TESTING METHODS AND PROTOCOL

Dr Graham Peaslee, at the University of Notre Dame Department of Physics, measured the total fluorine content of paper products using particle-induced gamma-ray emission (PIGE) spectroscopy. Details of this procedure can be found in Ritter et al. 2017, and this technique has been used in other studies of papers and textiles (Schaider et al, 2017, Lang et al, 2016), and validation of the technique with more expensive LC-MS/MS methods including Total Oxidizable Precursor assay can be found in Robel et al. 2017. Dr. Peaslee classified products as either a) high fluorine content or "F" (likely treated with fluorinated compounds), b) low fluorine content or "low F" (possibly recycled paper content containing fluorine or low levels of contamination in the product manufacturing process), or c) no detectable fluorine ("No F"). For this study, these ranges were established to be:

Non-fluorinated: Products that had both surfaces register total fluorine counts per microCoulomb of beam of less than ~150 were characterized as non-fluorinated.

Low Fluorine: Products that had at least one surface register total fluorine counts per microCoulomb of beam of greater than ~150 and less than ~500 were characterized as low fluorine. In all cases the fluorine signature had to be statistically significant at 3X above background.

Fluorinated: Products that had at least one surface register total fluorine counts per microCoulomb of beam of greater than ~500 were characterized as fluorinated. In all cases the fluorine signature had to be statistically significant at 3X above background.

Products that were identified as likely containing a fluorinated treatment had significantly higher (on average 10-fold higher) levels of fluorine than those identified as low fluorine.

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