MALDI-ToF Analysis of Model Copolymer Blends DAVID PAN,
MARK ARNOULD, Xerox Corporation — MALDI-ToF mass spectrometry was
used to determine the composition of a low MW styrene (S) / n-butyl acrylate
(nBA) copolymer. Bernoullian chain statistics were used to predict the copolymer
distribution and confirm that MALDI-ToF detects the correct composition. The
copolymer was blended with a low MW polystyrene homopolymer having the same
end group as the copolymer at several levels to determine if MALDI-ToF could be
used to calculate the amount of homopolymer by subtracting homopolymer peak
areas. It is found that, while MALDI-ToF can be used to monitor the amount of
homopolymer blended into the copolymer, the observed increase is always greater
than the actual amount added, e.g. up to 13% error. This could be due to the
fact that the homopolymer ionizes more efficiently than the low MW copolymer.
A model to improve the accuracy of the calculated amount of homopolymer in the
blend is discussed.

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