

SusChem 2017 Brokerage Event

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**Design and manufacturing of
pharmaceutical containers in high barrier
bio-derived Poly (Lactic Acid) PLA**

Department of Engineering

- **Technology and Processing Systems Research group**

- 1 Chemical Engineers
- 3 Chemists
- 4 Mechanical Engineers

- **Areas of expertise**


- Design of innovative materials (dry blending, solvent casting)
- Production of innovative materials (extrusion compounding)
- Customization of polymeric materials and functionalization of mineral fillers
- Additives and chemistry of additives
- Melt processing (Extrusion, Injection molding, Compression Molding, Thermoforming, Injection stretch blow molding, Extrusion blow molding)

Biodegradable drug shaker

- Develop an innovative biodegradable and suitable for food contact single-dose mono-phase and bi-phase shaker for drugs with high **protection against oxygen and water vapor**
- **Automatized production** process for the containers manufacturing
- Valid alternative **end-of-life options** for containers disposal to dumping

MONODOSE SINGLE-DOSE UNIDOSE NEW SHAKER

IMBOCCATURA NECK FINISH BAGUE

 13,5 mm 17,8 mm

MONOFASE SINGLE-PHASE MONOPHASE

CHIUSURA CAP CAPSULE



AM 1422



AM 1556

svitare
unscrew
dévissier



BIFASE BIPHASE BIPHASE

SERBATOI E TRANCIAITORI PLUGS AND PLUNGERS RÉSERVOIRS ET PERFORATEURS

0,500 cc



AM 1301 + AM 1108

0,800 cc



AM 1376 + AM 1110

1 cc



AM 1491 + AM 1490

avvitare
screw
visser

agitare
shake
agiter

svitare
unscrew
dévissier



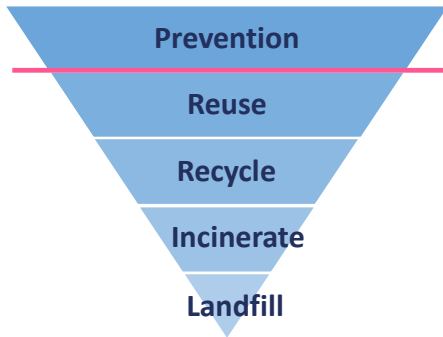
CHIUSURA CAP CAPSULE



AM 1299

CE-BG-06-2019 “Sustainable solutions for bio-based plastics on land and sea”

EXPECTED IMPACT



- **Avoid several thousand tons of waste** destined for **landfills/incinerators** worldwide, due to the biodegradability/compostability of the PLA-talc composite
 - **25% weight reduction** compared to the existing containers
 - **5% waste reduction** due to the superior stiffness and barrier properties of the innovative PLA-talc composite

- **Save several thousand tons of oil** that is, currently, used in the drug container production process, meaning 100% reduction of fossil feedstock in drug containers production process

- **Save thousand tons of CO₂** equivalent that are related to the production process of the conventional polymers employed in the manufacturing of the current drug containers
 - **25% improvement in the energy consumption efficiency** (from the current 75% to 90%) in the manufacturing plant

- Lack of need to deal with **multiple materials** in the manufacturing of the drug containers.



EXISTING PROJECT CONSORTIUM LOOKING FOR PARTNERS

Existing Project Consortium:

- **Univerisità degli Studi “Roma Tre”**: Designs formulations suitable for pharma applications and processing by injection molding
- **NaturP**: Academic Spinoff specialized in the production of custom compounds
- **BVA srl**: Injection and compression moulder. Responsible for customization of processing parametres for the innovative material
- **Bormioli Rocco – Pharma division**: Launches the innovative container on the huge market of pharmaceutical containers (end-user)



WE'RE LOOKING FOR YOU:

- **Pharmaceutical companies**
- **Trade associations**

Contact details for project idea(s) :

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