

FACTSHEET BIO-BASED STREET FURNITURE

Procurement of Innovative Products: Bio-Based Products in Procurement

Why bio-based street furniture?

What is (bio-based) street furniture?

Street furniture are objects placed or fixed in the street for public use. Examples of street furniture are dust bins, road and street signs and benches. Conventionally, street furniture is made of metal, wood and plastic components. Bio-based street furniture items are also commercially available. Bio-based street furniture can be made of various bio-based raw materials derived from various agricultural products and waste streams. Examples of such bio-based street furniture products are benches made from a bio-plastic based on grass and wood waste and road and street signs made from bio-resins and wood fibres. This factsheet provides information on bio-based street furniture and how to take this into account in procurement.

Why should organisations consider bio-based shuttering in procurement?

Organisations could consider bio-based street furniture in procurement if they would benefit from one or more of the capabilities attributed to the bio-based street furniture. Bio-based street furniture potentially has different capabilities. Aspects to keep in mind are environmental impact over the life cycle of the product (this could be determined through Life Cycle Assessment in accordance with ISO 14040) and the sustainable sourcing of the input material (this could be assessed in accordance with the sustainability criteria for biobased products from EN 16751 in combination with CEN/TR 16957 - Bio-based products - Guidelines for Life Cycle Inventory (LCI) for the End-of-life phase). With this kept in mind, several potential benefits can be attributed to bio-based street furniture¹.

- *Resource efficiency*: For the production of bio-based street furniture, use can be made of agricultural by-products and waste streams. Conventionally, street furniture is produced using plastics, steel and/or wood. In the case of wood use, this is usually wood from forests dedicated to production purposes. This switch in material use could improve resource efficiency and in addition stimulate the market for secondary raw materials and the circular economy in general.

- *Reduced Greenhouse Gas (GHG) Emissions*: The greenhouse gasses emitted during the production of

bio-based plastics have the potential to be lower than their petrochemical equivalent². Reduced greenhouse gas emissions will in turn contribute to combating climate change.

- *Avoidance of GHG Emissions*: By using bio-based products which replace petrochemical products, GHG emissions can also be avoided. Fossil feedstock need to remain in the ground to achieve the limit of a temperature increase less than 2°C³ as is included in the COP 21 agreement and ratified by UN-countries including the EU.

Reduced GHG Emissions

PVC, a hard plastic, is one of the materials which can be used as a shuttering. Bio-based PVC is made from ethylene. Bio-based ethylene production could reduce GHG emissions compared to its petrochemical alternative with approximately 40%. This comparison takes into account CO₂ uptake from the atmosphere, polymer production and incineration but excludes GHG avoidance. Future PVC production could amount to 95% savings. Source: 'Bio-based economy and climate change', Nova Institute, 2017-01.

- *Improved Aesthetics*: Some bio-based products, such as benches and waste bins made from (compressed) waste wood, could have the benefit of more natural aesthetics than products produced from materials such as petrochemically derived plastics and steel. Though this is subjective, such more natural aesthetics in street furniture can be perceived as an improvement compared to conventional street furniture.

- *Stimulating Environmental Awareness*: The use of bio-based street furniture, especially when it looks distinctively different from conventional street furniture, could stimulate environmental awareness. This potential benefit could especially be reaped by providing information in vicinity of the street furniture about the materials used and how this has improved the environmental performance of the product. This would be practical with products such as benches and dust bins.

¹ These benefits can differ between products and should always be confirmed by the supplier.

² Bio-based economy and climate change', Nova Institute, 2017-01

³ McGlade C. and Ekins, P. (2015) 'The geographical distribution of fossil fuels unused when limiting global warming to 2 °C', Nature 157.

How to take into account specific capabilities of street furniture in procurement?

Procedures and purchasing strategies

Procurement within the infrastructure construction materials sector often implies procurement of services or works. However, street furniture is expected to be procured as a specific product. The capabilities of bio-based street furniture in procurement could be described in terms of GHG emissions and resource efficiency.

Example 1. GHG Emissions

The potential capability of reducing GHG emissions would be an important benefit and could therefore be confirmed as part of the procurement criteria.

Minimum Requirement: The carbon footprint of the raw material(s) used for fabrication of the street furniture should be less than the carbon footprint of an appropriate reference raw material.

Additional information: The carbon footprint of the raw material(s)

should be conducted in accordance with ISO 14067 or equivalent. The procurer shall specify the reference raw material. An example of an appropriate reference material could be PVC.

Verification: The tenderer shall provide information on the raw materials used and the carbon footprint results, which shall be reported according to ISO 14067 or equivalent. The comparison with the reference raw material shall be included in the report.

Example 2. Resource Efficiency

If the street furniture is made of organic resources the procurer could request that the organic content of the street furniture is derived from waste streams.

Minimum Requirement: The organic matter content used in the street furniture specified must be derived from the processing and/or reuse of waste.

Additional information: Waste has been defined in Council Directive 2006/12/EC of April 2006 on waste and its Annex

I. Sludge waste has been defined by Commission Decision 2001/118/EC of 16 January 2001.

Verification: Tenderers must provide the detailed composition of the product, the origin of the organic matter and a declaration of compliance with the above requirement. Products holding a relevant label fulfilling the listed criterion will be deemed to comply. Other appropriate means of proof, such as a technical dossier of the manufacturer or a test report of an independent body, will also be accepted.

What bio-based street furniture products are available?

The following databases contain information on the availability of bio-based street furniture, such as benches and road signs:

- The 'CoE BBE' database (the Netherlands) provides information on a bio-based bench. Information about the producer, product characteristics and whether the product is certified is specified.
- An online search resulted in an additional 3 bio-based street furniture product suppliers. Types of bio-based street furniture supplied are road signs, crash guards and outdoor benches and tables.

Points of attention

The following potential barriers and bottle necks have been identified by procurers, policy makers and professionals that work with bio-based products in procurement. The relevance of each of these potential barriers is discussed for the product group 'street furniture':

- **Costs:** The cost of bio-based street furniture seems to still be higher than conventional street furniture. One example was found in which street name signs (order of 50 pieces) cost approximately €600 each. The initial costs are high because a mould needs to be developed. The price could decrease if production takes place on a larger scale and if raw materials can be sourced locally.
- **Level of development:** Products from four producers were found to be available. The level of development is therefore considered new.
- **Availability:** The bio-based street furniture producers identified through the database and online search are based in the Netherlands.
- **Quality of the products:** It is recommended that this is discussed with the supplier and proof of quality is requested

