Supplementary information

Sustainable packaging solutions: harnessing primary sludge cellulosic fibres in foamed starch materials via injection moulding

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Fig. S1. *General view of the Injection Prototype Equipment coupled to a Closing Heating Mould System (left image) and more detailed expansion view (right image) showing the hydraulic system for closing the mould (A), Automated Feeding System (hopper, B), extruder heating elements (C) and the Injection Nozzle (D).*

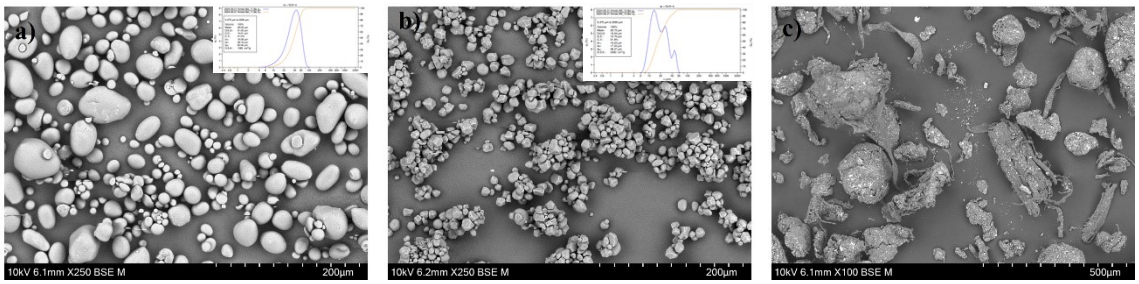

Fig. S2. *SEM images of a) potato starch, b) corn starch and c) paper primary sludge. Insets of particle size distribution in a) and b).*

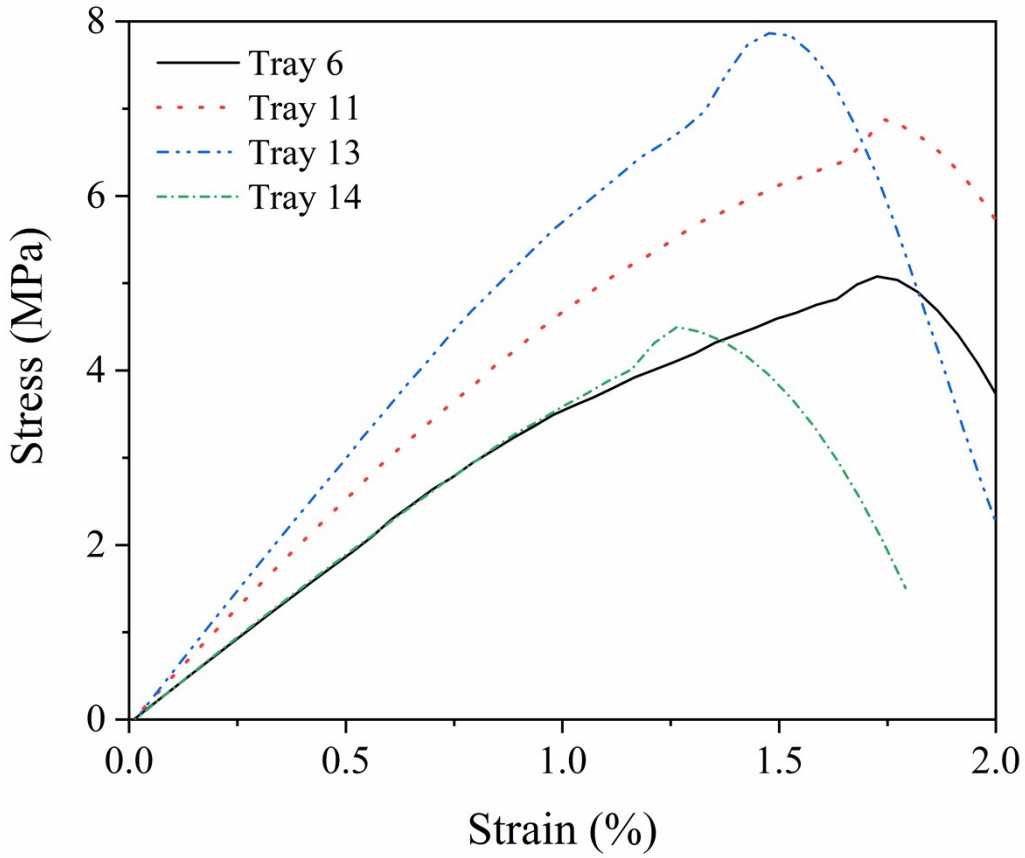

***Fig. S3**. Stress vs strain curves of flexural tests. One test example of tray 6, tray 11, tray 13 and tray 14.*

***Table S1**. Metal elements present in primary paper sludges (g per kg of the total ash content).*

Metallic elements	Quantity g/kg
Ca	100.4
Si	38.74
Al	12.91
Mg	1.87
Fe	0.83
Na	0.37
Ti	0.42
P	0.32
K	0.52
Sr	0.12

Cu	0.03
Zn	0.03
Mn	0.03

Table S2*. Size diameters of potato and corn starches obtained by Coulter LS 13 320.*

	Potato starch	Corn starch
Average diameter (μm)	39.05 ± 16.01	20.73 ± 10.76

Table S3. *SEM-EDX analysis to the surface of tray 13.*

Element	% Atom
C	57.78
O	41.78
Al	0.17
Si	0.20
Cl	0.07