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Insulator Surface Conditioning Effects on X-Ray Yield of a 10 kJ-Scale Dense Plasma Focus.[1] D. HOUSLEY, E. N. HAHN, S. GHOSH, F. CONTI, F. N. BEG, Center for Energy Research, University of California, San Diego — The insulator sleeve plays an important role in Dense Plasma Focus (DPF) current sheath dynamics, which can affect production of X-rays and neutrons. We have conducted experiments with 250 kA current and 2.5 μs rise time to investigate the effect of insulator sleeve conditions on X-ray production. A variety of borosilicate insulator sleeves with smooth and rough surfaces have been used. Insulators with the smoothest surfaces resulted in the highest soft X-ray yield to date when filled with Ne between 0.1 and 1.0 torr. Introducing surface roughness has a detrimental effect on X-ray yield and can substantially delay the X-ray burst.

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