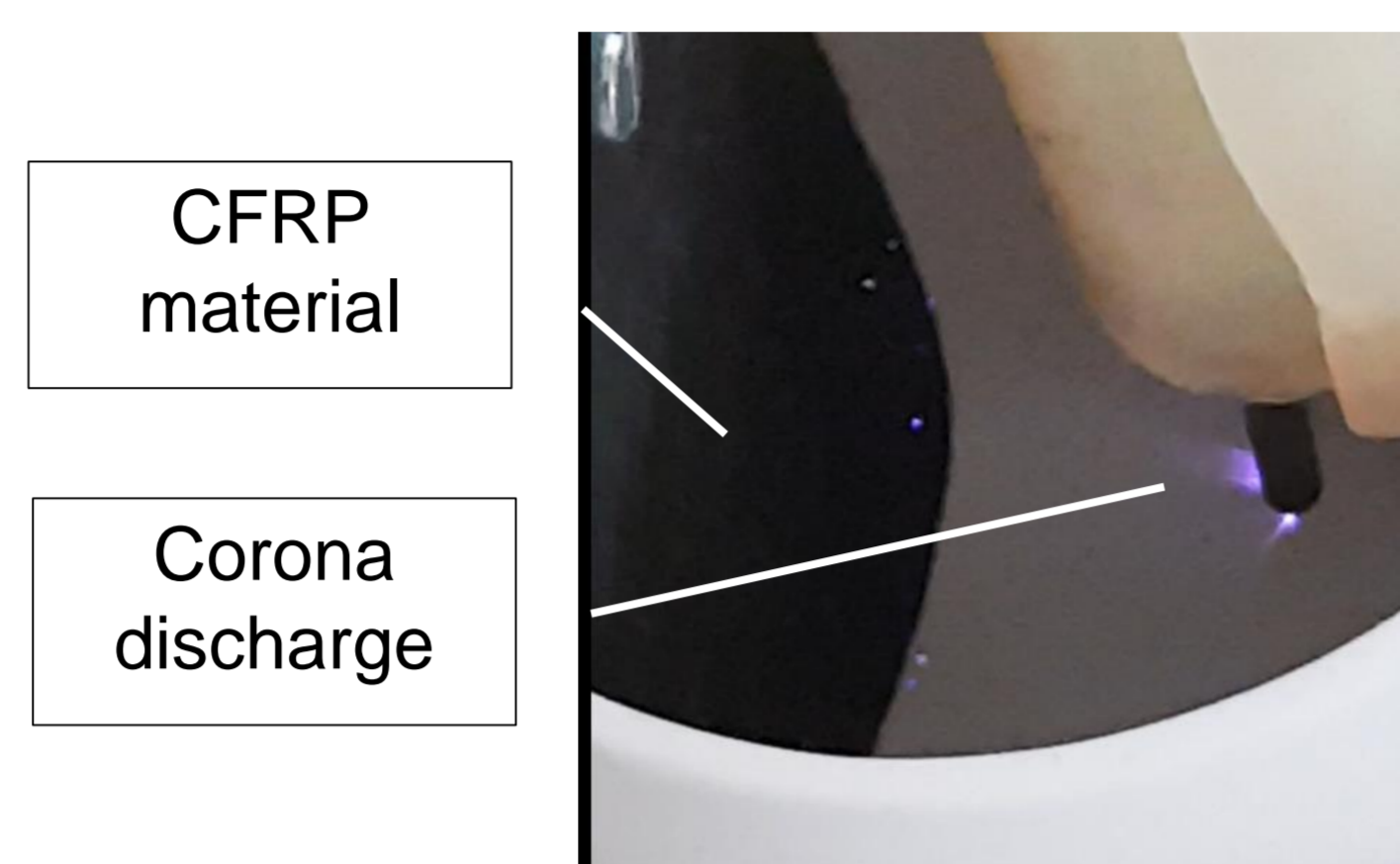
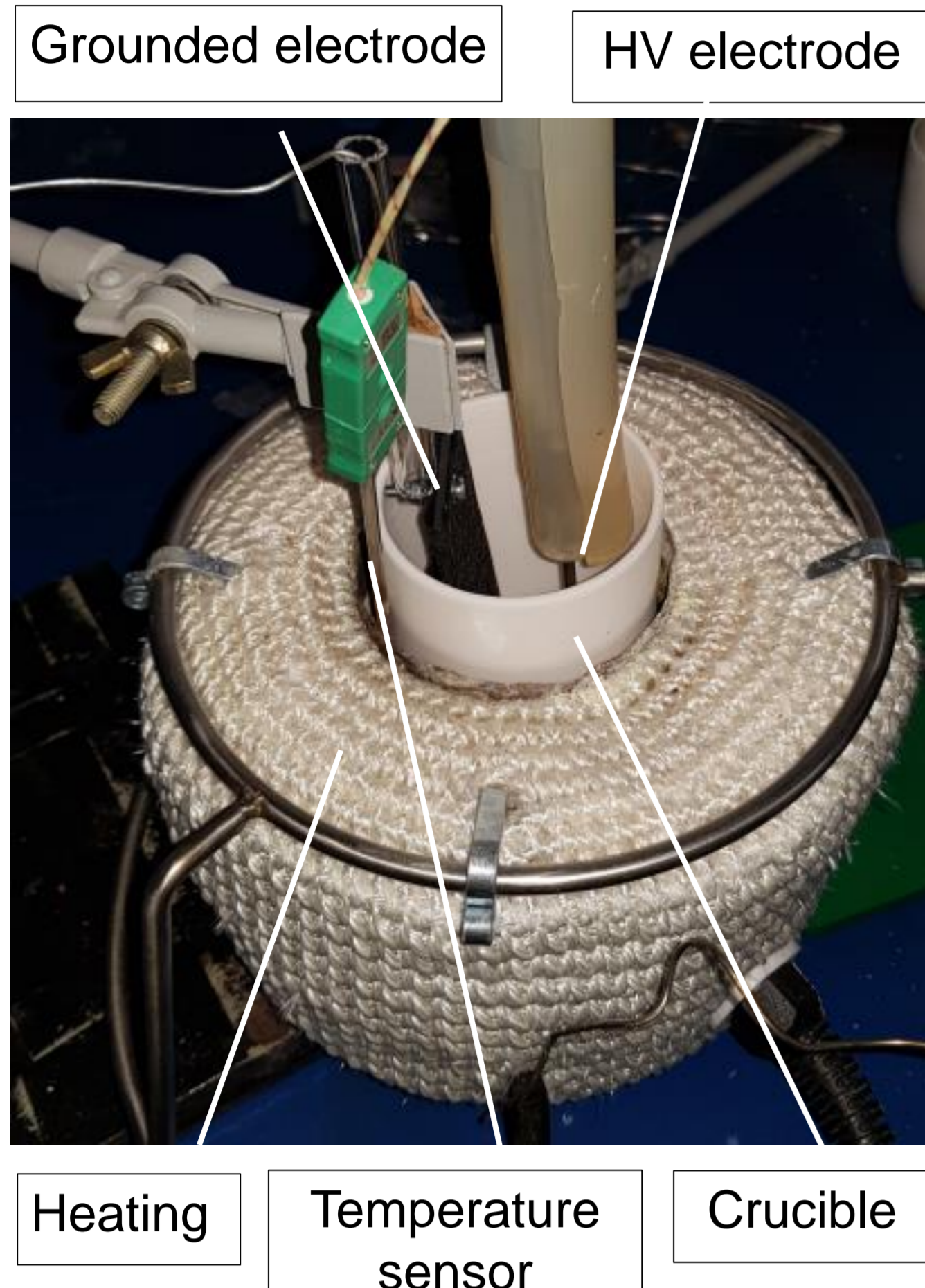


Influence of DC corona discharge on CFRP behavior in hot air and molten salt

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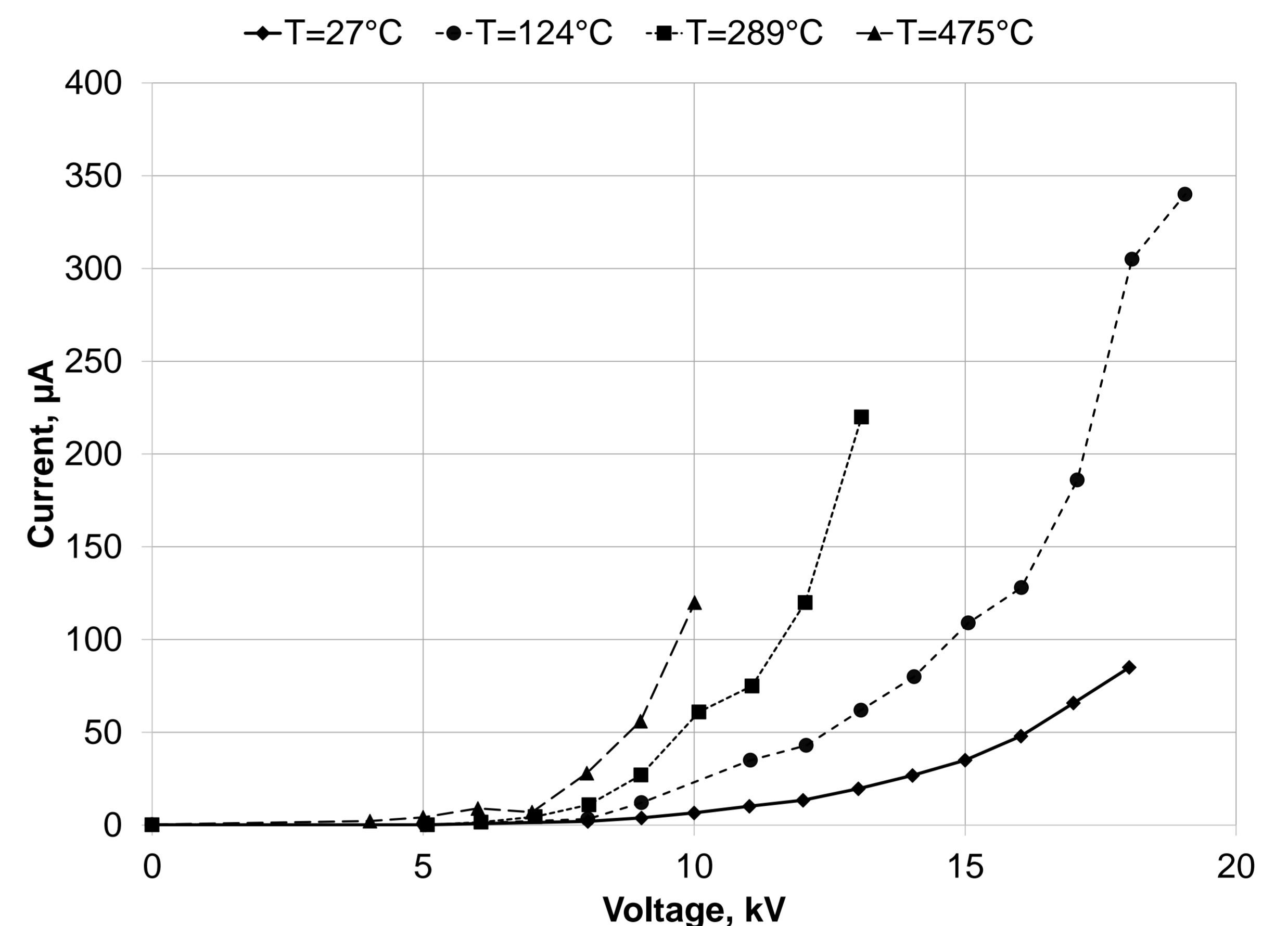
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Laboratory test facility

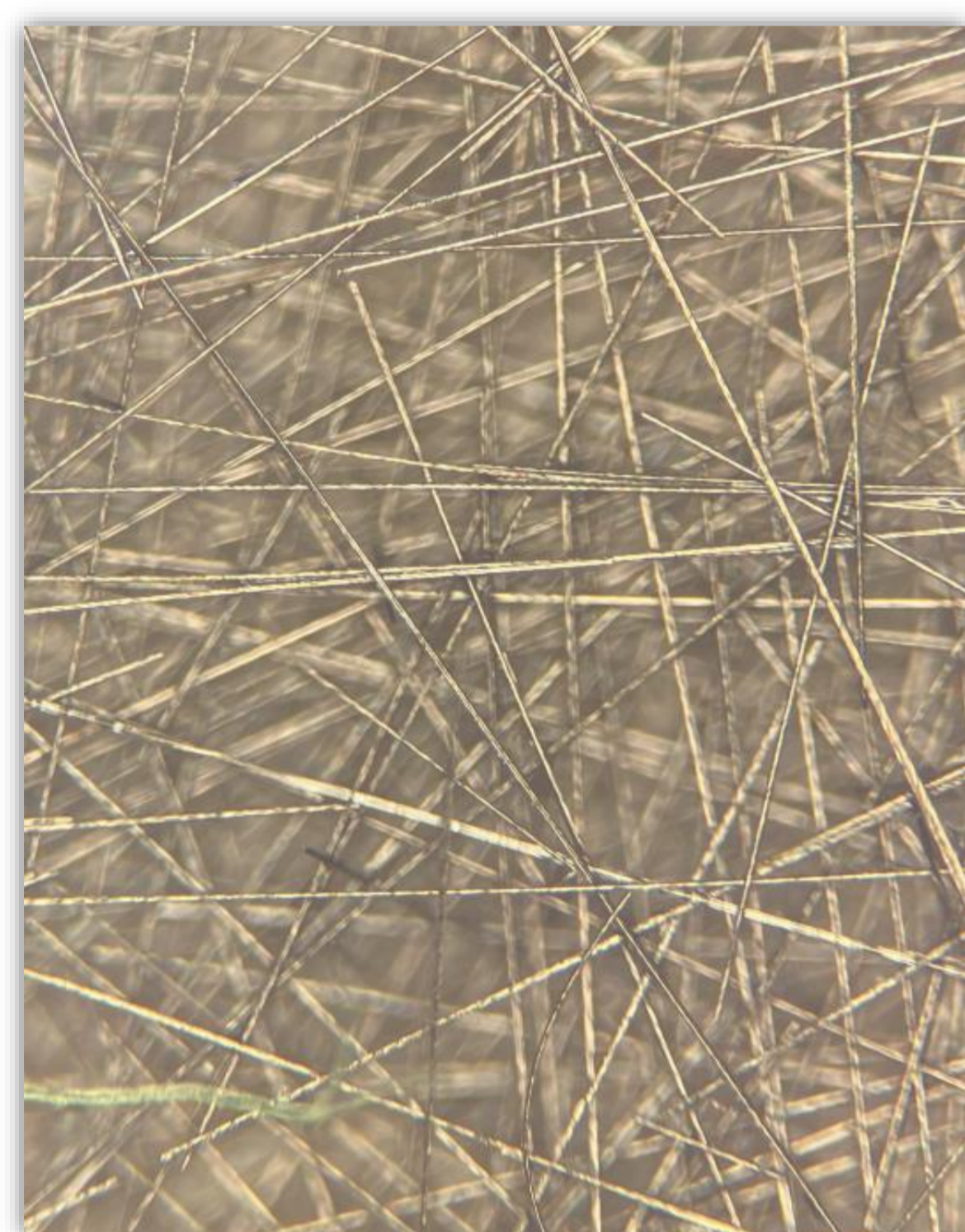


Test facility includes heating unit (operating temperature up to 800°C). DC corona discharge is generated between needle high voltage (HV) electrode and CFRP material, which is fixed on a grounded electrode. Electrodes are installed inside a ceramic crucible.

DC corona discharge in air



DC corona discharge: CFRP in air



CFRP material before treatment



CFRP material after treatment

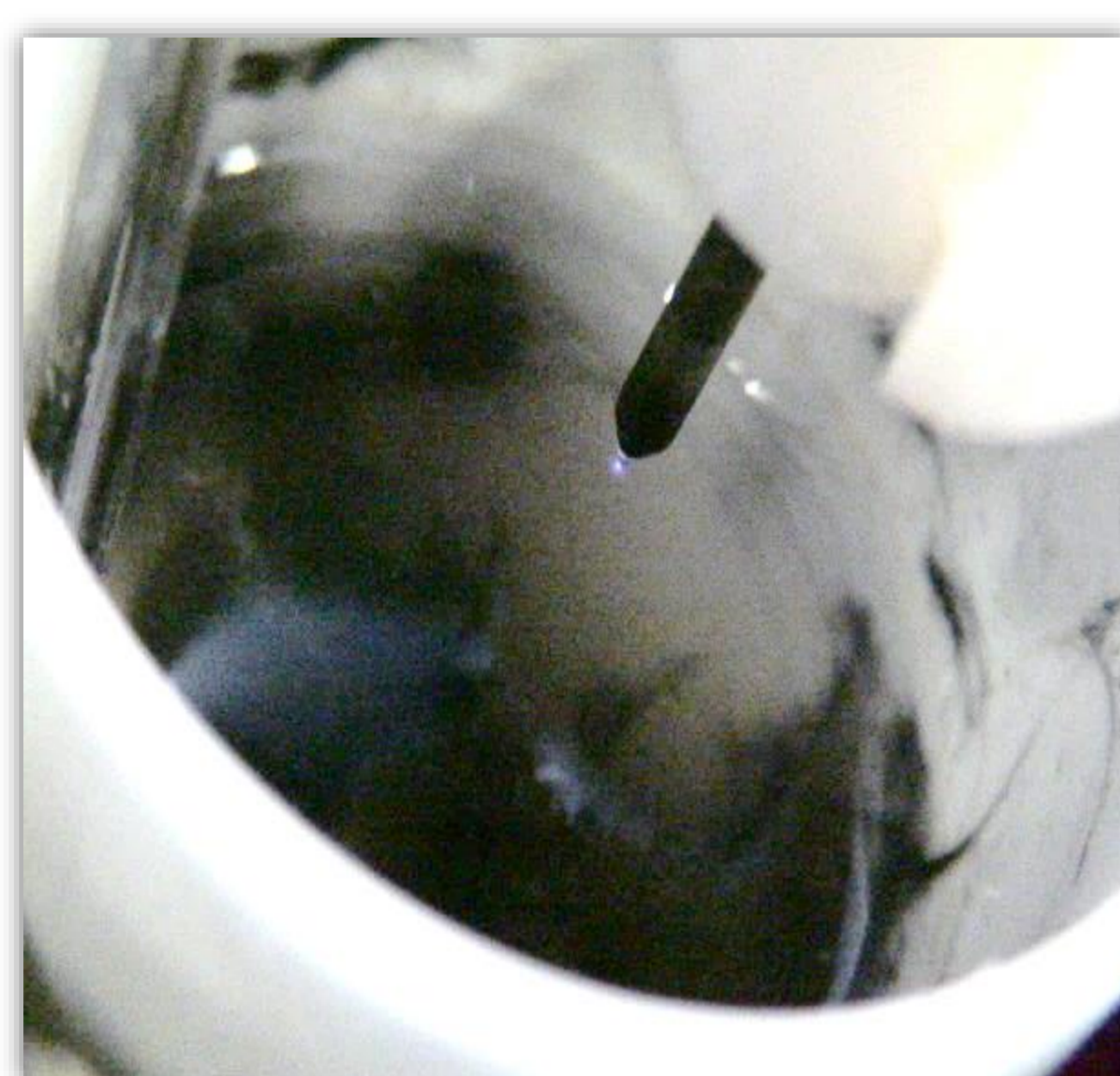


Degradation of carbon fibers!

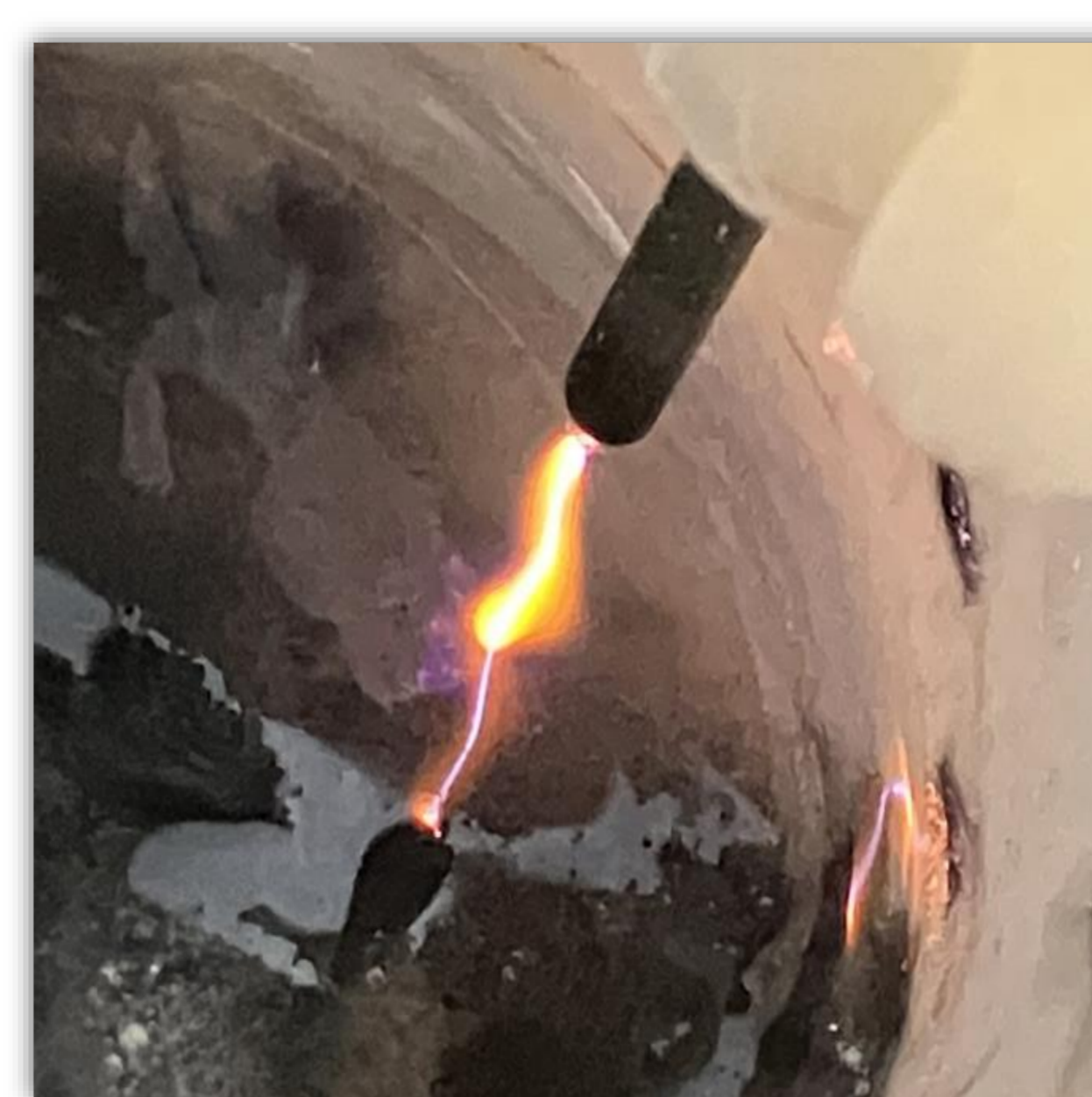
DC corona discharge: CFRP in molten salt



CFRP material before treatment



Corona discharge, spark-overs and EHD phenomena



No degradation of carbon fibers!

Conclusions

- Back corona from CFRP, loss of structural stability and degradation of carbon fibres after treatment in a DC corona in air.
- In molten salt, CFRP matrix loses its' structural stability. Carbon fibres are homogeneously distributed inside the crucible.
- EHD phenomena during treatment in a DC corona discharge: carbon fibres free zone under HV electrode.
- No back corona is observed during the treatment of carbon fibers in molten salt.