the same time: the available steel mill gases characteristic from the steel plant, material and process parameters, and the market requirements for the end product, thus flexibly involving the whole value chain with best results and possibly lower the prices.

3. Executive Summary

This deliverable describes the dissemination and communication activities executed so far in the Carbon4PUR project over the first 18 months. During the first half of the project, the focus has been on raising awareness. This has been achieved by engaging with associations and multi-stakeholder initiatives as well as other European or national funded projects, especially at the first stakeholder event and conferences or meetings. The stakeholder event brought together 8 EU-funded projects, 78 participants and several associations and helped make the project known in the community. Carbon4PUR partners have also participated in 16 conferences, fairs and meetings to present the project and first results.

Dissemination material are nearly complete, and currently include a logo, a printed flyer, templates for Word, Power point presentations and posters as well as a video presenting the project with subtitles in English, French and German. Two roll-ups were available for the mid-term event.

The website has been updated and completed and contains a list of all past and future events with Carbon4PUR participation and publicly available material, including press releases, deliverables, flyer and the video. The website has received 2,400 visitors so far.

Two newsletters have been sent to currently 56 subscribers, each time announcing an event organized by Carbon4PUR and containing other project updates.

The social media presence has been created on Twitter, LinkedIn, ResearchGate and Youtube. It is actively managed and news are posted on all platforms. The connections with partner accounts, associations and sister projects ensure a wide distribution of our updates.

The next dissemination and communication report D8.8 in M36 will report on the activities in the second half of the project.

4. Communication and Dissemination Report

4.1 General strategy

Figure 1 presents the three phases of our activities and highlights the accomplished mechanisms in green, started activities like conference participations in blue, and items not initially envisioned in D8.3 in bold.

Phase	Objective	Mechanisms
Awareness-oriented	Raise awareness within a qualified community/ stakeholders about the project and its objectives	Kick-off press release, Website, flyers, e-brochure, social media, representation at conferences and AICHEMA 2018 1 st stakeholder event, project video
Results-oriented	Promote project results, allow potentially interested parties to get to know achievements and related benefits of the project	Web-site with public deliverables, newsletter, open-access publications, Conferences, network events, mid-term event with related projects site visits and open days
Exploitation-oriented	Engage with specific stakeholders for exploitation-driven dissemination; replication opportunities	Conference presentations, 2 nd stakeholder event (20/03/2019), site visits, Trade fair representation, case studies, economic final conference, final press release

Figure 1: Dissemination/communication phases with objectives and leveraged mechanisms

All three pillars (awareness-oriented, results-oriented and exploitation-oriented) have been started. During the first half of the project, the focus has been on raising awareness. This has been achieved, and will now be complemented by results-oriented activities, including publications, conferences and deliverables.

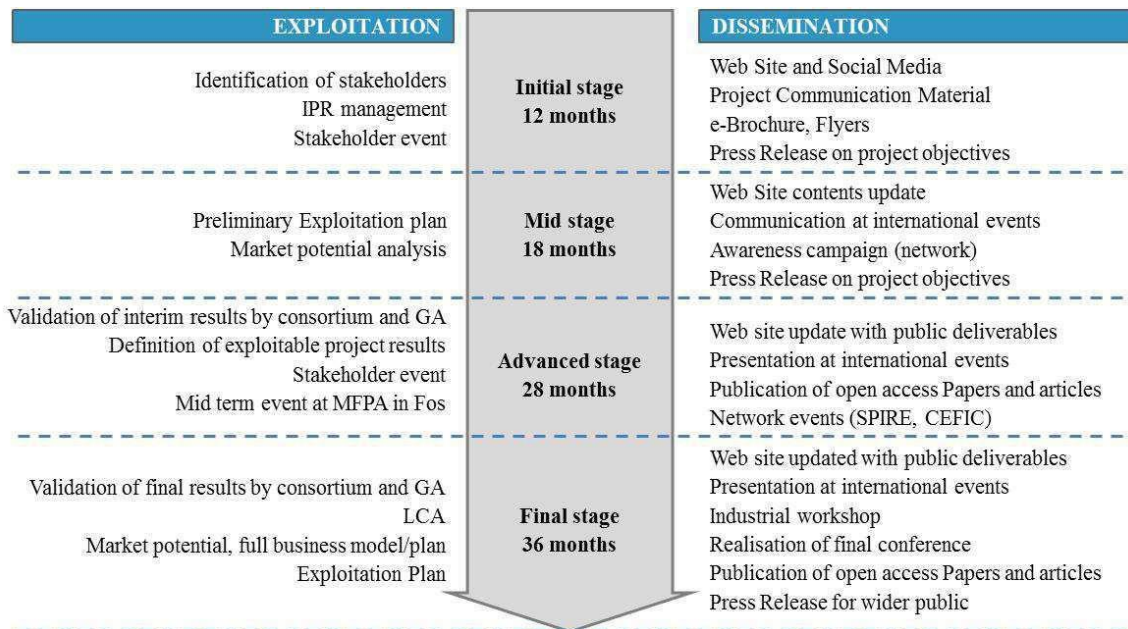


Figure 2: Carbon4PUR Exploitation and dissemination activities

4.2 Engaging associations and multi-stakeholder initiatives

Carbon4PUR has had contact with several association and initiatives and has presented the project at meetings of those associations.

The first stakeholder event brought together members from CEFIC (European Chemical Industry Council), CO₂Value Europe, SPIRE, SusChem, EnCO₂re (Enabling CO₂ Reuse), CO₂Chem, CO₂NET and many more. The event created awareness and also networks between those associations that will be used for sharing our results.

The second stakeholder event was organized in cooperation with PIICTO and invited several other associations, and additionally local authorities to raise awareness for the project implementation at the harbor of Marseille Fos.

To further engage with the associations identified in D8.3, TU Berlin presented the project at the AIChE Annual meeting in Pittsburgh, Covestro at the EuroPUR Circular Economy Working Group meeting and Universiteit Leiden at the SETAC Europe 24th LCA Symposium.

4.3 Engaging European and national funded projects

The first stakeholder event was organized as an event where EU funded projects present their research and exchange and connect. During the organization and the event itself, interactions with the projects FReSMe, MefCO₂, ICO₂CHEM, RECO₂DE, ENGICOIN, EPOS and Steelanol have been created.

Carbon4PUR has also been presented at the final conference of CarbonNext, another EU funded project where also exchanges with Carbon2Chem and the PHOENIX initiative took place.

4.4 Participation in targeted conferences, fairs and events

As laid out in D8.3, at least 12 national as well as international conferences, congresses and other events (fairs) will be attended from all partners in order to ensure a wider dissemination of the outcomes. So far, the following conferences and fairs have been attended.

Table 1: List of attended conferences, fairs, events

Event	Type and character	Involvement
6th Conference on Carbon Dioxide as Feedstock for Fuels, Chemistry and Polymers, 15-16 March 2018, Cologne, Germany	Conference, predomin. Industrial	COV: presentation
Status conference of the German funding programme on CO₂ utilisation 17-18 April 2018, Berlin	Conference, Industry and academia	DEC: Organiser COV: presentation
19th Annual Handelsblatt meeting Chemie 2018 24-25 April 2018, Düsseldorf	Conference, Industry and academia	COV: presentation
UTECH Europe, 29-31 May 2018, Maastricht	Intern. fair and conference for the polyurethanes industry	COV: exhibitor, presentation
ISCRE 25 - 25th International Symposium on Chemical Reaction Engineering, 20-23 May 2018, Florence	Scientific conference, chemical engineers	UGent
ACHEMA2018 11-15 June 2018, Frankfurt	Intern. fair and congress for the process industries	DEC: Organiser COV: key note (CCO), large CO ₂ utilisation booth and congress session, presentation

Table 1 - continued: List of attended conferences, fairs, events

Event	Type and character	Involvement
Rohstoffgipfel / Resource summit 25 June 2018, Berlin	Green chemistry innovation and start-up conference	Hosts: TUB, DEC, COV COV: presentation
CarbonNext final conference 17 July 2018, Brussels	CO and CO ₂ as feedstock	DEC: organizer, AMMR: presentation
16th International Conference on Carbon Dioxide Utilization 27-30 August 2018, Rio de Janeiro	Conference, predomin. academic	DEC TUB: presentation
ProcessNet Annual Meeting 2018 10-13 September 2018, Aachen	Conference	CO ₂ utilisation congress session COV: presentation RWTH AVT: poster
5th International Conference on Chemical Looping 24-27 September 2018, Park City, UT	Conference, industry and academia	UGent
11th Carbon Dioxide Utilisation Summit 26-27 September 2018, Manchester	Conference, industry and academia	Covestro: presentation
AIChE Annual Meeting 28 October-2 November 2018, Pittsburgh	Conference, industry and academia	TU Berlin: presentation
SPIRE projects on the utilisation of CO₂ and CO 12 November 2018, Brussels	Carbon4PUR stakeholder event	Covestro, DEC: organization, presentation, panel discussion, Recticel: presentation
Circular economy for textiles and plastics "Rethinking the value chain of textiles and plastics", 13-14 November 2018, Brugge	Conference	Recticel: presentation
Circular Polymers in Furniture Conference, 26 November 2018, Brussels	Conference	Recticel: presentation
2019 EU Industry Days, 5 February 2019	Conference	AMMR: presentation
7th Conference on Carbon Dioxide as Feedstock for Fuels, Chemistry and Polymers 20-21 March 2019, Cologne	Conference	DEC, COV: presentations

Here are some impressions of the events:



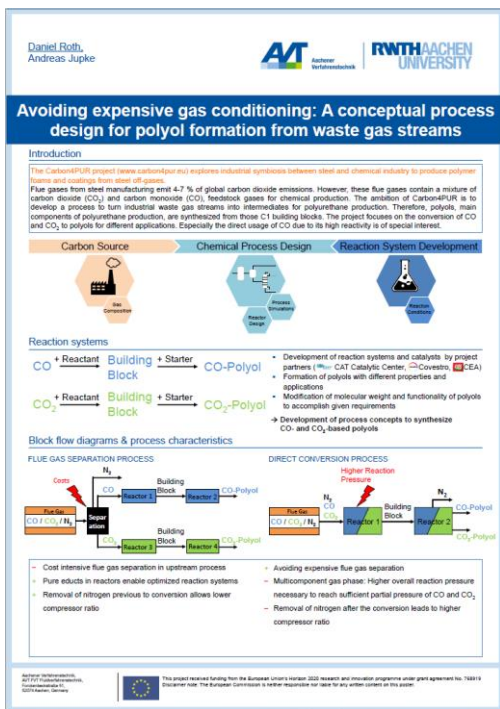
Rohstoffgipfel



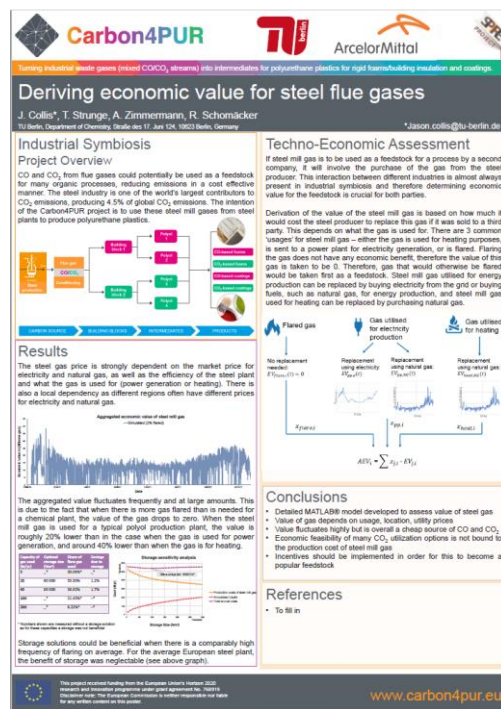
ACHEMA



Handelsblatt Meeting Chemie



ProcessNet Annual Meeting



16th ICCDU

Figure 3: Events

4.5 Organisation of Carbon4PUR events

Carbon4PUR organized a number of own events, which are listed in Table 2.

Table 2: List of events organised by Carbon4PUR

Event	Target audience	Organisers
Kick-off, 16 October 2017	Representatives of key stakeholder associations and networks	COV
1st stakeholder event, 12 November 2018	Industrial stakeholders, EU representatives, EU funded projects	DECHEMA, COV, PNO
Mid-term event, 20 March 2019, Fos	Industrial and academic stakeholders	MFPA, DECHEMA, jointly with other projects

As the first stakeholder event was quite a success, here are some metrics and impressions of the event:

- 8 EU-funded projects,
- A very interesting presentation of new LCA guidelines for CO₂ utilisation,
- An animated panel discussion with high participation from the audience,
- 78 participants from 23 countries,
- Over 400 interactions on twitter.



Figure 4: First stakeholder event

The second stakeholder event in Marseille Fos was equally successful, with 80 participants mostly from local authorities, associations, agencies and companies. Sister projects have been presented and the foundations for interaction and symbioses between the stakeholders has been laid. After the event, the potential site for the implementation of Carbon4PUR was visited by boat.



Figure 5: Second stakeholder event

4.6 Dissemination and communication material

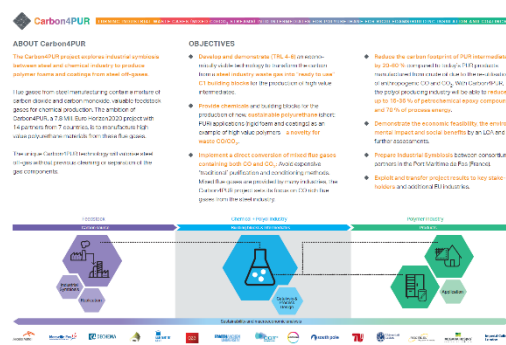
The following material is available to present the project:

- A project logo and templates for Word Documents and PowerPoint presentations in uniform easily recognizable design,
- A project overview presentation,
- A poster template,
- A project flyer describing the project objectives, ambitions, structure and partners, and also available on the website for download,
- A video to present the project with English, French and German subtitles. The video explains the project in 3 minutes, with impressions from a consortium meeting, a lab, a 3D animated explanation of the process and 3 interviews with consortium members,
- Two roll-ups in the Carbon4PUR corporate design (used for the second stakeholder event).

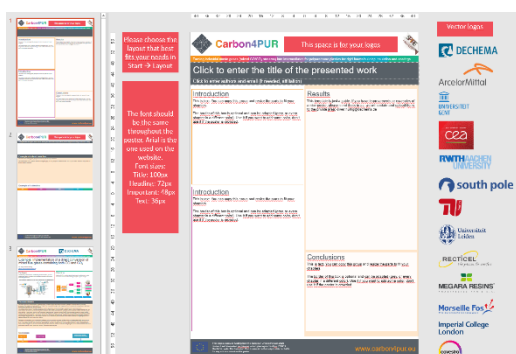
Figure 6 shows some examples of these dissemination materials. Other materials to be provided during the course of the project are the public deliverables. Table 3 lists the deliverables already available [on the website](#). All other public deliverables will also be uploaded once they are published.

Table 3: List of public Carbon4PUR deliverables

Deliverable	Title	Due date
D8.1	Web site	M3
D8.3	Dissemination and Communication Plan	M6
D6.2	Baseline LCA on conventionally produced polyol/PUR and flue gas treatment	M7



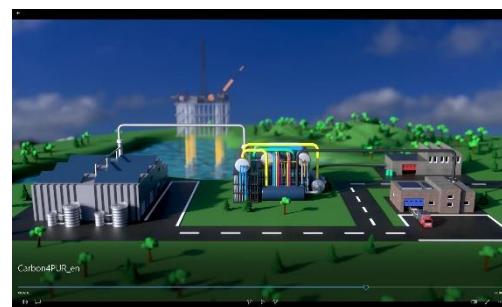
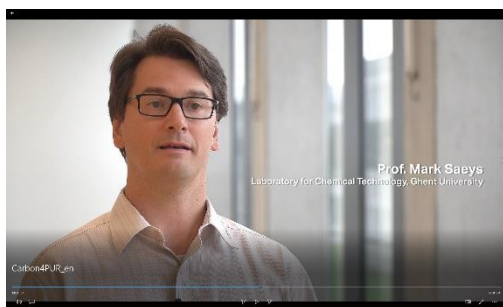
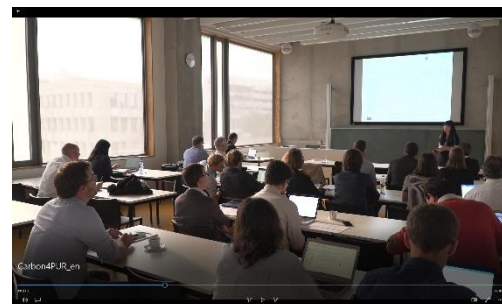
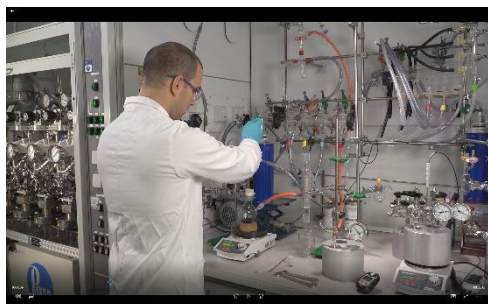
Project flyer



Poster template



Roll-ups



Project video

Figure 6: Dissemination materials

4.7 Carbon4PUR website

The Carbon4PUR website serves as a tool to widely disseminate project information within general public and target audience.

The public Carbon4PUR website has been provided in M3, thereby fulfilling deliverable D8.1. It is available at www.carbon4pur.eu. Compared to D8.3, the website has been updated to contain a list of interesting events and all events where Carbon4PUR participated, contain all dissemination and communication material including the public deliverables, the new press release and the project presentation video. The newsletters are also available on the website, additionally to the version sent by email.

The project video is available either on our website to avoid any tracking (https://www.carbon4pur.eu/wp-content/uploads/2019/01/Carbon4PUR_en_small.mp4) or on youtube with all subtitle versions (https://www.youtube.com/playlist?list=PLIhl7TLF6ynBc80w_6JA9OGmWaSl_rAJ).

Other updates include General Data Protection Regulation (GDPR) compliance, a new banner image and enhancements to the private area containing a collaborative workspace.

**Carbon4PUR**

Search  Private Area 

ABOUT CARBON4PUR ▾ PARTNERS NEWS & EVENTS PUBLIC DOCUMENTS OUTCOMES NEWSLETTER CONTACT



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

News



Carbon4PUR explained in a 3 minutes video



Stakeholder event on 20 March in Marseille

About Carbon4PUR

The EU process industry needs to become less dependent of fossils as source of carbon, and – at the same time – to reduce the greenhouse effect by decarbonizing the economy. Carbon4PUR will tackle the two challenges at the same time by transforming steel mill gas streams of the energy-intensive industry into higher value intermediates for market-oriented consumer products. The industrially driven, multidisciplinary consortium will develop and demonstrate a novel process based on direct chemical steel mill gas mixture conversion, avoiding expensive physical separation, thus substantially reducing the carbon footprint, and also contributing to high monetary savings.

[READ MORE >](#)

Latest News & Events

September 21st, 2018
PSE Europe

January 8th, 2019
Successful R&I in Europe
2019: 10th European
Networking Event

May 28th, 2018
New flyer online

[ALL NEWS >](#)

Newsletter @

Subscribe now to receive the Carbon4PUR newsletter in your email with latest news about the project and the forthcoming events.

[SUBSCRIBE](#)


Tweets by @Carbon4PUR

**Jupiter 1000**
@Jupiter1000PiG

Aujourd'hui (19/03/2019), c'est la Délégation Carbon4PUR (Projet européen de recherche dans la valorisation du CO₂) qui nous a rendu visite sur le site @Jupiter1000PiG.



Mar 19, 2019

**Rene RAIMONDI**
@ReneRaimondi

Cette semaine le Port Center de Fos a accueilli une conférence sur la réutilisation du CO₂ (programme européen Carbon4PUR). La recherche et le développement doivent être accompagnés par les pouvoirs publics.

[Embed](#) [View on Twitter](#)

Figure 6: Screenshot of the Carbon4PUR homepage

4.7.1 Newsletters

So far, two newsletters have been sent out. The main goal of the first newsletter was to inform stakeholders about the first stakeholder event and contained a save-the-date for the second stakeholder event as well as articles about the results achieved so far, about the last consortium meeting and about the harbor in Fos, the designated location for the implementation of the project results.

The second newsletter announced the details for the second stakeholder event and presented the project video.

Carbon4PUR will continue to send newsletters approximately twice a year, when important updates can be shared.

4.7.2 Social media

Carbon4PUR has created a social media presence on Twitter, LinkedIn, Youtube and ResearchGate. Wherever possible, Carbon4PUR also connected to the accounts of the project partners to have a wider reach. Especially the Twitter account has been successful in spreading news about events and the video, and several accounts with numerous followers, like SPIRE or SusChem shared updates and reached thousands of followers. ResearchGate will become more interesting when project results can be published, but we already started to publish information to get connected.

The video has also been shared on Facebook and LinkedIn by Covestro.

4.8 Publications in scientific and general technical journals

No publications have been issued until now. Publications are expected in the second half of the project.

4.9 Evaluation of communication and dissemination activities

The tables below provide the set of indicators chosen for Carbon4PUR, suitable also for reporting on dissemination and communication progress. Visual evidence includes screenshots (e.g. press clippings) and graphs (e.g. web stats).

Table 4: Metrics events

	Indicator
Means	Events: Organisation of conferences and workshops, site-visits, open days, active conference and network meeting participation Abstracts & Papers (all types of relevant events) Keynotes, presentations, demos, panel debates, chairing, moderation
Metrics	Number of abstracts and papers accepted per conference structure, number of events, number of participants at own events
Purpose	Draw attention to Carbon4PUR and engage with stakeholders, including showcasing achievements and added value
KPI targets	Representation in at least 12 conferences, at least 2 participations in SPIRE network events, at least 100 external participants (>25% industry) at final Carbon4PUR conference 1 workshop aligned to Subtask 6.3.3 (TUB), 2 stakeholder events (M12 and M26, DECHEMA, COV, PNO) Midterm event with other projects (M18, MFPA and DECHEMA)
Details	Type of event and target audience; link to relevant web pages, including news items/event announcements/slide shows; table of new contacts; photos and videos)

The Carbon4PUR consortium has so far participated in 11 conferences with two accepted abstracts, one SPIRE network event, organized the first stakeholder event (as a SPIRE network event as well) and the midterm event. Partners of the consortium additionally participated in several events, fairs and meetings and presented the project there.

Table 5: Metrics publications

	Indicator
Means	Publications: Scientific publications, articles in general journals, press releases and media briefings
Metrics	Type of publication (journal/periodical/general press), open access availability For press releases and media briefings: number and media coverage
Purpose	Disseminate scientific technical results, create awareness in wider communities and general public
KPI targets	At least 8 scientific papers in peer-reviewed journals (open access), at least 2 articles in general journals; press releases at kick-off, final conference and major milestone achievements, media briefings at all own public events
Details	Type of journal and target audience; European coverage

Scientific papers tend to arrive in a later project phase and have not been published yet. Press releases have been published for the kick-off and in January 2019 for the midterm event and the project video. The second press release has been extensively used by the press. In the first two days, we already found the following articles:

[Cross-sector research to turn waste gas into valuable plastics](#)
2019-01-24, polymerspaintyournal.com
[Carbon4PUR: Abgase in hochwertige Kunststoffe verwandeln](#)
2019-01-23, labo.de
[Benutting afvalgas van staalindustrie stapje dichterbij](#)
2019-01-24, hetnieuweproduceren.nu
[Benutting afvalgas van staalindustrie stapje dichterbij](#)
2019-01-24, petrochem.nl
[Benutting afvalgas van staalindustrie stapje dichterbij](#)
2019-01-24, hetnieuweproduceren.nu
[Covestro werkt samen met ArcelorMittal in Frankrijk](#)
2019-01-23, nieuws.be
[Carbon4Pur breidt proef met hergebruik afvalgassen staalindustrie uit](#)
2019-01-24, duurzaambedrijfsleven.nl
[La industria europea fomenta la reutilización del CO2](#)
2019-01-23, cep-plasticos.com
[Cross-sector research to turn waste gas into valuable plastics](#)
2019-01-23, eppm.com
[European industry fosters CO2 reutilisation](#)
2019-01-23, britishplastics.co.uk
[Abgas zu Kunststoff verwandeln – Covestro testet in Frankreich](#)
2019-01-23, process.vogel.de

Tuesday - October 17, 2017

Chemical industry will use waste gas from steel factories to make plastics

Europeans join forces on CO₂

Research project launched with 14 partners from seven countries / EU supports development of a particularly sustainable process



This consortium of 14 partners from seven countries, led by Covestro, is now planning to investigate how flue gas from the steel industry can be used to produce plastics in a particularly efficient and sustainable way.

The use of carbon dioxide and other waste gases as a new source of raw materials is increasingly a topic of interest at the European level. A new consortium of 14 partners from seven countries, led by materials manufacturer Covestro, is now planning to investigate how flue gas from the steel industry can be used to produce plastics in a particularly efficient and sustainable way. This will save crude oil, the raw material used in conventional methods. The cross-sector project called Carbon4PUR receives funding from the European Union.

"Together, we are on the path to a crucial innovation: waste gas mixtures from the steel industry can provide carbon for a chemical processes and ultimately be used to produce insulation materials and coatings," explained Dr. Marius Steilemann, the Covestro Board Member responsible for Innovation, Marketing and Sales. "This helps us to broaden our resource base and to reduce

the climate footprint for the entire value chain. At the same time, we are joining our forces by partnering with industrial and academic partners throughout Europe."

Cooperation across borders

The new project introduces an unprecedented cooperation extending from the waste gas source to the plastics manufacturer. The European Union is supporting Carbon4PUR under the auspices of SPIRE, the European Public-Private Partnership, dedicated to innovation in resource and energy efficiency enabled by the process industries. About eight million euros are provided for the time of three years. The industrial partners will leverage this contribution by further investments.

Specifically, the project aims to use mixtures of carbon dioxide and carbon monoxide, which are generated during steel production, to produce polyols – key components of polyurethane-based insulating materials and coatings that are otherwise obtained from crude oil.

Significantly smaller carbon footprint

The process being developed is special because it eliminates the resource intensive step of separating the waste gas into its different components. Instead, the gas mixture will be subjected to a chemocatalytic process and converted directly into building blocks and intermediates for polyurethanes. This can reduce its carbon footprint by 20 to 60 percent.

The ideal starting conditions for the industrial pilot project already exist: in the southern French town of Fos-sur-Mer, an ArcelorMittal steel factory and a Covestro production facility are close neighbours. The gas recovery project consortium includes academic and institutional partners such as RWTH Aachen University, TU Berlin, Dechema, Imperial College London, the universities of Gent and Leiden, the French Commissariat à l'énergie atomique et aux énergies alternatives, South Pole Carbon Asset Management, Grand Port Maritime de Marseille and PNO Innovate4Cities. From its base in southern France, Covestro

Wednesday - January 23, 2019

Cross-sector research to turn waste gas into valuable plastics

European industry fosters CO₂ reutilization

Next step in collaboration of industrial and academic partners / Evaluation of industrial-scale testing in southern France



A new video explains the EU funded project Carbon4PUR.

The pan-European research project Carbon4PUR takes the next step in investigating how waste gas from the steel industry can be turned into chemicals for valuable plastics. Now, the consortium starts evaluation of the ideal conditions for industrial-scale testing in southern France where a steel mill of ArcelorMittal and a chemical plant of material producer Covestro are close neighbours. On a laboratory-scale, the Carbon4PUR project has so far shown promising results with first plastic precursors having been obtained from flue gases such as CO₂.

The consortium invites representatives from industry, politics, media and authorities to a field trip on March 20

in the port city of Fos-sur-Mer next to Marseille to inform about the status and discuss the future infrastructure needed to scale up research under real industrial conditions. Fos-sur-Mer could be an ideal location for such a pilot plant.

"We must consider waste as a resource. A cross-sector approach as pursued by the Carbon4PUR consortium is the right way to reach this goal," says Dr. Marius Steilemann, CEO of Covestro. "Together, we can make more use of alternative carbon sources like CO₂ in order to close the carbon loop and save direct fossil resources such as crude oil."

Researching industrial symbiosis

Carbon4PUR is a consortium of 14 industrial and academic partners from seven countries, coordinated by Covestro. The cross-sector project, which runs until 2020, receives funding from the European Union and aims at researching and developing a new technology that can transform steel mill gas streams such as CO₂ and carbon monoxide (CO) into so-called polyols – chemical key components of polyurethane-based foams and coatings that are otherwise obtained from crude oil. The decisive idea is to avoid physical separation of CO and CO₂ to make the process particularly efficient and economical.

Carbon4PUR is unique because it brings together partners from the whole value chain to work collaboratively on processes and specifications. For each step, different sectors have to cooperate in ways they have never done before. To date, the project has shown first promising results: Test quantities of polyol intermediates have been obtained both from CO and CO₂. The consortium will work on exploiting and transferring project results to key stakeholders and additional EU industries.

In the future, carbon as a feedstock in the form of mixed waste gases from the ArcelorMittal plant in Fos-sur-Mer could undergo catalytic transformations in the nearby Covestro plant to become a chemical intermediate. This could be further used by Belgium-based polyurethane foam manufacturer Recticel and Greek raw material supplier to the coatings industry Megara Resins to form end products. Academic and institutional partners are RWTH Aachen University, TU Berlin, Dechema, Imperial College London, the universities of Gent and Leiden, the French Commissariat à l'énergie atomique et aux énergies alternatives, South Pole Carbon Asset Management, Grand Port Maritime de Marseille and PNO Consultants. They investigate the sustainability and various technical and economical questions.

Press release kick-off

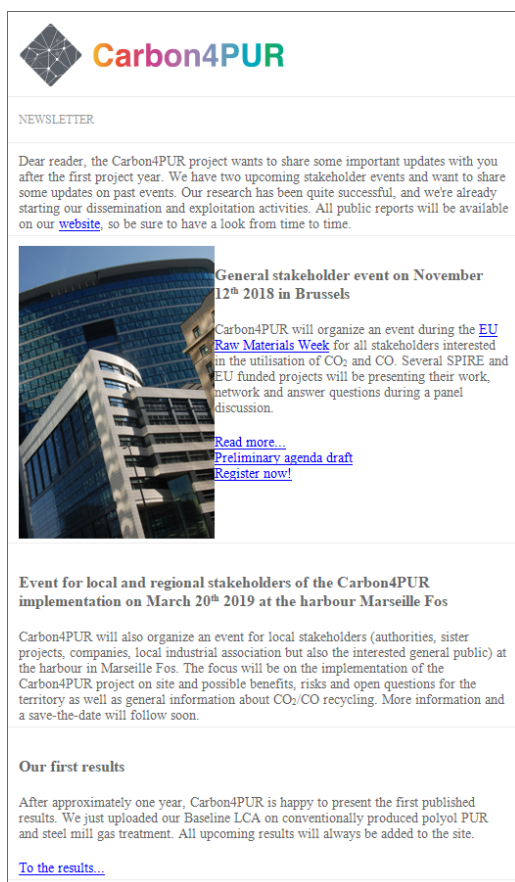
Press release mid-term

Figure 7: Press releases

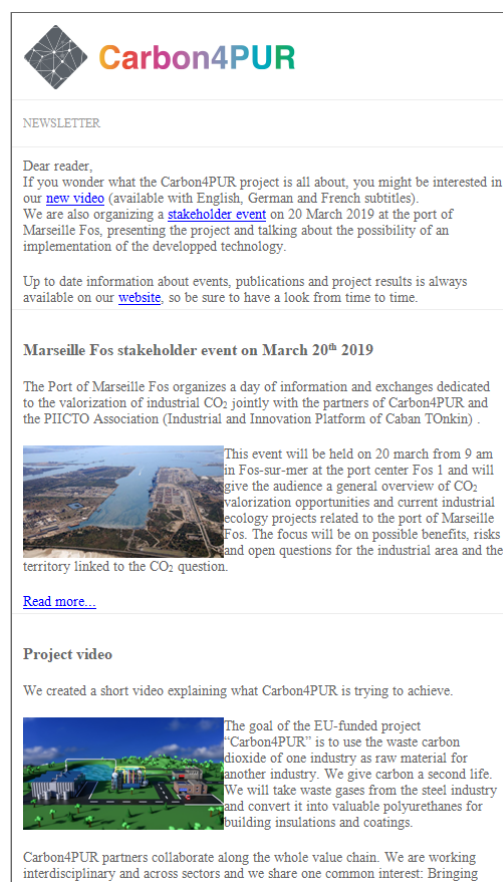
Table 6: Metrics online

	Indicator
Mean	Website, newsletter, social media impact – web visits
Metrics	Total visits per month (analysis in a graph), page views and unique page views/month and 10 most popular pages/month, Number of newsletters and subscribers
Purpose	Monitor the impact of the website in terms of visits and stakeholder group extension
KPI targets	At least 6 newsletters At least one communication of project objectives, results and/or main achievements via social media per partner
Details	Graph of total and unique visitors per month and illustrated per quarter; table of most popular pages/month, reported bi-annually, feedback and requests via the contact page

Two newsletters have been sent out, with currently 56 subscribers.



Newsletter first stakeholder event



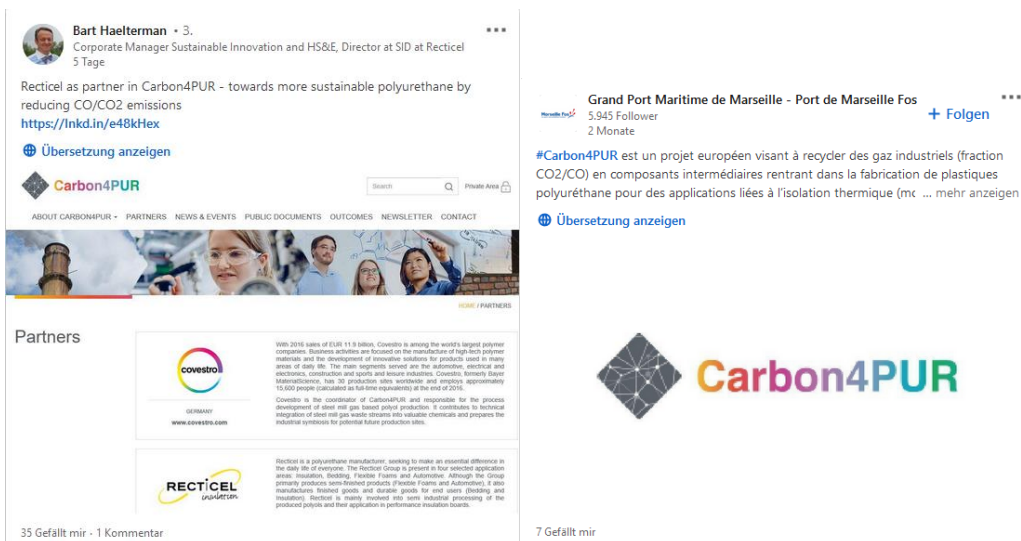
Newsletter mid-term event

Figure 8: Newsletters

Most partners have already published communications on LinkedIn or Twitter about Carbon4PUR, and all others will be encouraged to do so for upcoming results or achievements.



Some highlights of Tweets from partners



Some LinkedIn posts from partners

Figure 9: Social media presence

The Carbon4PUR website has had 100-200 visitors every month in 2018, with an increase to ca. 300 visitors around the first stakeholder event and 400 visitors due to the press release, video and mid-term event.

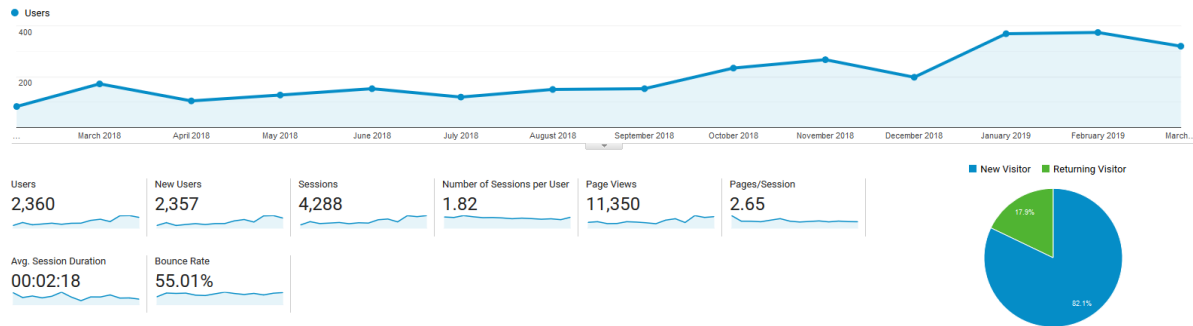


Figure 10: Website visitors from 1st of February 2018 to 28th of March 2019

5. Communication and Dissemination Update

The only modification to D8.3 concerning the conferences will be that Carbon4PUR partners will not attend the ECCE12. Additional conferences and events will be added in collaboration with the partners. Currently, participation at the following conferences is planned:

Table 7: Preliminary list of upcoming conferences, fairs, events

Event	Type and character	Planned involvement
European Coatings Show 19-21 March 2019, Nuernberg	Trade fair for coatings, adhesive, sealants	Megara: exhibitor
PSE Europe (International exhibition for polyurethane solutions) 26-28 March 2019, Munich	Exhibition	COV: exhibitor
Frontiers in Polymer Science 5-8 May 2019, Budapest	Conference	COV: presentation
CO₂ reuse symposium of the EnOp project 7 May 2019, Geleen	Project Symposium	COV: presentation
26th North American Catalysis Society Meeting 23-28 June 2019, Chicago, IL, USA	Conference, industry and academia	UGent
METEC Trade fair 25-29 June 2019, Düsseldorf	Metallurgical Trade Fair with Congresses	AMMR
14th European Congress on Catalysis – EuropaCat 18-23 August 2019, Aachen	Scientific conference, catalysis community	DEC, UGent: Organisers COV: presentation
K., 16-19 October 2019, Düsseldorf	Intern. trade fair for the plastics and rubber industry	COV: exhibitor
17th International Conference on Carbon Dioxide Utilization 23-27 June 2019, Aachen	Conference, predomin. academic	DEC: Organiser TUB, COV: presentation
Tackling the Carbon Dioxide Challenge for a Sustainable Future	Gordon Research Conference on CCU	TUB

Table 7 - continued: Preliminary list of upcoming conferences, fairs, events

Event	Type and character	Planned involvement
ISIE2019, 10th international conference on industrial ecology 7-11 July 2019, Beijing	biennial conference	UL
SETAC Europe 29th annual meeting, 26-30 May 2019, Helsinki	annual meeting	UL
European Roundtable for Sustainable Consumption and Production 2019	Conference	TUB
18th International Conference on Carbon Dioxide Utilization, 2020	Conference, industry and academia	TUB
GHGT 2020	Conference, industry and academia	TUB
ICCDU 2020	Conference on carbon utilisation	TUB
AIChE 2020		TUB, UGent

6. Conclusion

With regard to the dissemination and communication plan D8.3, Carbon4PUR is on track with the initial strategy to raise awareness, promote results and engage with stakeholders.

At the date of publication of this report, all dissemination activities of the initial and mid stage from Figure 1 have been achieved. The e-brochure has been replaced with a digital version of the flyer and the project video.

The events and online presence also allowed us to create a community of subscribers and followers that can be tapped into for the main results that are due in the second project phase.

The dissemination activities for the second half of the project are also on track, and the workflows allow for a smooth process for upcoming publications.