



Bio-based polymers workshop

BioMOTIVE Project 29th March 2021



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Funded by the Horizon 2020
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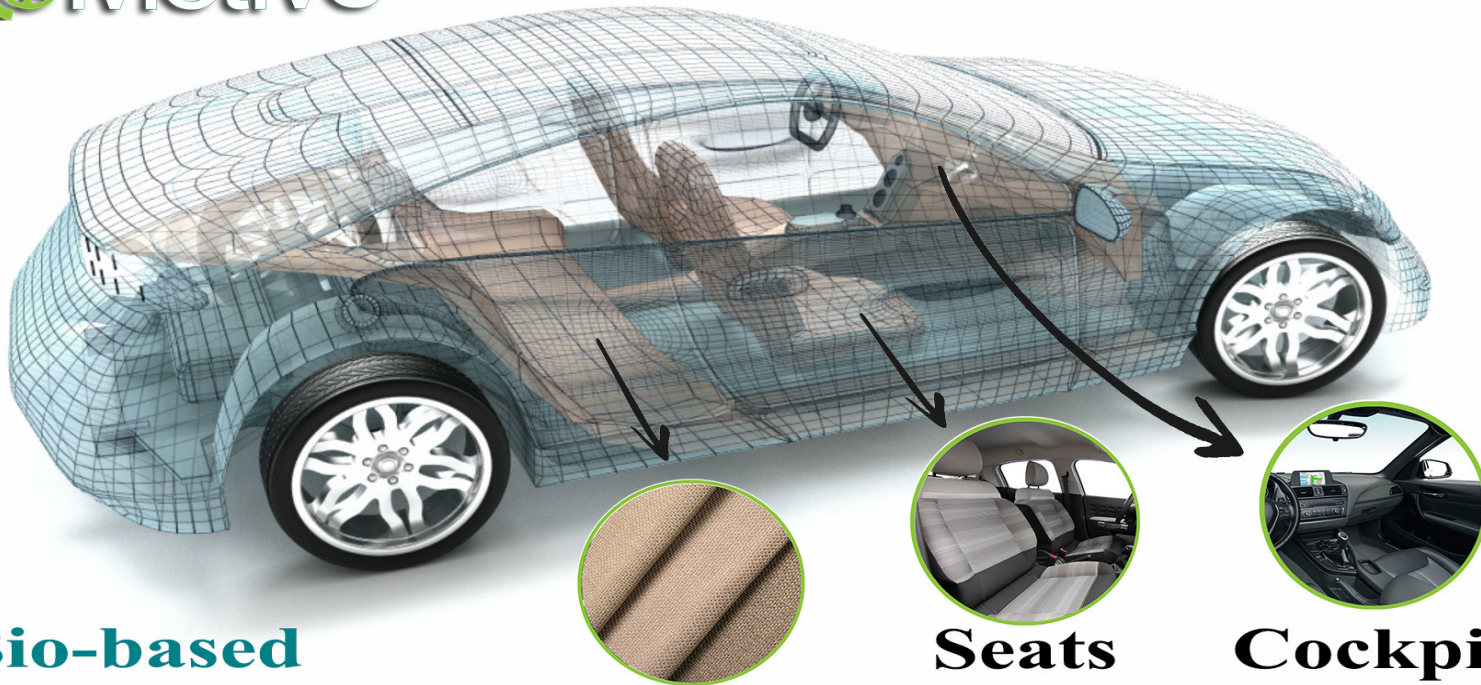
*This project has received funding from the Bio Based Industries Joint Undertaking
under the European Union's Horizon 2020 research and innovation programme under grant agreement No. 745766*



Project's concept



Advanced BIObased polyurethanes and fibres for the autoMOTIVE industry which increased environmental sustainability



Bio-based solutions for :

Textiles

Seats foam

Cockpit components



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- Call for proposal: H2020-BBI-JTI-2016
- Funding scheme: INNOVATION ACTION / DEMO PROJECT
- Grant number: 745766
- Consortium: 16 partners | 8 European countries
- Starting date: 01/06/2017
- Duration: 56 months (till 30/11/2021)
- Number of Work Packages: 9
- Number of Deliverables: 70
- Number of Milestones: 5
- Total eligible costs: 15,186,325.05 €
- Maximum grant: 10,659,352.50 €
- Estimated additional investments: 4,500,000 €



Consortium

SELENA: Production of biobased TPUs and 2k PU foams

MAIER: validation of the developed products into automotive interior plastic parts

METSÄ: Production of regenerated cellulose fibres and wood pulp

NOVAMONT: Production of biobased building blocks and vegetable oils

TITK: Production of regenerated cellulose fibres and wood pulp

ICSO: Development of 100% biobased non isocyanate polyurethane (NIPU)

NADIR: Enginerring of equipments for the production of prepolymers, TUPs and reinforced TPU,

GREENNOVENTION: Dissemination activities targeting targeting Eastern Europe

LEDA POLYMER: exploration of additional market opportunities (e.g. construction)

ISC: Development of catalysts for the synthesis of prepolymers

INTAP: validation of the developed products into the filling foam of automotive seats

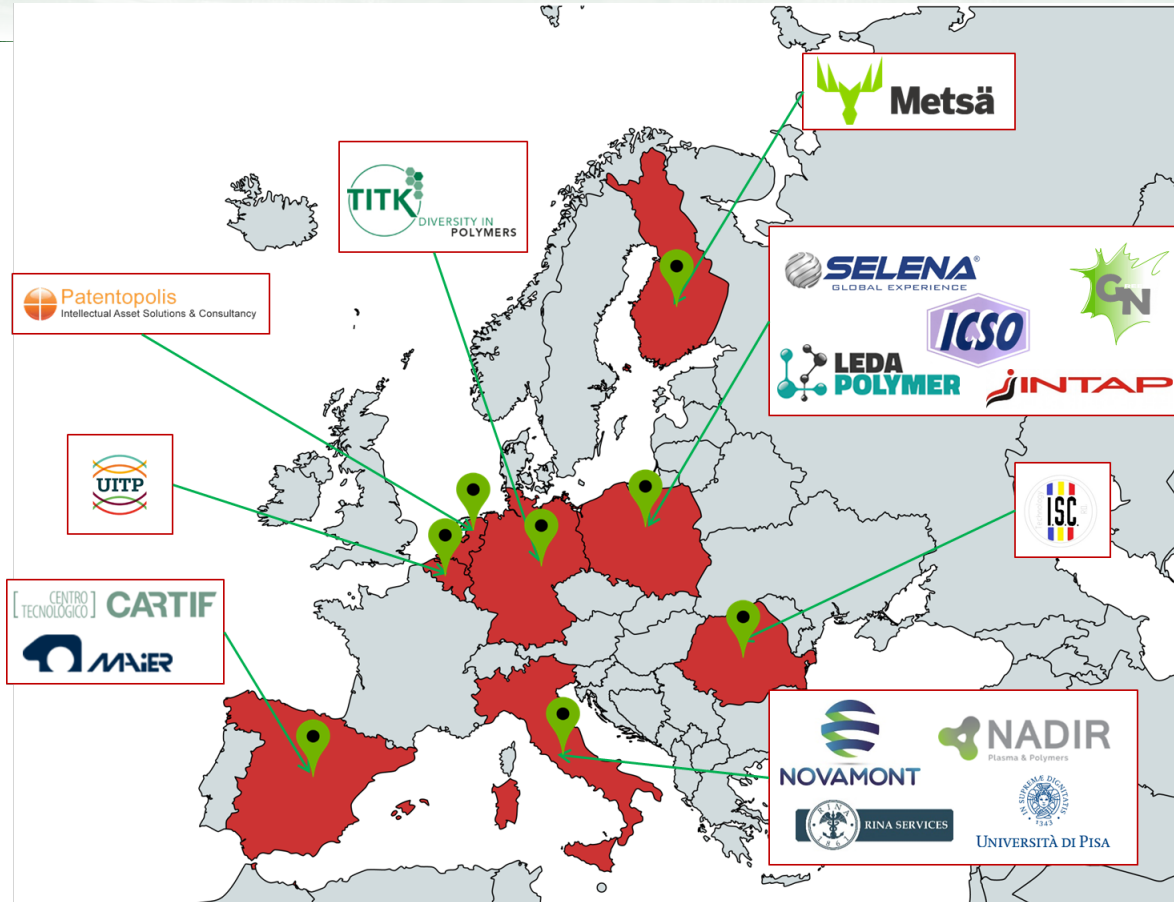
UNIPI: Development of fluorescent molecules for the detection of the viscosity

PATENTOPOLIS: IP management

CARTIF: Evaluation of the sustainability of the processes and the economic and social impacts

UITP: Dissemination activities targeting Public Transport stakeholders

RINA: Definition measures and procedures to be adopted towards the future standardization





Project's general goals

The **BIOMOTIVE** project aims at **demonstrating** in relevant industrial environment the production of innovative and advanced **biobased materials** consisting of thermoplastic **polyurethanes, 2-components (2k) thermoset polyurethane foams and regenerated fibres.**



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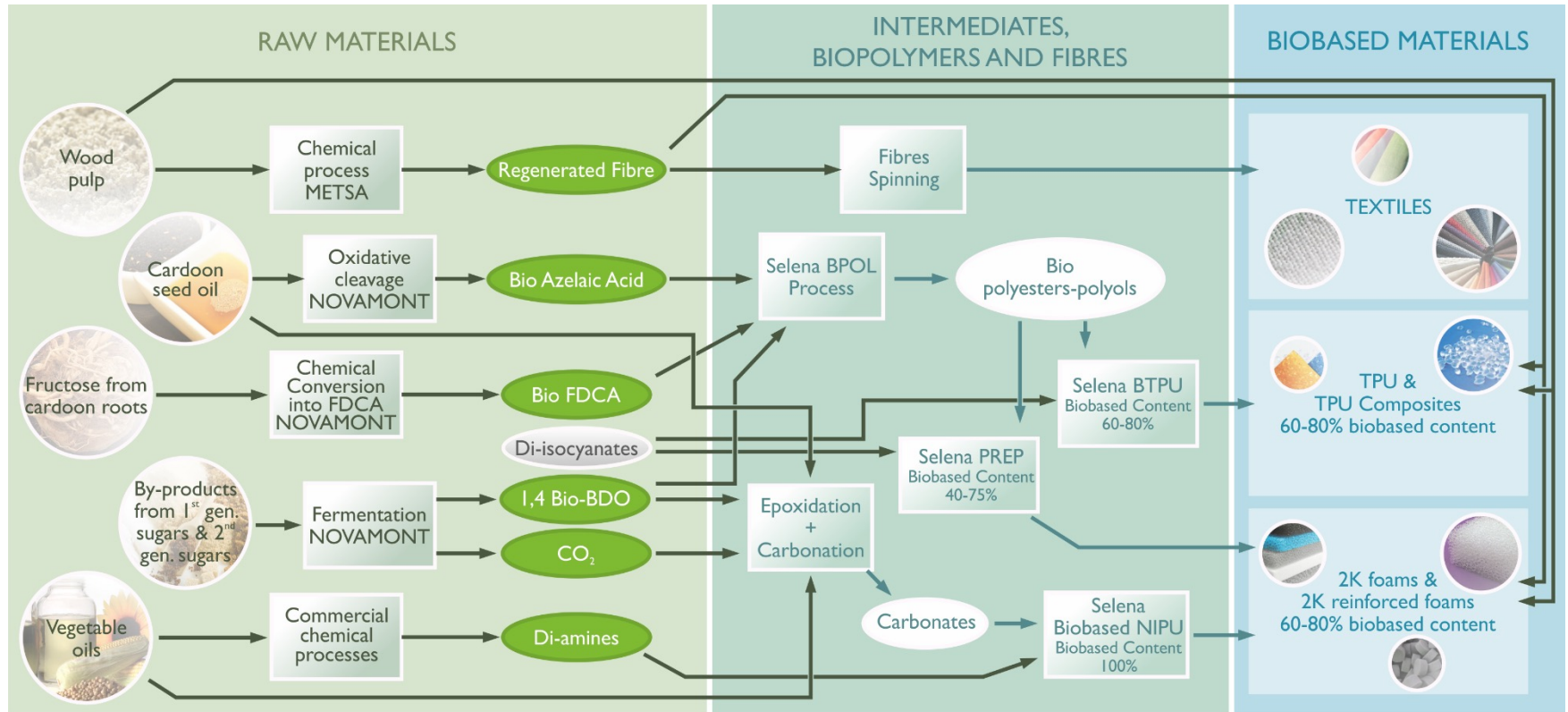
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The project will **cover the entire value chain**, from the biobased raw materials production up to the biobased polymers **application into specific interior parts of the vehicle, involving all the key actors along the value chain**: biobased building block producers, fibres producers, process developers, polymers producers, final application developers.

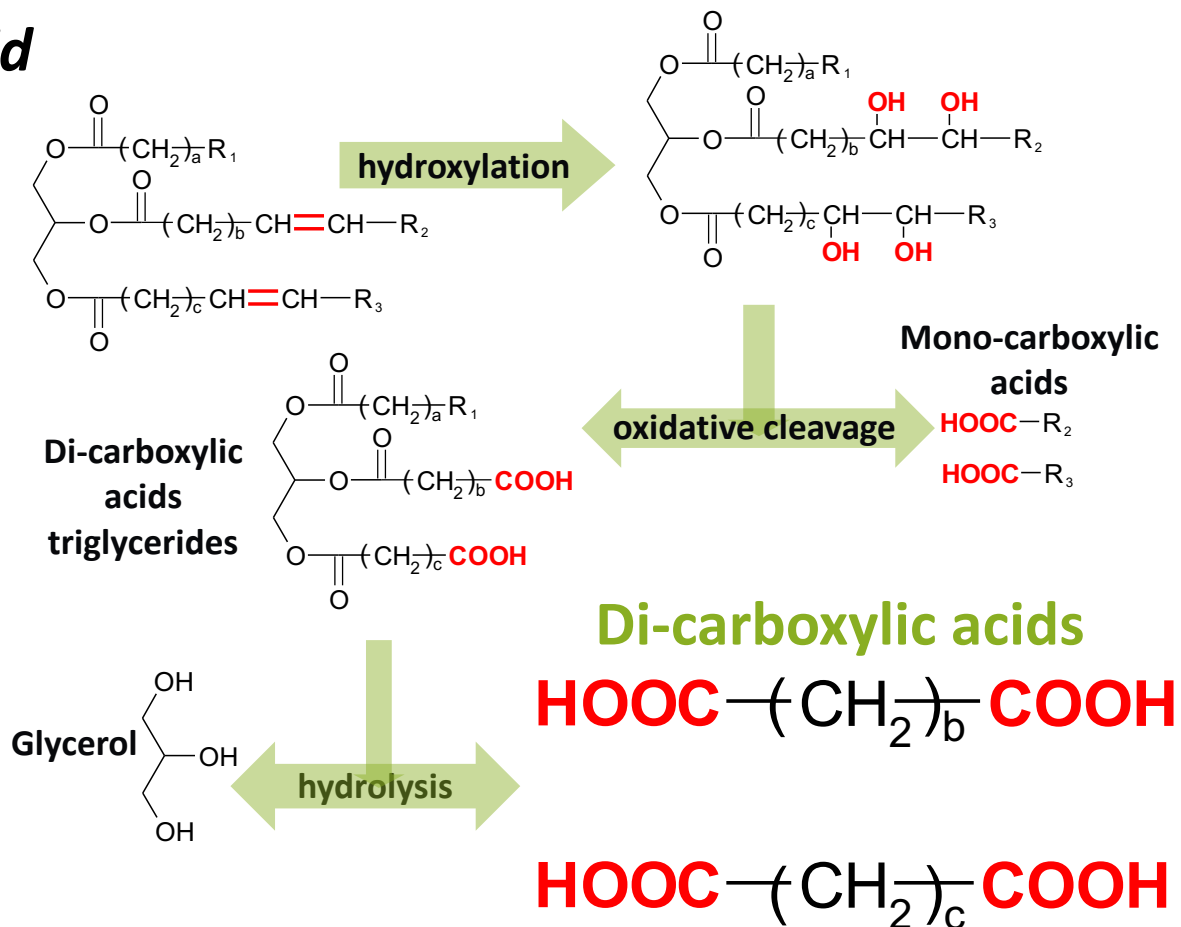
From raw materials...

Through intermediates...

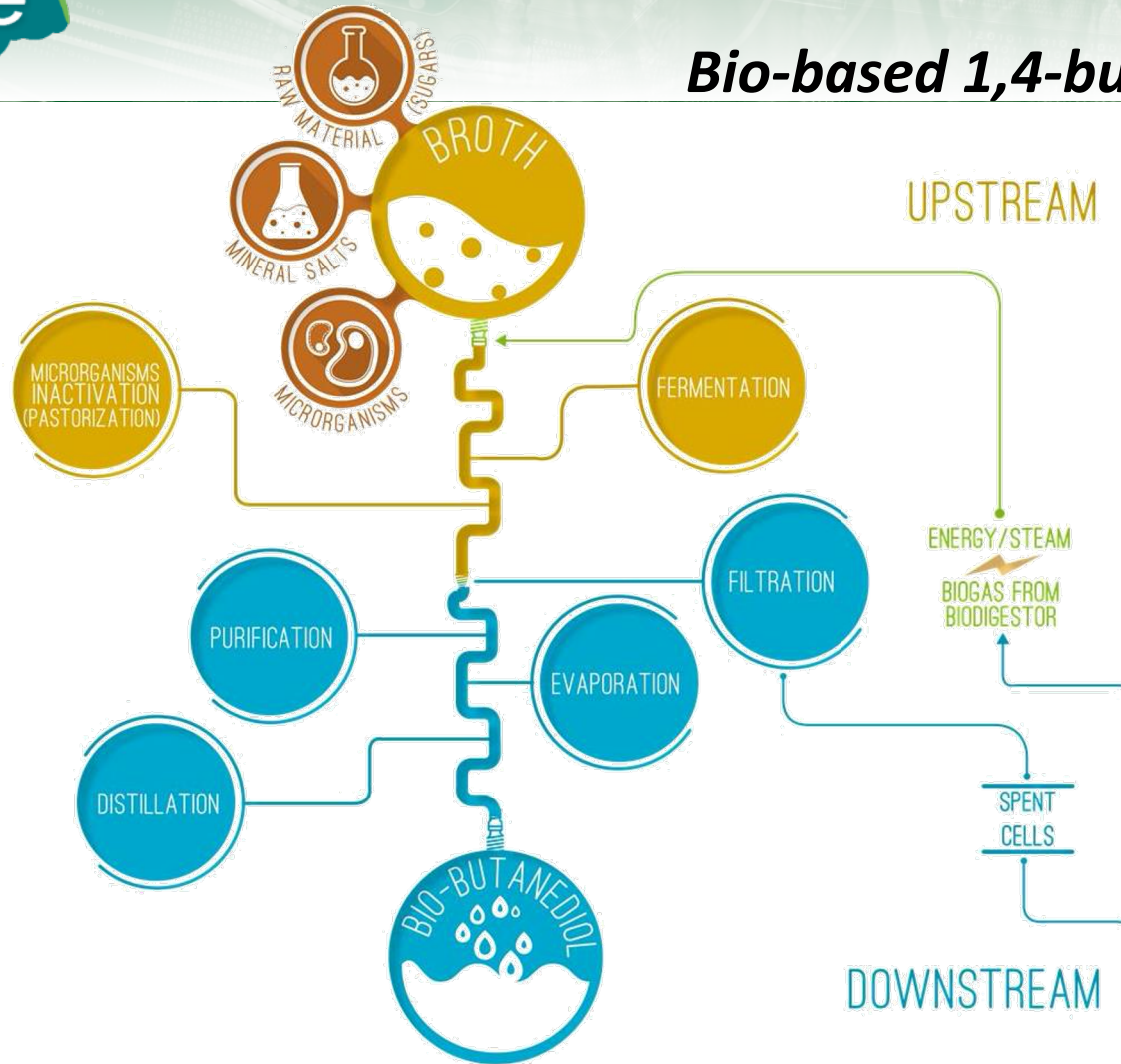
to Biobased materials



Bio-based azelaic acid



Bio-based 1,4-butanediol



Bio-based polyurethane intermediates



- Bio-azelaic acid
- Petrochemical dicarboxylic acids
- Bio 1,4-butanediol
- Bio 1,3-butanediol
- Petrochemical diols, triols



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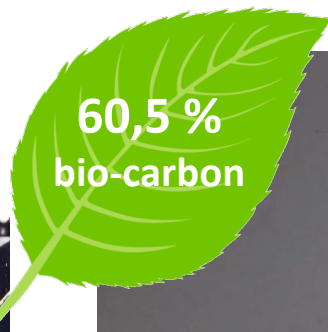
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Bio-based polyurethane intermediates

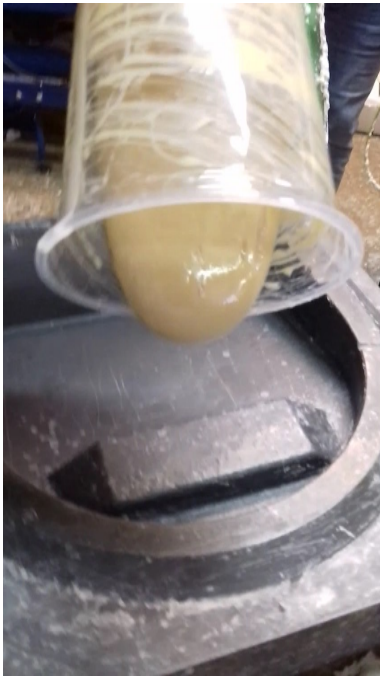
The logo for BioMotive, featuring the word "Bio" in a stylized green font with a leaf-like shape above the 'i', and "Motive" in a white font on a dark blue background.

Sample code	OHV [mg KOH/g]	Viscosity [cP]	f	Calculated bio carbon content [%]	Target application
S98	58	6700 @25 *C	2,1	100	2k foam, prepolymer
S100	55	1380 @75 *C	2.0	71	TPU

Free-foamed car seat elements



60,5 %
bio-carbon





Bio-based TPU lab production

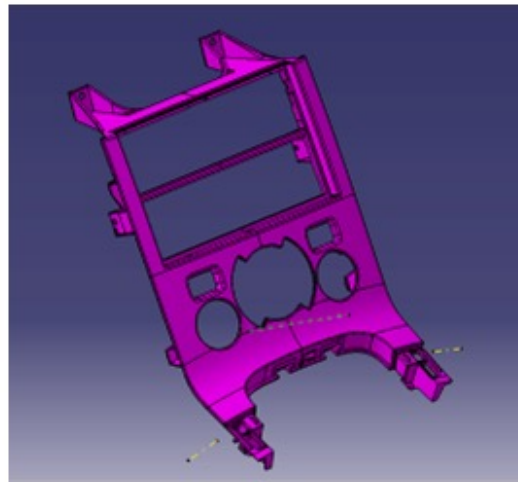
67 %
bio-carbon



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Bio-based car parts injection trials



Industrial scale extruder trials

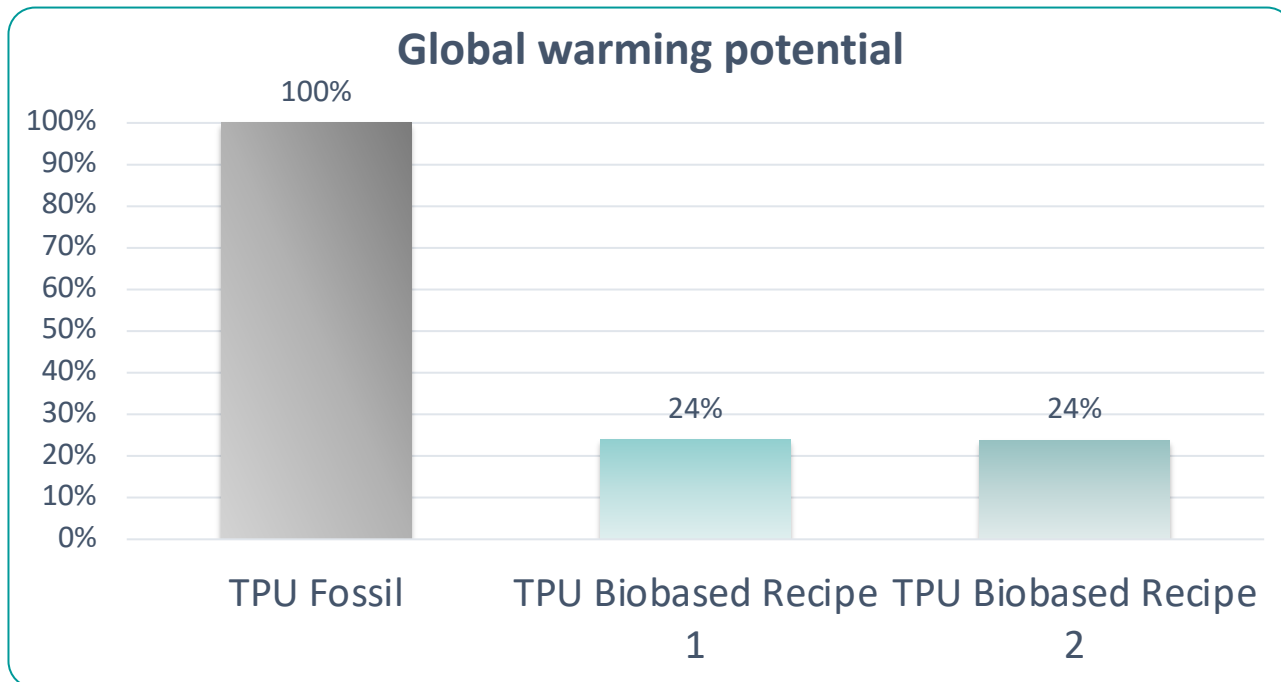


Reinjection of TPU:

- ***Milling of scrap TPU into granulate with liquid N2 cooling***
- ***Reinjection of TPU to form plastic sealant applicators***



Perliminary comparative assessment – Fossil vs Bio TPU





Thank you

CONTACT

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