



## PolyUrethane Recycling Towards a Smart Circular Economy

# Deliverable

D4.4 Foam portfolio of reversibly crosslinked CAPU flexible foams (conventional ether, ester, high resilient, viscoelastic) of various densities on lab scale

WP4 – Smart Design

### Project Information

Grant Agreement n°	814543
Dates	1st January 2019 – 31st December 2022

#### PROPRIETARY RIGHTS STATEMENT

This document contains information, which is proprietary to the PURESMArt Consortium. Neither this document nor the information contained herein shall be used, duplicated or communicated by any means to any third party, in whole or in parts, except with prior written consent of the PURESMArt consortium.



## Publishable Summary

One of the three main goals of the PReSmart project is the Smart design of new, intrinsically mechanically recyclable flexible foams. In order to do that, common efforts in WP1 and WP4 have been focusing on the introduction of CAPU (Covalent Adaptable PolyUrethane) comonomers into the foam formulations. Up to now, the focus was set on developing standard ether-based CAPU foams. However, as described in the project proposal, we are also interested in broadening this concept to apply it to other types of flexible foams (namely ester, high-resilient or viscoelastic foams) that are also of importance in the flexible foam comfort market.

A foam portfolio of different types of CAPU flexible foams (conventional ether, ester, high resilient, viscoelastic) of various densities was obtained on lab scale (TRL3). This work was not performed with TAD-based CAPU comonomers but with the more readily available non-TAD-based alternative CAPU monomers. Some of the obtained foams already show good basic physical properties and reprocessing abilities, however more optimization would need to be done before up-scaling to the next TRL level.