Supporting Information for:

‘Green’ thermoset resin derived from non-edible starch via esterification using a novel catalyst

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Supporting Information Contains:

Total Number of pages: 4
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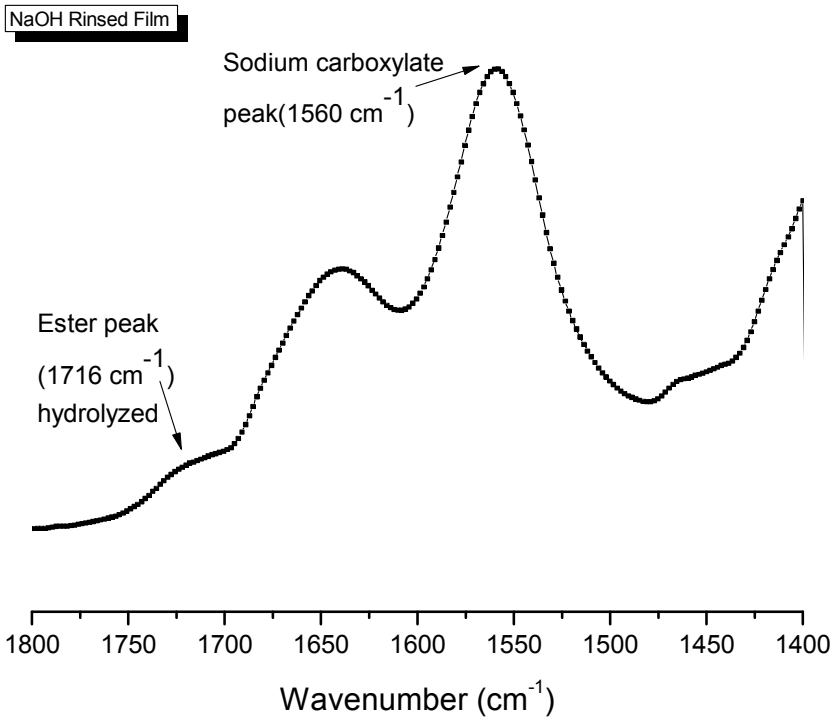

Figure S.1 ATR-FTIR spectra of the MSS-BTCA-NaP crosslinked film after treating with 0.1 M NaOH.

The ester group (peak observed at 1716 cm^{-1}) is hydrolyzed in presence of an alkali. Thus the absorption at 1716 cm^{-1} reduces when treated with NaOH while the absorption at 1560 cm^{-1} grows sharper due to the formation of sodium carboxylates.

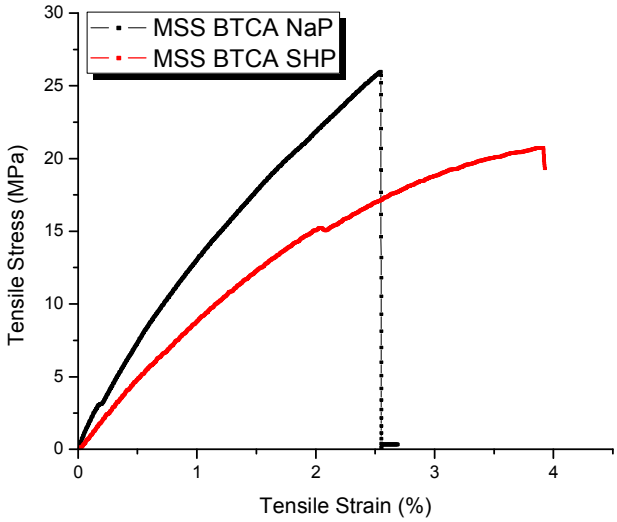

Figure S.2 Tensile stress vs strain plot of corn starch crosslinked with BTCA as a crosslinker using different catalysts (SHP and NaP).

The higher strength in the corn starch films crosslinked using BTCA-NaP indicate that higher crosslinking as compared to that using BTCA-SHP.

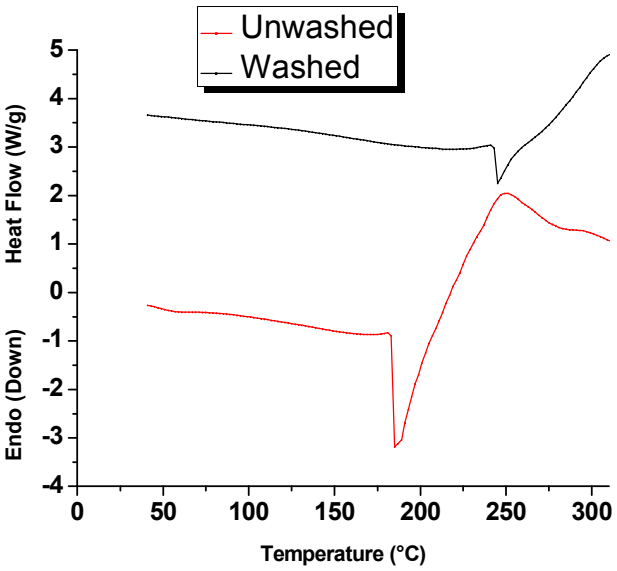

Figure S.3 DSC thermogram of washed and unwashed MSS-BTCA-SHP films.

The unwashed films showed an endothermic peak at 190 °C corresponding to the melting temperature of the unreacted BTCA present in the crystalline form in the film. This peak disappears completely after washing showing that the excess unreacted BTCA can be washed away with water.

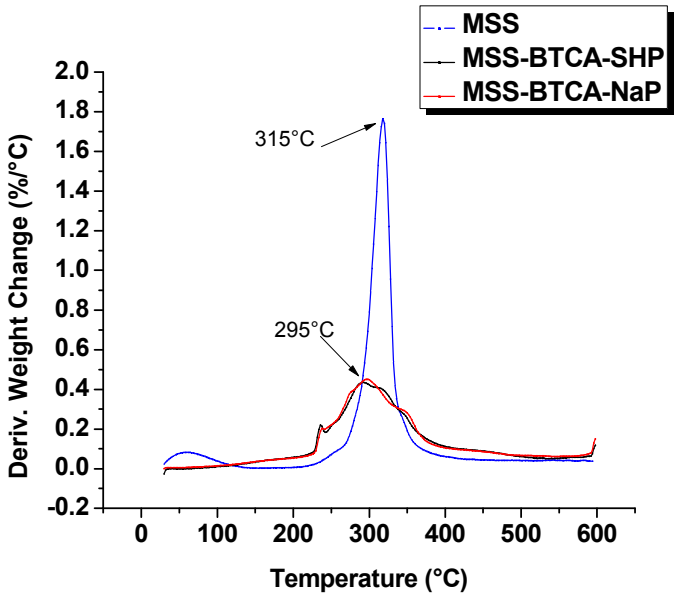

Figure S.4 DTGA of MSS, MSS-BTCA-SHP and MSS-BTCA-NaP crosslinked films.

The DTGA plot is constructed from the TGA plots to see the maximum degradation temperature which is defined as the temperature at which the rate of weight loss reduces significantly (observed after the specimen has degraded). The maximum degradation temperature of MSS was observed to be 315 °C which reduced to 295 °C after crosslinking.