PLAST2bCLEANED

PLAST2bCLEANED is an H2020 research and innovation project aiming at developing a human and environmentally safe recycling process for Waste Electrical and Electronic Equipment plastics in a technically feasible and economically viable manner.

PLAST2BCLEANED: 1 year of research

PLAST2bCLEANED celebrated its first anniversary of research with an online meeting.

For two days, June 23 and 24, the PLAST2bCLEANED consortium partners were reunited in an online meeting to discuss about the achievements to date and the next foreseen actions.

Gaiker, company responsible for the **preprocess**: **sensing and sorting**, presented, among other points, the analytical equipment they are using in the laboratory, already set up and calibrated: the RAMAN spectrometers.

TNO and Fraunhofer ICT, as leaders for the **Process development**: **dissolution and recovery** and the **Process System integration,** respectively, explained that they have already defined the reference samples; they have established the experimental procedure and recovered products (Acrylonitrile butadiene styrene (ABS), High Impact Polystyrene (HIPS), antimony trioxide and bromine flame retardants). Scaleup is expected soon.

Coolrec, as leaders of the tasks related to **performance testing of process and products**, explained that they have implemented the PRE-1000-1 procedure to assess the removal efficiency of the dissolution process. The method includes a sampling protocol, an X-ray fluorescence testing, and a chemical analysis for a quick quantification of the substances of concern. The target for polymer upgrade has been defined as well as the quality assessment testing procedure.

Regarding the **environmental and economic assessment**, carried out by TNO and Fraunhofer ICT, a first screening life cycle assessment and a screening life cycle costing were performed, and the first results are expected by the end of November.

Sustainable Innovations was in charge of presenting the advancement in terms of the Key Performing Indicators established at the beginning of the project for **dissemination.** They organized a workshop to explore the possible **exploitation** routes and target markets.

Finally, TNO presented the updates regarding the **management and coordination** of the project and the status of the ethics requirements.

Juchheim, ICL Group, Electrolux, and Elix Polymers also participated actively in the discussions as consortium partners. For its part, Campine was involved in the discussions about the requirements on the **antimony trioxide recuperation** and submitted successfully the report on the **limitations, barriers, and standards** for polymer recycling.

Interview with Alessandro Mazzon, Project Financing Manager, and Marco Garilli (in the picture), Innovation Expert at Electrolux, and responsible for the PLAST2bCLEANED formulation for an end-user application.

Q: How is Electrolux participating in the PLAST2bCLEANED project?

A: Electrolux is the **sustainability** leader in the appliance industry and this leadership must be constantly strengthened through innovative solutions that go beyond consolidated practices and developments. The use of recycled plastics from **Waste Electrical and Electronic Equipment** (WEEE), which today is limited due to the presence of harmful substances, represents a challenging opportunity to make the company's business completely circular.

PLAST2bCLEANED project allows Electrolux to investigate this topic and to validate the applicability of developing solutions as **industrial end-user.** For these reasons, in the project, Electrolux is not only committed to proposing possible applications of **recycled materials** in the white goods sector but also aims to share its experience in plastics and related industrial processes, to get **prototype** appliances that, in some components, will adopt the recycled plastics obtained by PLAST2bCLEANED **recovering process.**

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TNO PRESENTS PLAST2BCLEANED AT PLASTICS CONGRESS S3

Esther Zondervan-van den Beuken, Program Manager Circular Plastics at TNO, presented the PLAST2bCLEANED project as part of the Plastics Congress S3.

Last October 8, Esther Zondervan-van den Beuken, Program Manager Circular Plastics at TNO presented the PLAST2bCLEANED project as part of the Plastics Congress S3.

During the presentation, Esther showcased the project scope, impacts, consortium, and progress to date.

2020 edition of the Plastics Congress S3 was hold online devoted to the field of the eco-plasturgy and aiming at showcasing the technology and business opportunities developed globally in terms of eco-design, biopolymers and recycling.

Interview with Maria Romeu, Environmental Technician, and Toni Prunera, Head of Business Development, and R&D at ELIX POLYMERS.

Q: What are ELIX's main responsibilities within the project?

A (Maria): ELIX Polymers, a member of Sinochem International, is a leading manufacturer of Acrylonitrile-Butadiene-Styrene (ABS) resins and derivatives in Europe.

Operating from our head office in Tarragona, Spain, and with sales support teams in all key markets, our company is a specialist provider of **tailor-made solutions for high quality thermoplastics applications.** With a 40-year track record, ELIX Polymers is an expert in ABS polymers, and it has the resources, the expertise and the experience to create value for its customers through highly individual solutions.

(Toni): **ELIX is the only ABS manufacturer that this initiative incorporates**, thereby allowing us to provide support to various working groups based on our experience and knowledge of one of the main plastics used in electrical and electronics devices.

Likewise, ELIX participates in various phases of the project:

- Quality and main characteristics of the prime materials.
- Establishment of the specifications expected of the material that is obtained during the process of an electrical/electronic waste recycling system.
- Validation of the resulting product (polymer).

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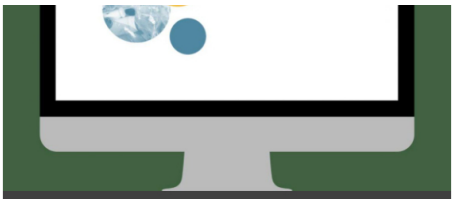

Last October 9, PLAST2bCLEANED held an internal webinar as part of work package 4 Performance testing of process and products, led by Coolrec.

During the session, the PRE-1000-1 method was presented by Patrick de Kort, Regulatory Affairs Manager for Plastics Recyclers Europe and author of the method and was later discussed among partners.

This method represents a quick scan to assess and quantify the presence of substances of concern (SoC) in a recycled plastic. It is a considerable step forward to close the regulatory gaps mentioned in the project literature about limitations, barriers, and standards for using recycled polymers.

Interview with Lein Tange, Sustainability Director at ICL Group.

How does the specification of the bromine and antimony fractions work?

At our facilities of ICL in Terneuzen (The Netherlands), we can receive only liquid streams due to the type of burner. These bromine containing streams will be processed in the bromine recovery unit.

As specification, it is important that the amount of metals is limited as finally the metals are passing a wastewater treatment and the metals are ending up in the sludge.

Therefore, we separate the Antimony Trioxide (ATO) during the process in such a way that the final residue does not contain more than a certain amount of ATO.

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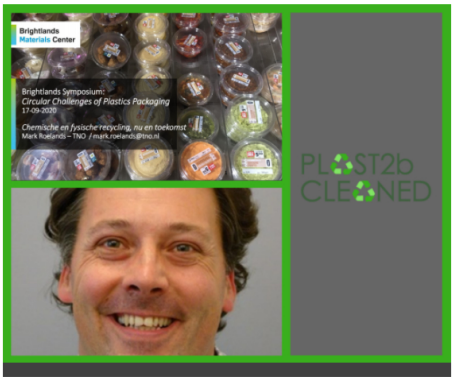
TNO PRESENTS PLAST2BCLEANED AT EMPACK



EMPACK, the largest trade fair in the Benelux in the field of packaging technology, hosted in September 17 a presentation where the PLAST2bCLEANED technology was explained.

Mark Roelands, Senior Scientist for Process technology at TNO, showcased the Circular Challenges of Plastics Packaging, where he described sorting and mechanical recycling of plastic waste streams, chemical depolymerization, thermal-chemical processes such as pyrolysis and gasification or physical recycling, among others.

RELATED PROJECTS

DISCOVER

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