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Organic Molecule Degradation by Atmospheric Pressure Plasma Jets Using Commercially Available Circuitry SHALESE LOVELL, ADAM LIGHT, DZAFER CAMDZIC, LOGAN HENNING, ANNI ZETTL, Colorado College — This study aims to reveal the efficacy of commercially available arc lighter circuits used in atmospheric pressure plasma jets through the degradation of long-chain, organic dyes. Three affordable arc lighters were chosen off of an online public marketplace and were modified accordingly to fit the developed jet designs. Testing chambers were created to include an aerator fueled by argon gas in order to increase transport of the dye to the plasma-water interface. The results measured through a spectrophotometer reveal the efficiency of this degradation through varying time intervals. While we have drawn on previous research centered around the development and improvement of low-temperature APPJs to create our jet geometries, this study aims to be a precursor for the capability of easily produced APPJs to mineralize other organic contaminants in water, specifically PFAS chemicals. We have chosen a long-chain, organic dye because of its basic similarities in structure to compounds of interest.

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