



After LIFE GREEN PLASMA communication report.

1. Which actions will have to be carried out or continued after the end of the project?

Introduction

Due to the dissemination activities the understanding of the atmospheric plasma is spread over Europe and the raised interest of the Industrial Community and the European general public will be kept alive.

The envisioned actions to assure a long-term sustainability of “Green Plasma” deliverables can be summarized as follows:

The continuation of the dissemination activities (2017-2020)

- Visit Exhibitions all over Europe (with focus on technology hotspots (Dresden, Cambridge, Milan, Eindhoven, others).
- Create interest at business partners for use of green plasma for their specific flexible electronic product development programs.

The step-up to large-scale manufacturing (start 2018)

- *Start engineering and construction* of large scale manufacturing process facility. The established pilot line with full web width performance and the customer requirements lead to engineering of full manufacturing process systems.

The expansion of the business potential for a 10x multiplication (2019-2025)

- A high multiplication factor is foreseen (the indirect output multiplies the direct output with a factor 10), requiring the establishment of business development, sales and distribution teams to explore the replication opportunities of the project results.

2. The technical (piloting & prototyping) activities

Environmental care.

The green technology starting point, as one of the unique selling points that could be used by customers to promote their products, will be fully explored.

Life cycle analyses, re-usable chemistry, use of recycled materials, qualification of suppliers, are topics that will be further strengthened to be able to communicate the sustainability of our technology as a guiding principle for all activities.

Fujifilm’s Plasma competence center in Europe will intensify its research in the field of atmospheric plasma-enhanced dry deposition technology for further commercial product development.

Process cost down.

Process improvements are the second priority, in terms of line speed up, web width up, multi-station process system introduction, all done to increase process capacity and process robustness.

Economy of scale will be the first priority, required in a market that will be characterized by price erosion and competition from low cost countries.

Development of new functional foil applications.

Expansion of the thin layer recipes and functions, to take over step by step the market from vacuum plasma deposition. This includes fundamental research, required to fully explore the options which the novel atmospheric plasma deposition technology can materialize.

Establish business development, sales and distribution teams at both companies to open the market for the products piloted by Green Plasma and explore the replication opportunities of the project results.

3. Resources required and stakeholders involved

Fujifilm

Fujifilm's plasma competence center will be actively involved. The scaling up of manufacturing capacity requires the knowhow that is gained by Green Plasma.

Fraunhofer IST

Fraunhofer will involve their R&D center's and actively contact within their network novel interested parties. Fraunhofer will be involved in novel product development tracks, especially exploring their advanced analytical tools.

Fujifilm's Innovation Hub Europe, the Green Plasma website.

Involvement of the general public in Europe by Announcements, product launches, is required because the valorization and dissemination of the novel environmental friendly technology platforms depends to a large extent on the acceptance of the piloted products by the general public in the European market place.

Industrial Community in Europe

Involvement will be realized through the participation in Exhibitions and Conferences, the extension of professional websites, the eye-to-eye contacts with "captains of industry" and with management of SME companies in Europe in the field of flexible electronics that could profit from the use of E-protective foils.

For this commercial dissemination the already applied commercial approaches will be used.

Scientific society in Europe

The technology platforms that are the starting point for the piloting activities described in this project will be further developed, because of their environmental relevance in combination with their economic potential for the European industrial Community.

4. Active dissemination of the results and lessons resulting from "PLASMA for LIFE"

The environmental data gathered by "Green Plasma" will be used to convince new stakeholders required for further dissemination of the technology of the unique performance of these novel prototyped products and processes.

The prototyped processes and products will be the starting point for a further up-scaling towards commercial manufacturing, as required for the full dissemination of the environmental advantages.

The skills and experience of the involved project team are an absolute MUST HAVE for the next further manufacturing up scaling and for the preparation of the introduction and the expansion of the novel environmental friendly manufactured products in the European market.

The created collaboration network is required to continue with the “Green Plasma” project ambition in the next era.

The website, fact sheets and all other dissemination tools will be further explored and extended for the further communication to the European public. This is absolutely a key factor to realize the economic targets envisioned.

Long term strategy

The “Green Plasma” project has been an important cornerstone of a long-term strategy *for exploration of all options that the atmospheric plasma technology can provide for the shift of Europe’s environment and economy towards sustainable and low carbon economy.*

To summarize the midterm communication activities, see the next table.

After Life Communication Plan		
DISSEMINATION TO THE INDUSTRIAL COMMUNITY		
Dissemination activities	Target audience	Relevance
Hannover Fair / Surface technology	Industrial Community EU	Create interest in novel encapsulation products
Flextech Exhibition, Fair, Congress(USA)	Industrial Community EU / USA	Create interest, team-up, network expansion
LOPEC Exhibition, trade show (EU)	Industrial & scientific Society EU (& USA)	Network in Europe
Flextec & printed electronics (2017)	Industrial Community (USA)	Global interest, main players present
Printed Electronics USA (IDTech)	Industrial & Scientific Society EU/USA/ASIA)	Global interest, main players present
FEDE Exhibition (flexible substrates)	Industrial & scientific sr management EU	Network in Europe
Asia-Pacific International Conference	Industrial & Scientific Society ASIA	Understand our competitive position (globally)
EU PVSEC	Industrial Community EU/USA/ASIA	Networking, mainly EU
IEEE PVSEC	Industrial Community EU/USA/ASIA	Creation of interest among potential business partners
DISSEMINATION TO THE GENERAL PUBLIC		
Dissemination activities	Target audience	Relevance
Press Releases (mayor countries, however, mostly NETH, UK, GER).	General public	Create interest in autonomous electronic devices, create awareness.
Magazines, popular (electronic world)	General public	Inform public about unique properties, create awareness.
Journals with focus on sustainable growth (GREEN-TECH)	General public	Create interest in sustainable technology
Dedicated website	General public in wide sense	Create wide understanding of actions to realise a sustainable economy and society. Show bio-mimetic solar cell as demonstrator for this successful approach.
Tour through Labs of Beneficiaries (2x)	High school /University students	Create interest in career in (environmental oriented) science.
DISSEMINATION TO THE SCIENTIFIC COMMUNITY		
Dissemination activities	Target audience	Relevance
NNV Symposium, Lunteren (NETH)	Young scientists (PhD's)	Networking & creation of interest in sustainable technology.
Escampig conference	European scientific society	Disseminate through scientific communication channels
PSE, Garmisch Partenkirchen (GER)	Scientific Community	Disseminate through scientific communication channels
Hakone XV conference, Annual (EU)	European scientific community	Plasma physicist
Congress American Vacuum Society, annual (San Francisco)	USA /EU scientific and industrial scientists	Find partners for expansion of technology (realise replication)
AK-ADP (Weimar, others)	Academic & Industrial scientists	Disseminate through scientific communication channels
Welt PP (Annual, may)	Plasma chemists	Disseminate through scientific communication channels
FOM networking days, Veldhoven, annual	Young scientists	Networking & creation of interest in sustainable technology, new employees
Nature	General scientists with wider interest.	Disseminate, create interest among wide public, act as trigger for TV broadcasting
Science	Scientist, wide interest	Disseminate, creation of wider interest, infect other scientific area's (transfer to other science fields)
Plasma polymers and surfaces		Plasma & chemical scientists
European Physical Journal		Plasma & chemical scientists
NETWORKING		
Organise visits to Plasma competence center Fujifilm (10x)	Industrial stakeholders	Multiplication (10x) environmental effects by future business cooperations.
Participate in plasma workshops	Industrial and academic engineers	Transfer knowledge about to stakeholders, capable to explore
Round table discussions, dialogue, face-to-face conversations (10x)	Industrial stakeholders	Multiply the environmental effects by future joint developments (licensing out plasma / integrate solar cell in electronic devices)
Demonstrations of technology platforms in Tilburg and Newport (5x)	Industry / Academy / Public /Government	Inform stakeholders about the presence of these solutions (for economy / environment), create commitment and support dissemination ambitions

