Name of the association:	**PU Europe**
Address:	**Av. Emile van Nieuwenhuyse 6, B-1160 Brussels (Belgium)**
Transparency Registry ID Number:	**27993486325-38**

Reaction of PU Europe[1]

to the

Green Paper on a European Strategy on Plastic Waste in the Environment (COM(2013) 123 final)

PU Europe has taken note of the Green Paper and wished to reply to the questions as follows:

(1) Can plastic be appropriately dealt with in the existing legislative framework for waste management or does the existing legislation need to be adapted?

- As far as plastic construction product waste is concerned, the existing legislative framework is sufficient. The measures proposed by PU Europe, as explained under question (2), concern all types of demolition waste including plastic, biological origin and mineral. It would not make sense to introduce specific rules for plastic construction product waste, as a holistic approach for construction and demolition (C&D) waste is needed covering all types of waste.
- It should be noted that the environmental life cycle performance of PU thermal insulation products is similar to that of alternative (non-plastic) insulation products. In certain applications such as flat roofs and sandwich panels it can be significantly better even if it is assumed that the product is not recycled at the end of its life, but sent to waste-to-energy plants.
- Land-filling plastic waste is the least favourable solution. This is also clearly stated in the Waste Framework Directive (WFD) with its waste hierarchy and the 70% re-use / recycling / recovery target for construction waste. As a minimum, legislation should therefore promote waste-to-energy treatment for all organic wastes from C&D (plastics, wood, etc.) to limit valuable energy resources losses in landfill.
- A first step in that sense was taken with Directive 2012/27/EU on Energy Efficiency. Its annex VIII looks at options to develop high-efficiency cogeneration. “Waste incineration plants and other waste-to-energy plants … connected to the local district heating or cooling network” are clearly listed as part of the solution.

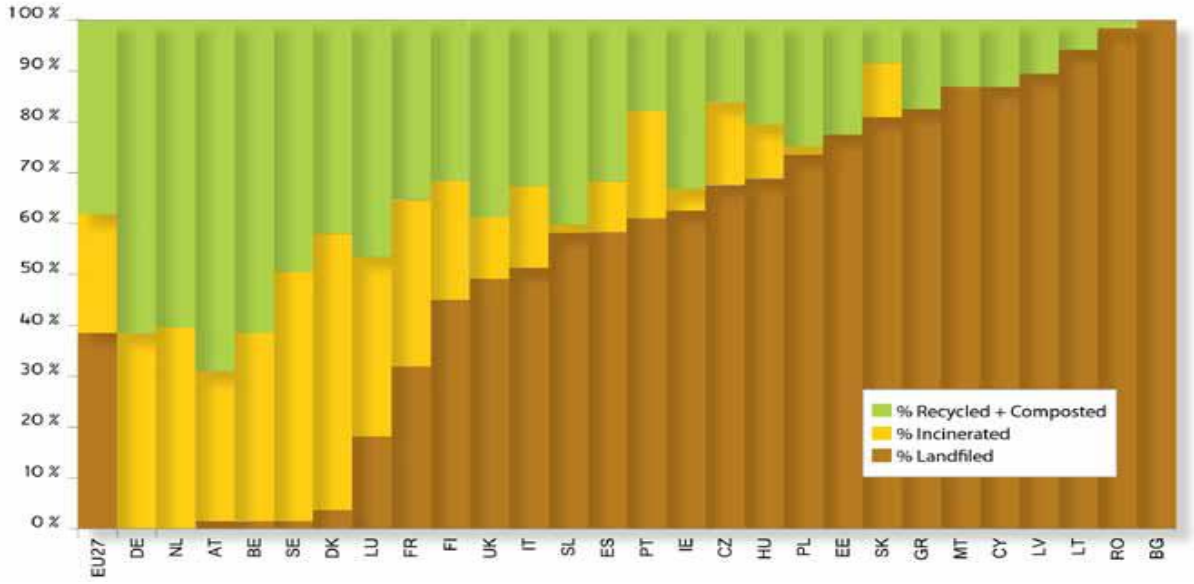
(2) How can measures to promote greater recycling of plastic best be designed so as to ensure positive impacts for enhanced competitiveness and growth?

- Increasing raw material prices and the wide publication of life cycle data of products put a permanent pressure on producers to develop recycling / recovery solutions.

[1] PU Europe represents the European polyurethane insulation industry. Polyurethane (PUR/PIR) is the high performance insulant used in a wide range of building and technical applications to comply with the most stringent efficiency requirements.

FEDERATION OF EUROPEAN RIGID POLYURETHANE FOAM ASSOCIATIONS
Av. E. Van Nieuwenhuyse 6 • B-1160 Brussels
T +32 2 676 73 52 • F +32 2 676 74 79 • TVA BE 0870 426 629
www.pu-europe.eu • secretariat@pu-europe.eu

- As for PU waste, solutions exist for production and construction waste, as the product composition is known and there is no external contamination. Collecting small quantities of cut-off waste from construction sites for recycling is not always logistically feasible, though schemes for larger sites can be made to work and some are already in operation. The environmental balance of transporting cut-offs from small sites to recycling plants may not be favourable.
- PU products from end-of-life buildings (building components) may enter the waste stream 50 years later. It is difficult to anticipate the regulatory environment, possible contaminations of the product, cost of raw materials / recycling and market structures over such a long period of time, but if adequate separation were possible, current technologies such as WTE (waste to energy) could be feasibly employed.
- Experience shows that countries with very low landfill rates combine high waste-to-energy capacity with high recycling rates (see graph below).



Municipal waste treatment *(Source: CEWEP)*

- The following measures should be envisaged:
  - Clear distinction between packaging waste with a use period of sometimes just a few hours and plastic construction products with a life time of several decades.
  - Requiring waste segregation on demolition sites with a view to separating mineral from organic (natural, plastic) waste factions. This is a prerequisite to avoiding land-filling of plastic waste.
  - Committing Member States to putting adequate waste-to-energy capacities in place so that plastic and other organic waste can be incinerated if re-use / recycling / recovery is not possible or causing a higher environmental burden due to logistics, pre-treatment, cleaning etc.
  - Modifying the WFD so that energy recovery is included in the 70% target for C&D waste.

(3) Would full and effective implementation of the waste treatment requirements in the existing landfill legislation reduce sufficiently current landfilling of plastic waste?

- The limit on total organic carbon (TOC) should drastically reduce the landfilling of plastics or other organic wastes such as wood. Better enforcement is required combined with the establishment of alternative waste treatment facilities.
- If adequate and effective separation techniques can be employed for organic (including plastic) waste, WTE and/or recycling should be possible on the organic portion. As this is generally lower

density than the mineral-based fraction, it could significantly reduce land-fill volume requirements, though would have a relatively minor impact on weight.

(4) What measures would be appropriate and effective to promote plastic re-use and recovery over landfilling? Would a landfill ban for plastic be a proportionate solution or would an increase of landfill taxes and the introduction of diversion targets be sufficient?

- As a starting point, construction and demolition waste should be segregated to separate the organic (plastics, wood, etc.) from the inorganic fraction. Mixed wastes are difficult to treat.
- Each country should provide sufficient waste-to-energy capacity. Ideally, incinerators should be based on CHP technology to further increase energy savings. As soon as this capacity is in place in a given country, a landfill ban for organic waste, including plastics, could be introduced.
- If public pressure prevents installation of incineration capacity, cross border regulation on waste transport should be eased to allow export/import of construction/demolition organic waste for incineration, and separation plants encouraged in those countries with inadequate incineration capacity.
- A landfill ban or too high landfill taxes without putting in place the appropriate waste treatment infrastructure might lead to more illegal landfill causing more environmental harm.

(5) What further measures might be appropriate to move plastic waste recovery higher up the waste hierarchy thereby decreasing energy recovery in favour of mechanical recycling? Would a tax for energy recovery be a useful measure?

- As long as energy recovery replaces the use of fossil fuels for energy generation, a tax for energy recovery would be counterproductive.
- As outlined above, recycling may be impossible for decades-old PU waste for a number of reasons (low quantities, unstable waste streams, distances, recycling infrastructure, contamination etc.). In those cases, energy recovery is by far the preferable option both economically and, in some cases, also environmentally.

(6) Should separate door step collection of all plastic waste combined with pay-as-you-throw schemes for residual waste be promoted in Europe, or even be made mandatory?

- Such a requirement could only apply to packaging waste as most Member States have put in place specific rules for construction and demolition waste.

Targets and exports of plastic waste

(7) Are specific plastic waste recycling targets necessary in order to increase plastic waste recycling? What other type of measures could be introduced?

- Again, for the reasons outlined above, no specific recycling target should be introduced for C&D plastic waste. These waste streams are covered by the 70% target fixed in the Waste Framework Directive for 2020 and enabling Member States to develop a holistic approach towards C&D waste.
- Problems regarding the treatment of C&D waste are not material-specific. They depend on the way products
  - are specified by the architect (for example regarding the dimensions of insulation boards to fit a specific building design);
  - are installed by contractors (including re-use of off-cuts);
  - are recovered from the building at the end of their life (waste segregation).

- A simple target would ignore the complexity of the supply chain. Before launching a discussion on target setting, the measures outlined in our response to question 2 should be implemented across the EU.
- Targets at EU level would be difficult to implement as construction techniques and materials differ significantly between Member States. Some countries, relying more on plastic solutions and / or having higher population density, could achieve the right level of economies of scale more easily than others.

(8) Is it necessary to introduce measures to avoid substandard recycling or dumping of recyclable plastic waste exported to third countries?

- Generally, the issue of exports of plastic waste to non-EU needs to be separated from the issue of intra-community trading.
- As to the former, existing waste shipment regulations need to be enforced to counter illegal waste shipment and treatment. Article 12 of the Waste Shipment Regulation already sets rules to avoid exports for substandard recycling or dumping and to assure that recycling and energy recovery activities in third countries take place under equivalent conditions as in Europe.
- Waste PU insulation products are unlikely to be shipped to third countries due to high transport costs and an unfavourable mass-volume relation.

Voluntary Action

(9) Would further voluntary action, in particular by producers and retailers, be a suitable and effective instrument for achieving better resource use in the life cycle of plastic products?

- Voluntary action can provide a significant added value, as they can take account of local conditions and specific material- or application-related constraints. Legislation can generally not go to that level of detail.
- It would be desirable that public authorities monitor the implementation of such action.
- As a matter of example, the UK government and insulation foam industry have developed a Resource Efficiency Action Plan[2] with detailed recommendations regarding waste foam, including PU insulation products. These include the encouragement of research into new end-of-life solutions, reducing waste through design and site practices and improving cooperation with demolition contractors.
- Depending on the economics (quantities, distances), an increasing number of PU insulation producers provide guidance, advice and tailored solutions for construction waste from large building sites.

Giving plastic a value

(10) Is there scope to develop deposit and return or lease systems for specific categories of plastic products? If so, how could negative impacts on competition be avoided?

- Due to their very long life spans of several decades, such a requirement could not apply to plastic construction products.

[2] Resource Efficiency Partnership: Building Insulation Foam Resource Efficiency Action Plan (2012)

Empowering consumers to know what they buy

(11) What type of information would you consider necessary to empower consumers to make a direct contribution to resource efficiency when choosing a plastic product?

- Simple information on recyclability etc. does not provide any useful information on the product's environmental footprint, as the latter will also depend on the burdens stemming from waste collection, transport and recycling activities and, even more so, on the benefits during its use phase. Plastics are generally light-weight and durable and therefore resource efficient.
- The label would not provide any information as to whether the product would actually be recycled or, at least, whether there is sufficient recycling capacity in place to treat the product. For example, today's PU insulation products are recyclable. However, for the reasons outlined above, we cannot guarantee that they will actually be recycled when they enter the waste stream in several decades from now.
- Limiting such information requirements to plastic products would be pointless, as the consumer should be able to compare the impact of plastic products with possible alternatives.
- Providing information on resource efficiency can be a useful tool as long as it is based on a life cycle assessment (LCA) and other materials provide similar information so that consumers can make informed choices. The Commission's Product Environmental Footprint could provide the methodology for consumer products. On the downside, an LCA leads to multi-criteria results which cannot be summarised in one single indicator. Hence, consumers may find it difficult to choose between lowest water use, embodied energy or acidification potential.
- As regards construction products, a series of standards was developed following a Commission mandate. They enable resource efficiency calculations of buildings based on Environmental Product Declarations (EPD) for construction products. Very clearly, EPDs are no consumer labels, but provide the product data. These must be combined with building design solutions and use scenarios to establish the overall building performance.
- As all construction products (plastic, mineral, natural) apply the same methodology, sound comparisons of their performance are possible in their end-use application (building / component).

Plastic design for easy and economic cradle-to-cradle recycling

(12) Which changes to the chemical design of plastics could improve their recyclability?

- Generally, products and processes should be encouraged to be designed in a way that allows for recycling.
- It must be distinguished between substances that are added for design reasons and those that guarantee a specific technical characteristic required for a given application.
- In the case of PU insulation, all additives used today contribute to essential product performance characteristics. According to current legal rules, none of them prevents recycling.
- One of the main problems relating to long-life plastic construction products is contamination during the use phase. The insulation layer may have been in contact will adhesives, rust, bitumen, render etc. which make recycling impossible according to today's technologies. Hence, better separation technologies would help.

(13) How could information on the chemical content of plastics be made available to all actors in the waste recycling chain?

- Again, this issue is not specific to plastic products. Other construction products (wood-based, concrete etc.) are in a similar position.

- Theoretically, such an information requirement could be possible in the case of packaging and short-life products. On the other hand, as waste segregation is probably a mechanical process, such a label would be of little help.
- With PU insulation, most of the constituents are irretrievably altered and bound up during the product formation (polymerisation) phase, so original chemical content is not relevant.
- As regards construction products, the Construction Products Regulation (CPR) requires producers / distributors to keep all product-related information for at least ten years. However, the life span of many plastic construction products, including PU insulation, exceeds 50 years. It seems extremely difficult to keep detailed product information over such a long period of time.
- The exact chemical content of plastic (and indeed all) construction products is very often part of company know-how and therefore confidential.
- The CPR (art. 6.5) already requires that information on the content of certain substances be passed down the supply chain. Additional, plastic-specific, requirements are therefore not justified.

New challenges through innovative materials

(14) How can challenges arising from the use of micro plastics in products or industrial processes and of nano-particles in plastics be best addressed?

- Any work in this area must be firmly based on reliable proven research and development as to the uses and adverse health or environmental effects (if any) of such products.

Product design for a longer life, reuse and repair

(15) Should product design policy tackle planned obsolescence of plastic products and aim at enhancing re-use and modular design in order to minimize plastic waste?

- This question is not relevant for plastic construction products, which usually have a life span of several decades. In the case of PU insulation, the "useful service life" is at least 50 years, but the insulation can also stay in place for a longer period and re-use is possible and practiced in certain cases (sandwich panels, insulation boards). Limiting factors include contamination, technical or optical defaults and the lack of another building nearby where they could be installed.
- The PU industry increasingly offers modular, prefabricated building elements. They significantly reduce construction waste quantities.

(16) Could new rules on eco-design be of help in achieving increased reusability and durability of plastic products?

- As outlined under question (15), this would not make sense for most plastic construction products which already have a very long life span and can be re-used.
- Durability of PU insulation is a major sales argument and therefore integrated in company policies already today.

Single-use and short-lived plastic products

(17) Should market based instruments be introduced in order to more accurately reflect environmental costs from plastic production to final disposal?

- This question is relevant for PU insulation products as they are not short-lived.
- A clear distinction needs to be made between plastic waste and litter.

Biodegradable plastics

(19) What are the applications for which biodegradable plastics deserve to be promoted, what framework conditions should apply?

- There is no easy answer to this question. Before taking decisions, the environmental impacts of different end-of-life scenarios should be determined through LCAs. For example, does biodegradation offer better resource use than energy recovery?
- The answer depends on many aspects and may vary even for the same plastic material.
- Clearly, for insulation products designed to last the lifetime of a building, biodegradation is likely to present a serious problem.

Bio-based plastics

(22) How should bio-based plastics be considered in relation to plastic waste management and resource conservation? Should the use of bio based plastics be promoted?

- The development of bio-based plastics shows the industry's will to decrease dependency on petrol and decrease environmental burdens.
- On the other hand, issues relating to diverting land-use from food production (indirect land use change) and deforestation must be taken seriously. Bio-based plastics should therefore only be promoted when raw material production is not in competition with food / feed production and environmental benefits outweigh additional burdens.
- PU insulation already uses bio-based raw materials, but they will not completely replace petrol-based ingredients in the medium-term. Several EU-sponsored research projects are underway to develop industry-scale processes to use waste biomass for the production of PU ingredients.
- Bio-based plastics are not necessarily more recyclable, as they face similar issues regarding waste collection, logistics, contamination and economies of scale.

International action

(26) How could the EU promote more effectively international action to improve plastic waste management worldwide?

- By promoting recognised good practice techniques operating either across the EU or in Member States.

Brussels, 5th June 2013