



Valsts reģionālās attīstības aģentūra



LIFE_PHIPP

LIFE17 ENV/LV/000335

Alternative Recycling of Waste Paper and Hemp
Fibre into Innovative Heat Insulation Materials
with Improved Thermal Conductivity.



Project implementer: SIA Balticfloc

Project co-funded by:



Valsts reģionālās attīstības aģentūra

Planned period of project implementation:

03.09.2018 - 01.09.2021

Budget of the project:

Kopējais: 2,943,225 EUR

Co-funding of the European Union LIFE Programme: 1,761,135 EUR

National co-funding: 480,000 EUR – provided by the Administration of the Latvian Environmental Protection Fund

Co-funding of the project implementer: 702,090 EUR

Environmental problem:

A huge amount of waste paper arising from household waste is buried at landfills or burned, despite the fact that waste paper is recycled relatively well (on average approx. 70% in Europe).

Referring to the European Union Council Directive 1999/31/EC, the objective of EU is to gradually eliminate the amount of waste buried at landfills through efficient waste management and use of waste as production resources.

Within the framework of LIFE_PHIPP project, low class waste paper will be recycled, producing a heat insulation material in combination with the high-value hemp fibre. A pilot production line will be created in Latvia, and it is planned to show environmental benefits and profitability during the production process.



Objectives of the project:

- The main objective of the project is to create an **innovative waste paper - hemp fibre building insulation material in plates** and to show vividly the economic and environmental advantages of production and use of such materials.
- To promote use of waste paper - hemp fibre plates in **insulation of buildings**.
- To reduce burning or burying low class waste paper at landfills.
- **CO2 emissions are reduced significantly** during the production process, compared to production of other heat insulation materials.
- To facilitate **development of circular economy** in regions.



Main activities:

- Development of technical specifications and sketches for creation of pilot production line.
- Creation of recipe, testing and placing on the market of the heat insulation material.
- Registration of patent documentation.
- Introduction of the European market with the production process and the product - technology transfer.
- Informing of the public and industry professionals.
- Certification of heat insulation plates.
- Demo house insulation in Germany, United Kingdom, Finland and Latvia.

Recycling of waste paper:

As a result of the activity of Balticfloc, each year an amount of cellulose fibre is recovered that allows saving a whole forest from cutting. According to statistics, annual paper consumption and, respectively, the amount of waste paper per one resident in Latvia is 78 kg or in total approximately 170,000 tonnes of paper. In comparison, this means that each resident of Latvia annually consumes an amount of paper that is obtained from one tree.



Through recycling of waste paper, energy is saved, forests are preserved, the amount of emissions in the air, water consumption and the overall volume of waste to be buried at landfills is reduced. Paper can be recycled multiple times.

It is calculated that on average almost 4m³ of wood are saved by recycling one tonne of waste paper. That means that 12-14 mature trees are preserved by recycling one tonne of waste paper.

Low class waste paper:



Industrial hemp:

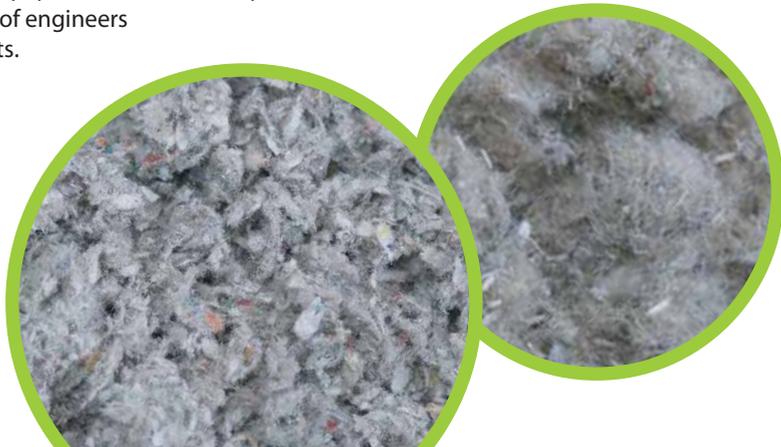
Cultivation of industrial hemp does not require using of fungicides, herbicides and pesticides. Hemp cultivation prevents soil erosion, improves its structure and promotes aeration. It is recognised as an excellent precursor plant for many cultures, as it suppresses perennial weeds and its leaves serve as a great natural soil fertilizer.

Hemp itself and processes of production of hemp products **do not generate CO2 emissions** in nature, at the same time, absorbing CO2 already existing in nature. Hemp fibre and sheaves are great raw materials for construction, and the production process **requires 7-8 times lower energy consumption** than production of equal amount of synthetic fibre.

Industrial hemp as a raw material is widely used in production and it can replace various long-growing and hard obtainable resources. During the production process, this plant can be fully used, without generating any waste. Seeds - confectionery products, oils for salads, cosmetics, food additives, industrial oils. Hemp fibre - laminates, special paper, construction plates, biodegradable geotextile, carpets, furniture fabrics, light fabrics. Hemp wood - litter, heat insulation, fibre plastic plates, plasterboards, lime concrete. Female plant flowers - medical cannabinoids, essential oils, insect repellents. Entire plant - alcohol, fuel, silage.

Results of the project:

- ✓ The planned life cycle duration of the pilot production line is at least 10 years, during which a stable production process will be ensured with daily **produced 250 m3 waste paper - hemp heat insulation materials**.
- ✓ The new, soft heat insulation plates will be designed in a way that ensures **better heat insulation and noise insulation qualities** than other popular heat insulation materials, and easier installation. Other advantages of the product involve air permeability, easy disposal and care for health.
- ✓ **Heat insulation materials in various combinations** will be produced, and also new combinations and mixtures will be developed and tested, thus ensuring presentation materials for various markets and various needs of consumers;
- ✓ The new waste paper – hemp heat insulation material will be **certified and marked with ECO label** to ensure that the product is easy to present and sell on target markets - in Latvia, Great Britain, Germany and Finland.
- ✓ The new heat insulation plates will be integrated into sample objects on all target markets.
- ✓ **Green Procurement Specification** and technical information on the design, installation, use and disposal of the new heat insulation material will be developed for all target markets.
- ✓ The new product and its production process will raise interest in it among at least **50 industry professionals** in Europe, including the potential technology entrepreneurs, manufacturers of paper or hemp insulation materials, managers and processors of paper waste, as well as professional associations of engineers and architects.



Circular economy:





<https://facebook.facebook.com/balticfloc/>



<http://www.balticfloc.lv/lv/life-phipp>

This brochure is issued with financial support of the European Union LIFE Programme and the Administration of the Latvian Environmental Protection Fund of the State Regional Development Agency within the framework of the project **LIFE17ENV/LV/000335** "Alternative Recycling of Waste Paper and Hemp Fibre into Innovative Heat Insulation Materials with Improved Thermal Conductivity".



Valsts reģionālās attīstības aģentūra