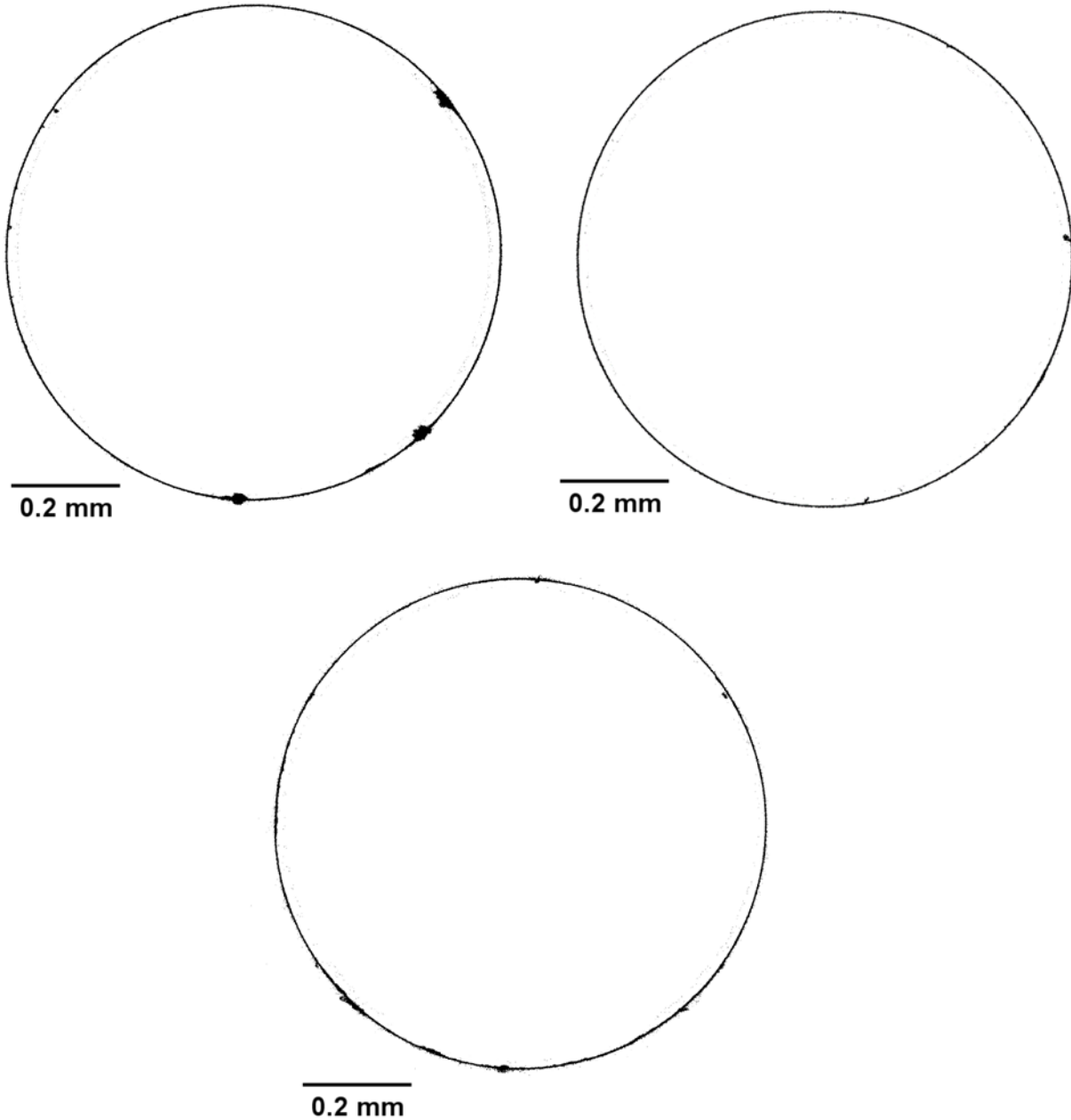


# Supplementary Information

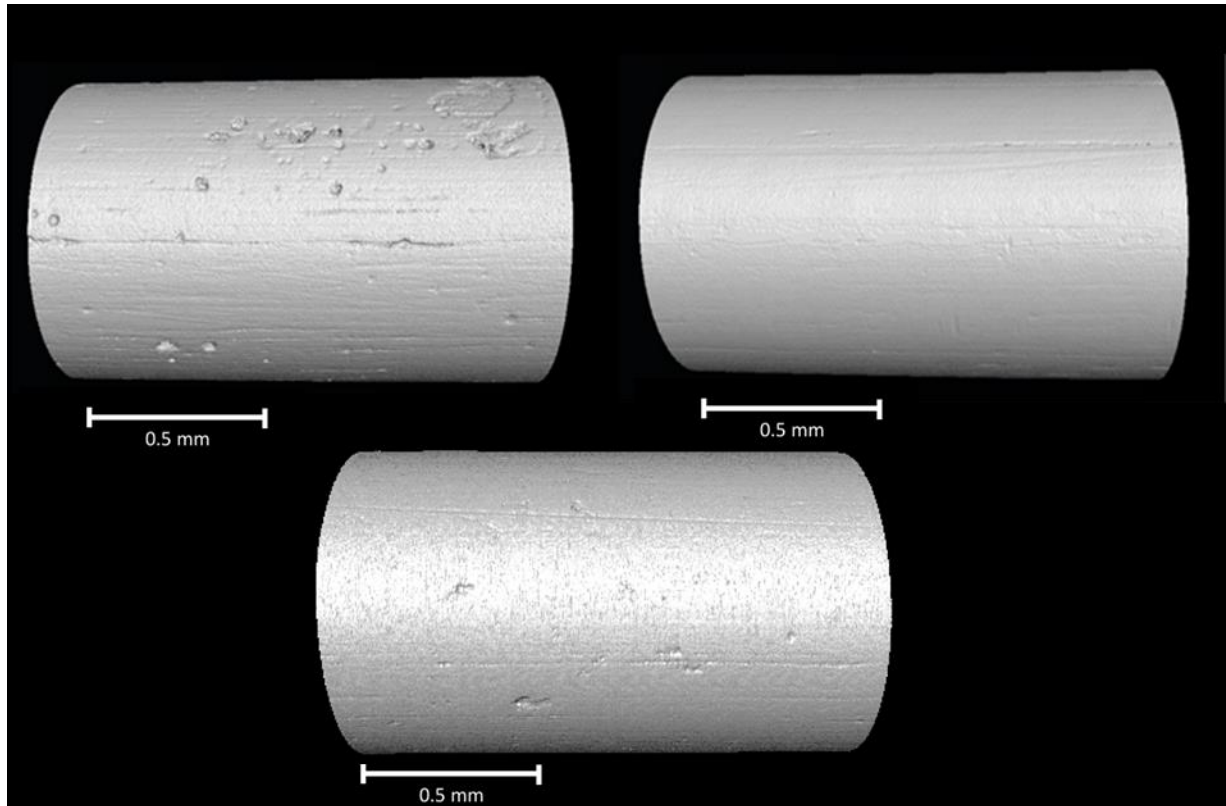
## 1. Preoxidation samples

### 1.1 2D cross-sectional images



Supplementary Figure 1: 2D cross-sectional views from CT data of preoxidized corrosion coupons after 168 hours of exposure to an AVT at 300 °C and 12.4 MPa.

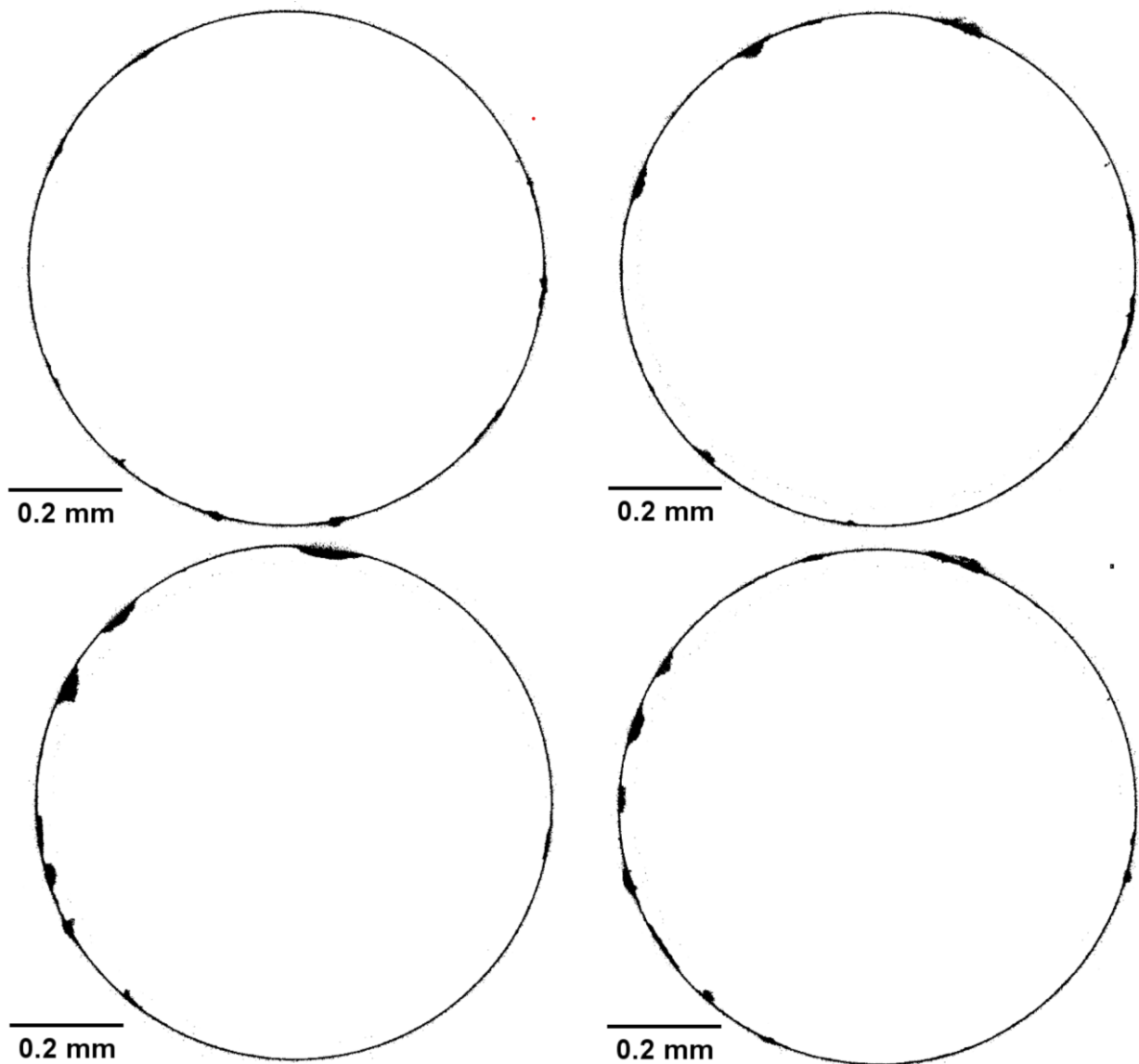
1.2 3D volume rendered images



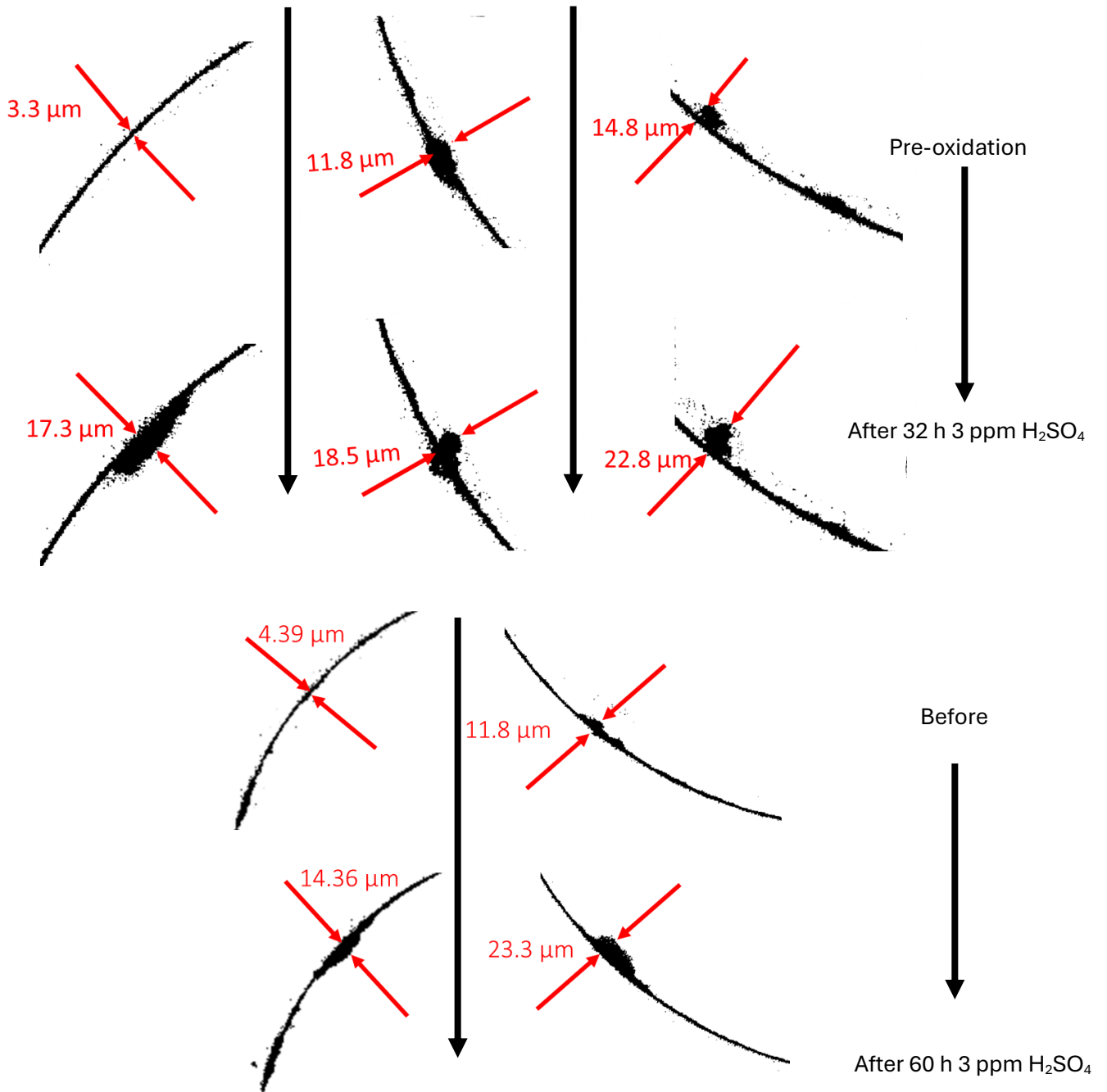
**Supplementary Figure 2: 3D renderings from CT data of different preoxidized corrosion coupons after 168 hours of exposure to an AVT at 300 °C and 12.4 MPa.**

## 2.0 Additional 2D cross-sectional images of 3ppm sulfate and 0.6 ppm chloride contamination

### 2.1 Sulfate

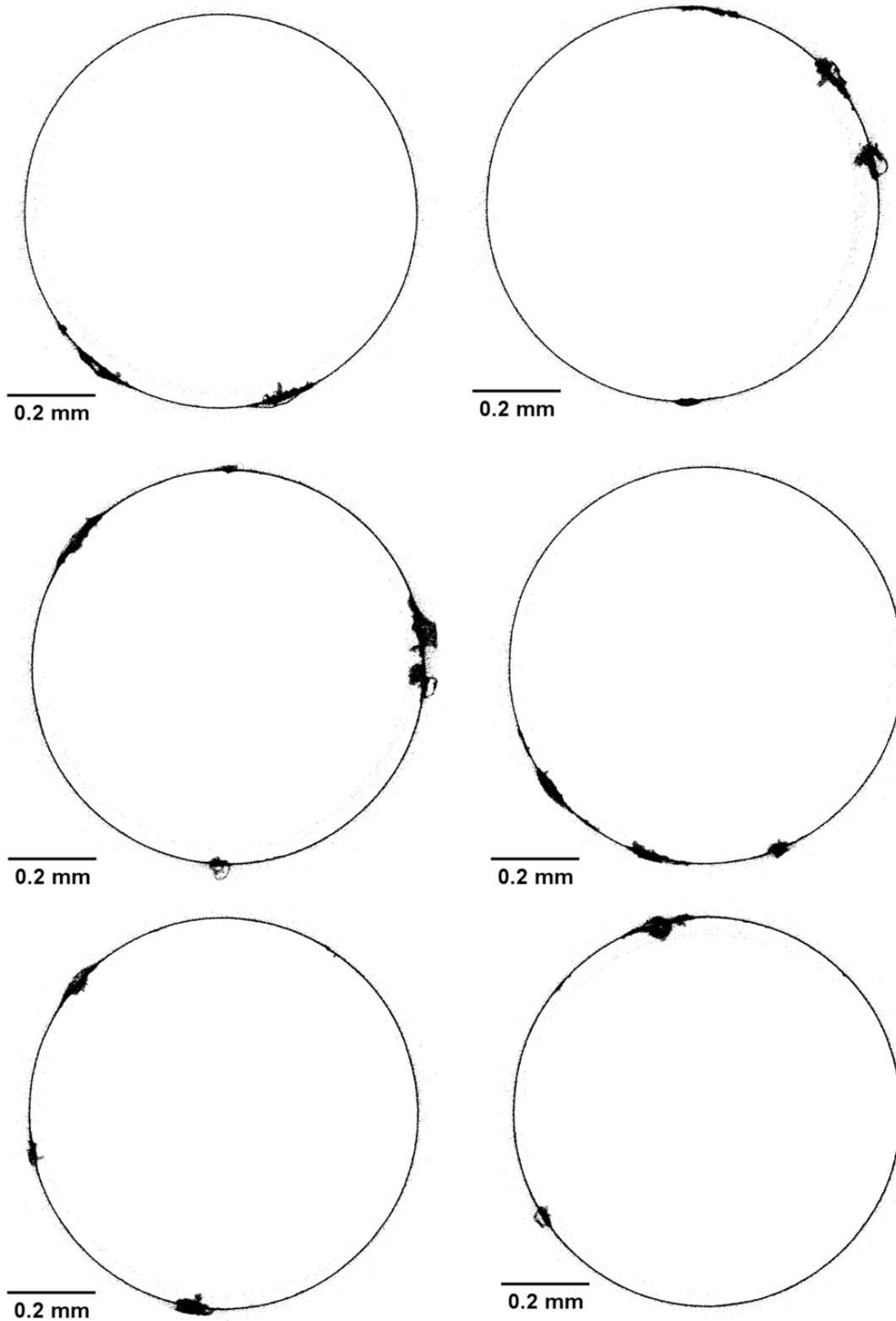


Supplementary Figure 3: 2D cross-sectional views from CT data of corrosion coupons after 60 hours of exposure to an AVT contaminated with 3 ppm sulfate at 300 °C and 12.4 MPa.



**Supplementary Figure 4: 2D cross-sectional views showing deep pits from CT data of corrosion coupons after 32 and 60 hours of exposure to an AVT contaminated with 3 ppm sulfate at 300 °C and 12.4 MPa.**

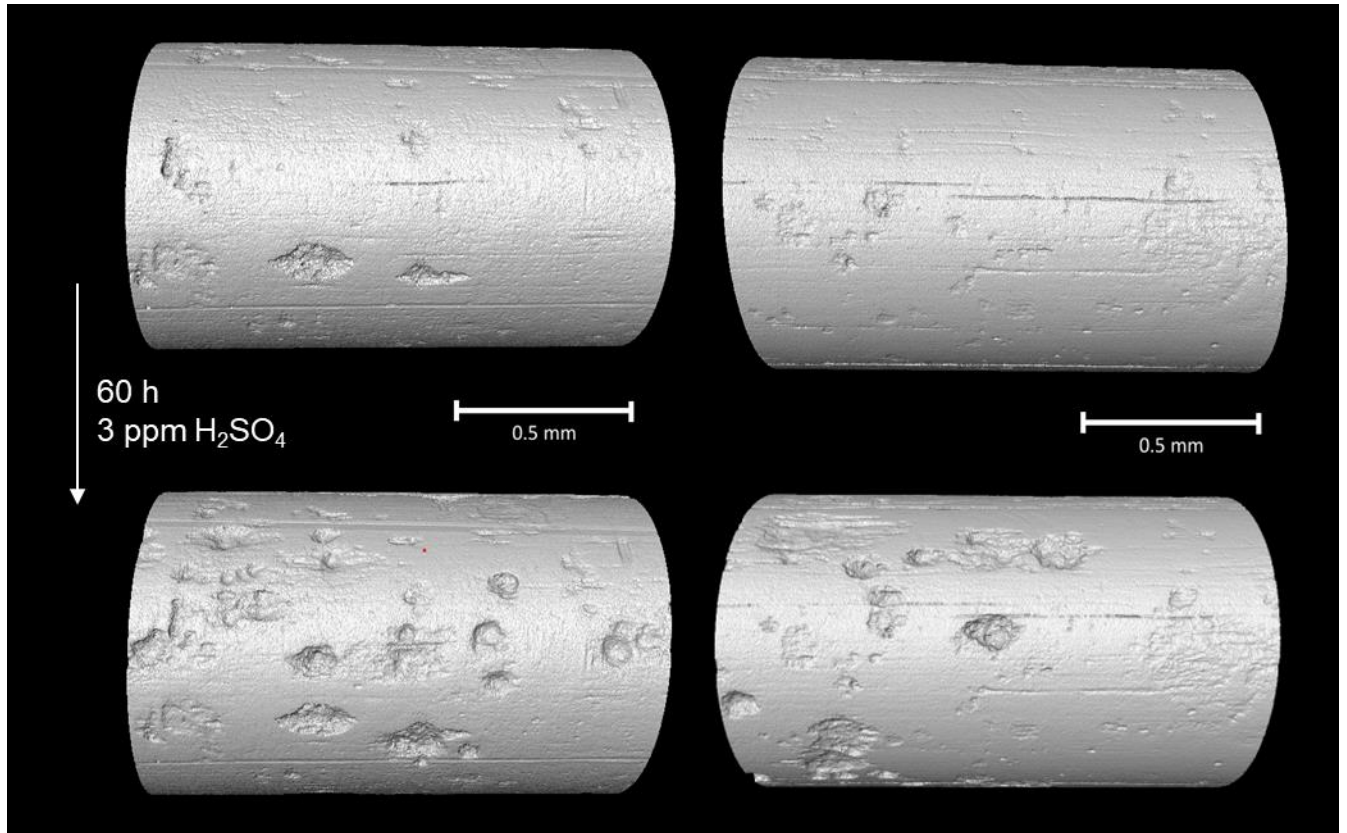
## 2.2 Chloride



Supplementary Figure 5: 2D cross-sectional views from CT data of corrosion coupons after 60 hours of exposure to an AVT contaminated with 0.6 ppm chloride at 300 °C and 12.4 MPa.

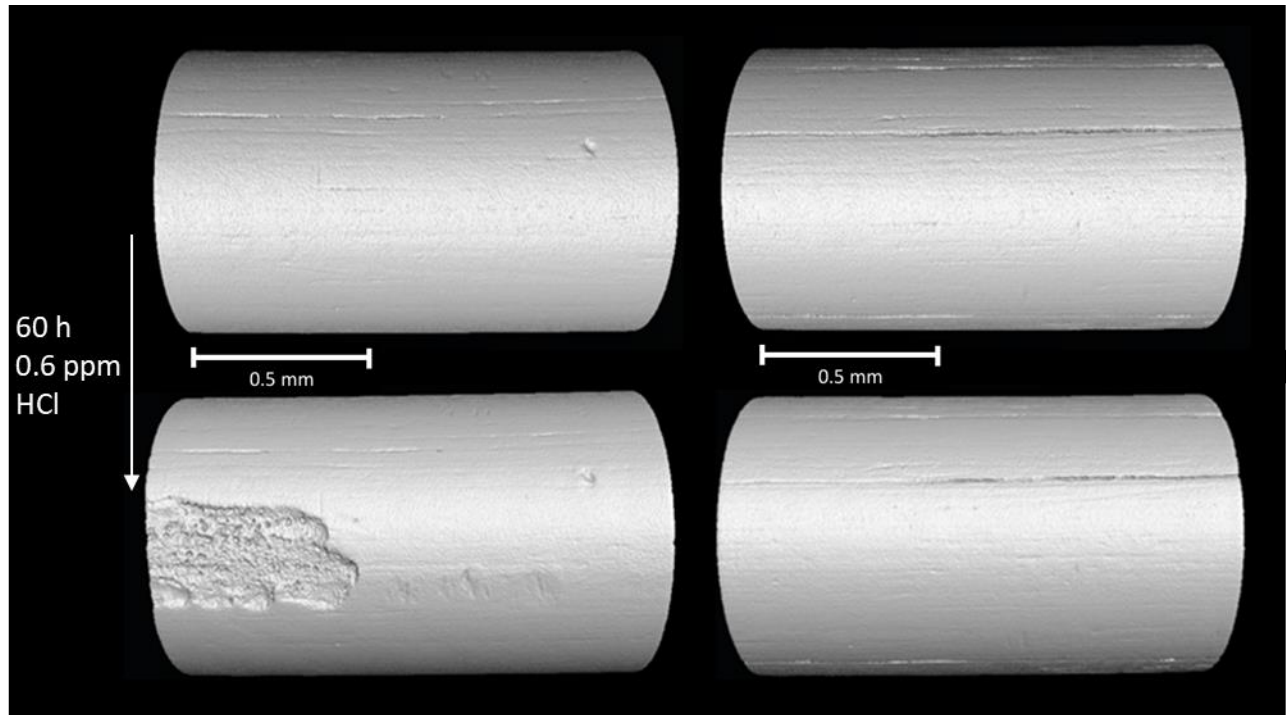
### 3.0 Additional 3D volume rendered images of 3ppm sulfate and 0.6 ppm chloride contamination

#### 3.1 Sulfate

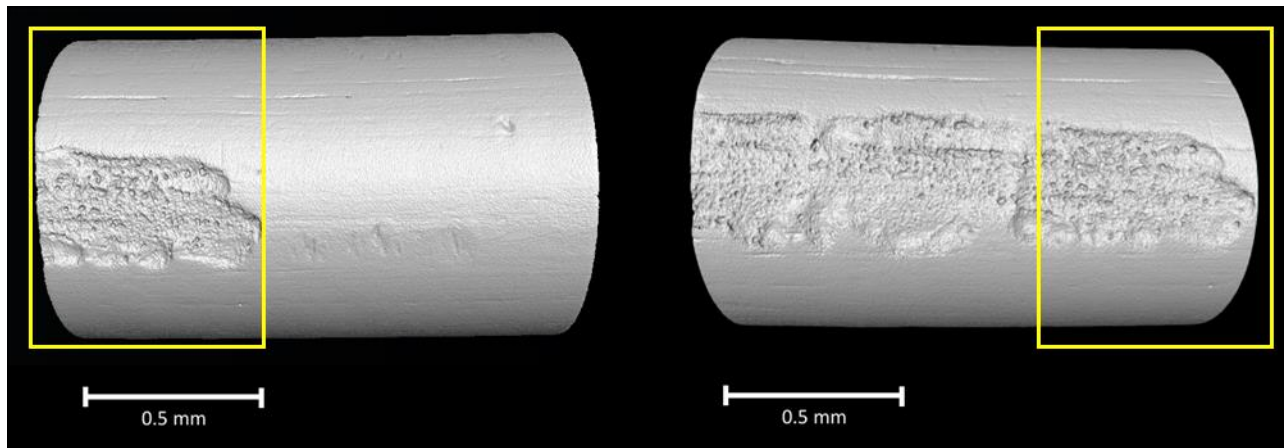


Supplementary figure 6: 3D renderings of the corrosion coupon to observe the new localized events caused by exposure to 3 ppm H<sub>2</sub>SO<sub>4</sub> for 60-hour exposure times.

### 3.2 Chloride



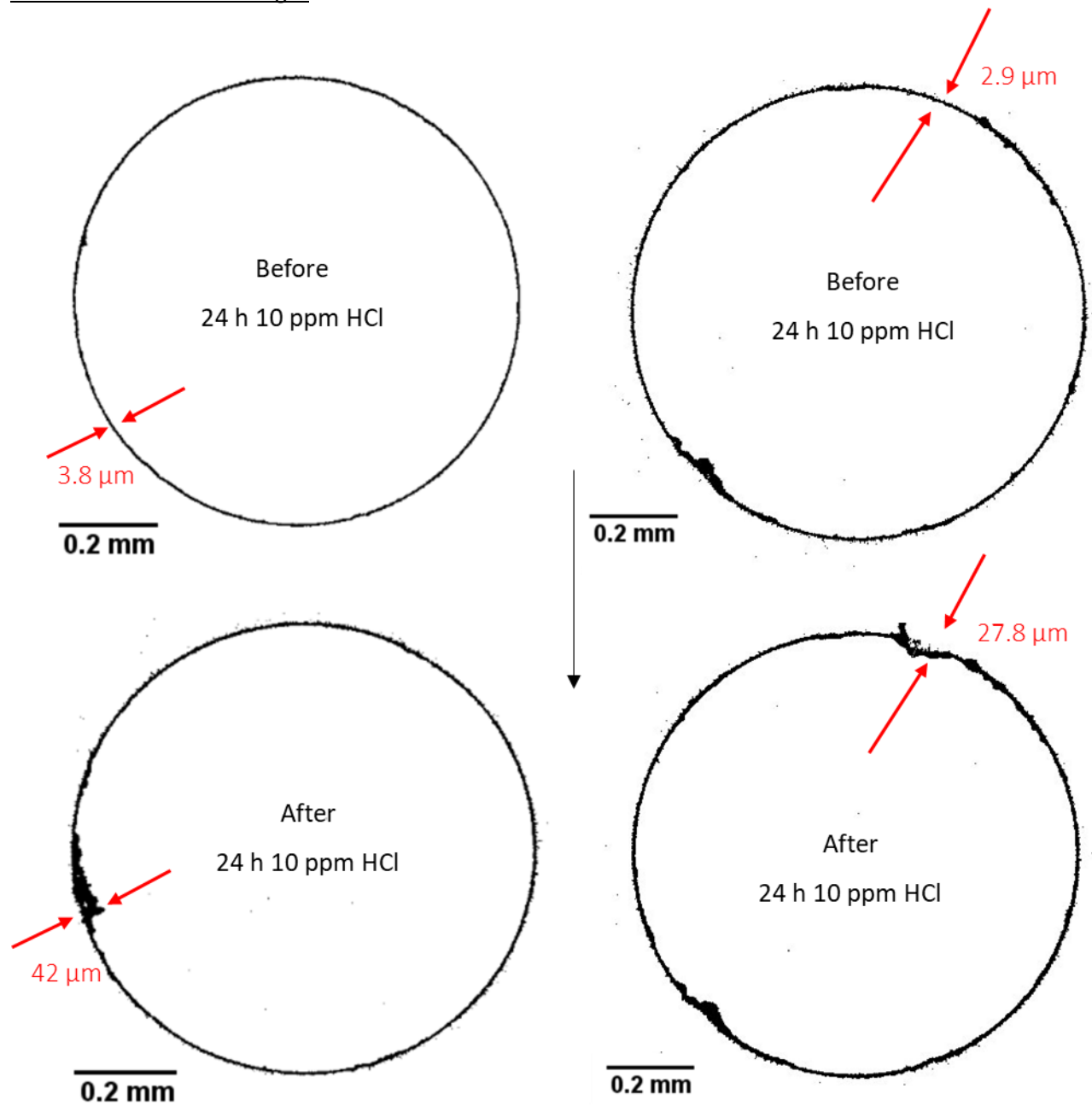
Supplementary Figure 7: 3D renderings of the corrosion coupon to observe the new localized events caused by exposure to 0.6 ppm HCl for 60-hour exposure times.



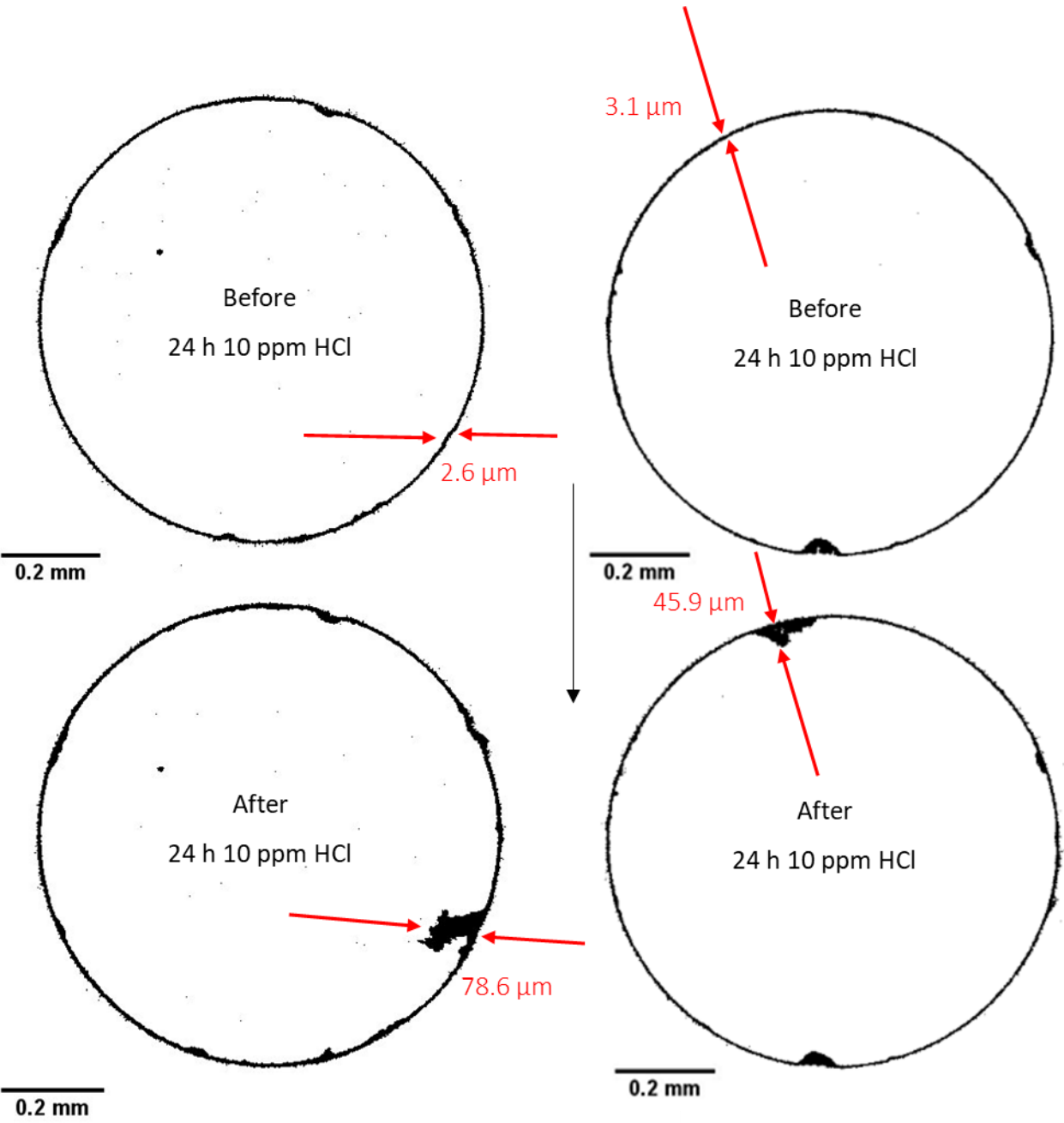
Supplementary Figure 8: 3D renderings of from CT data of same corrosion coupon with two different scans showing that the region of interest can be changed to focus on the localized corrosion occurring on specific regions of the coupon.

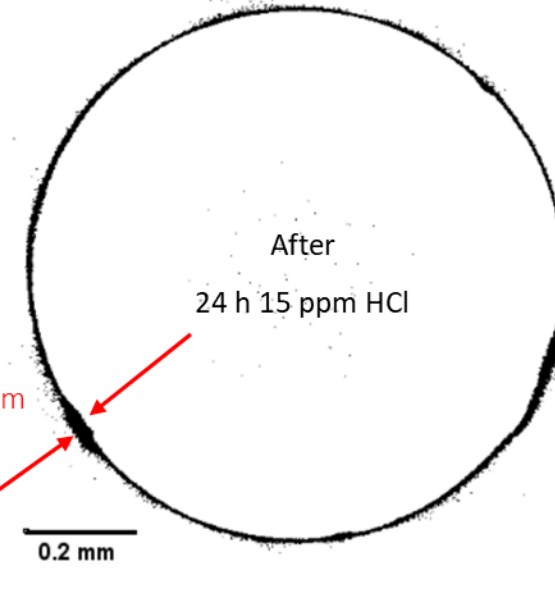
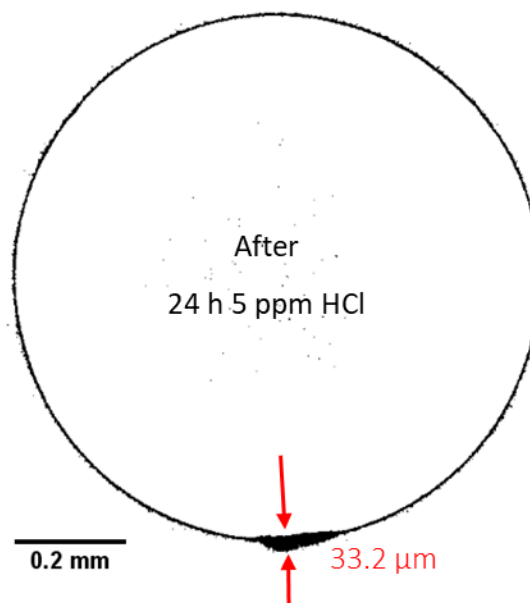
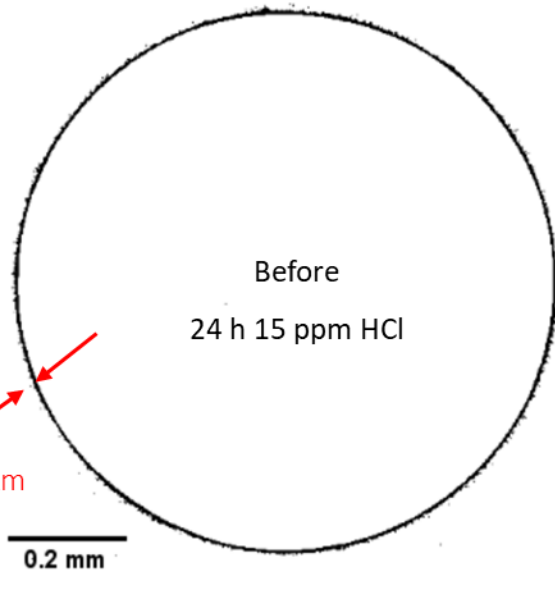
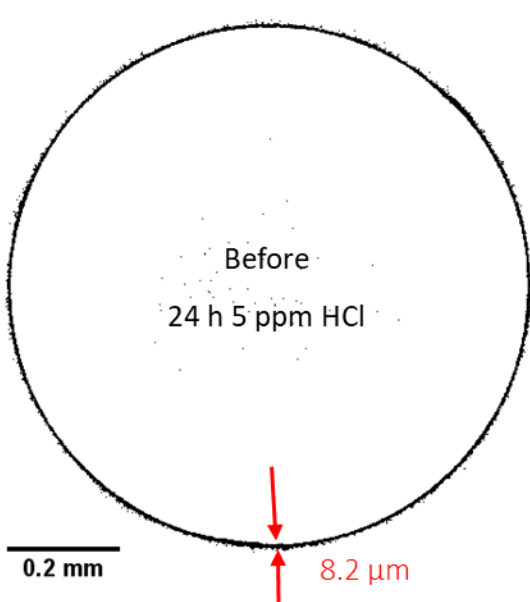
#### 4.0 Other concentrations of chloride

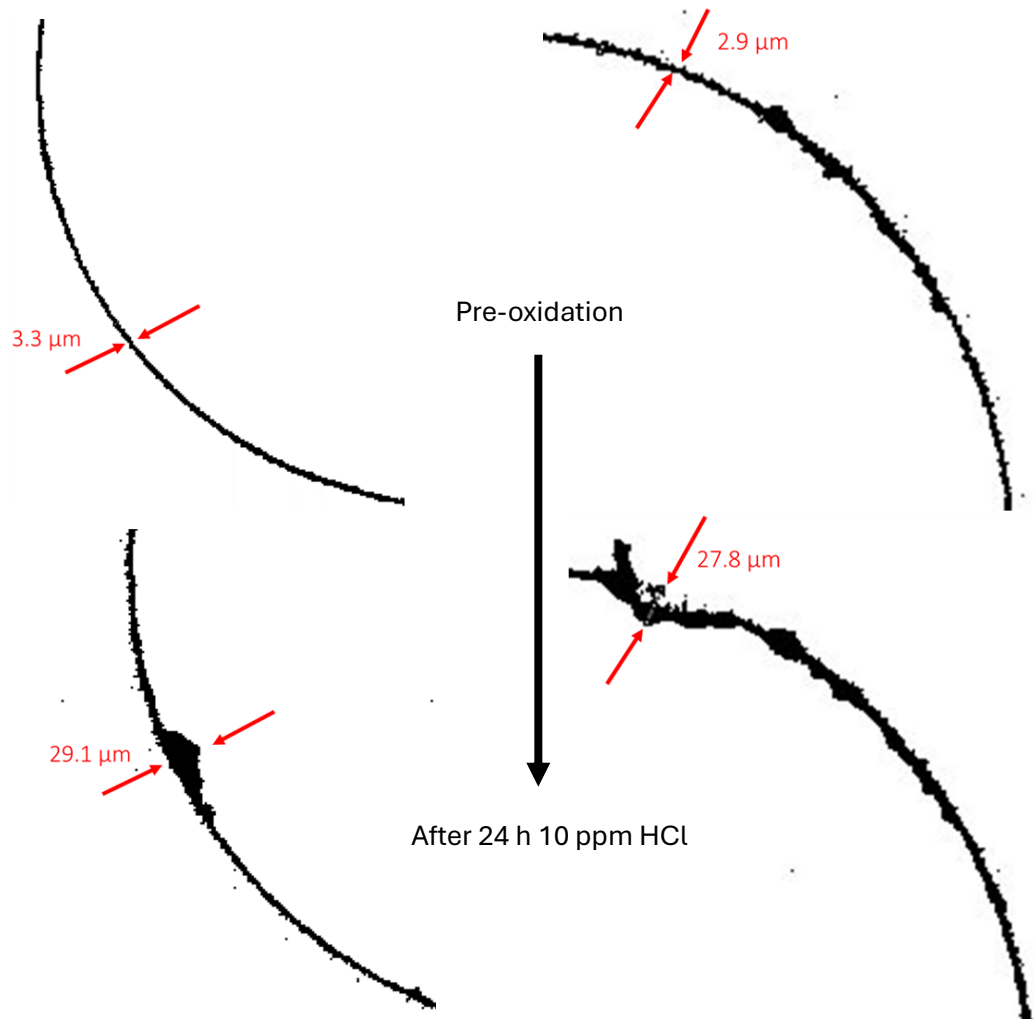
##### 4.1 2D cross-sectional images





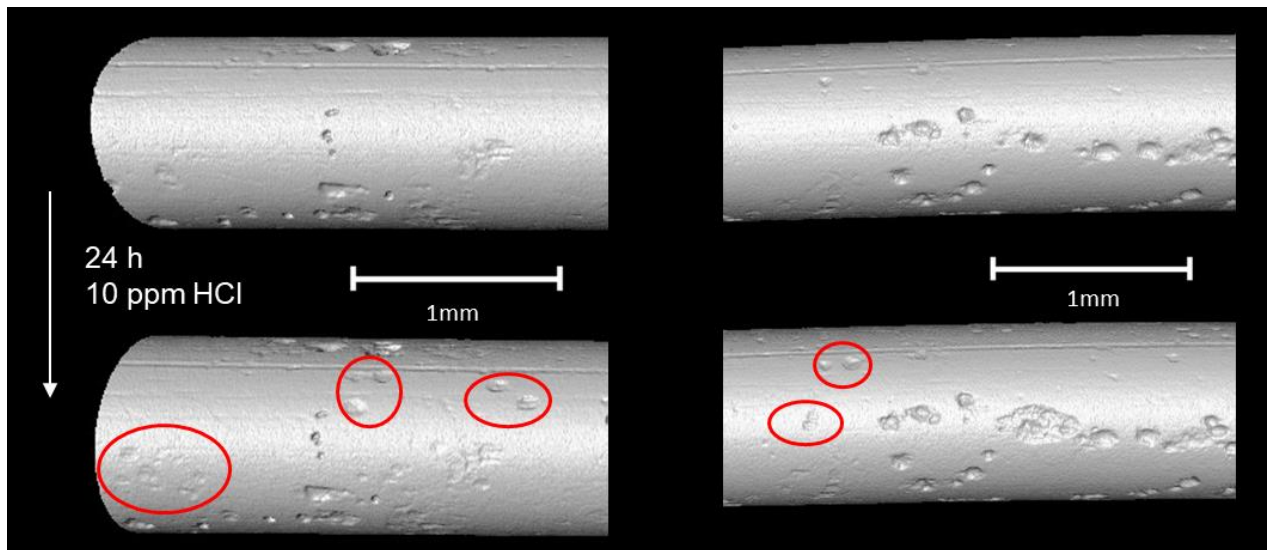
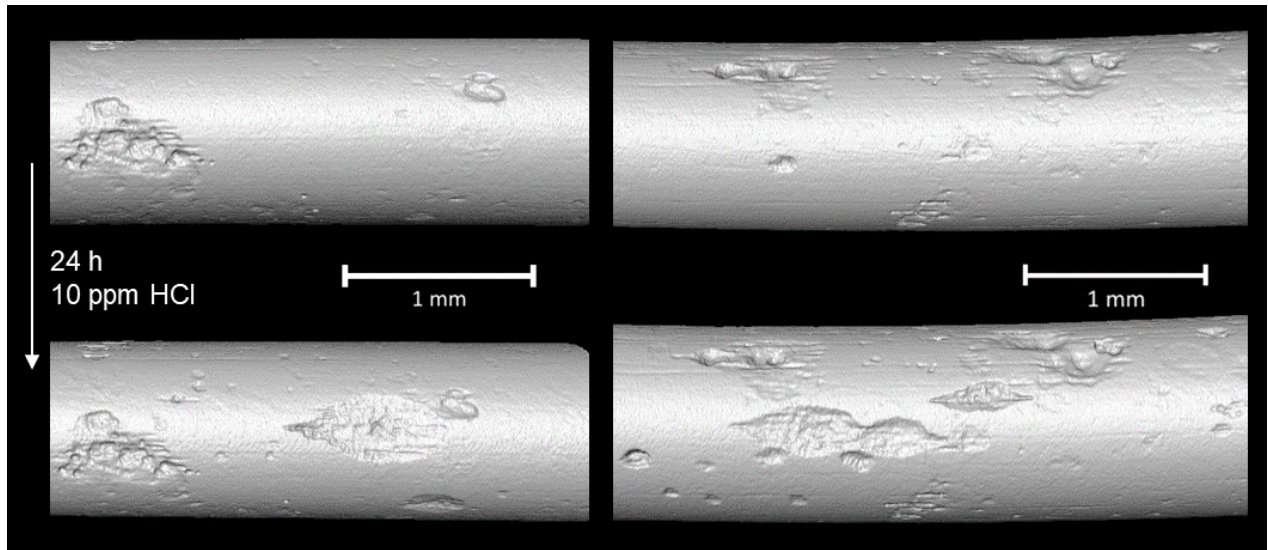


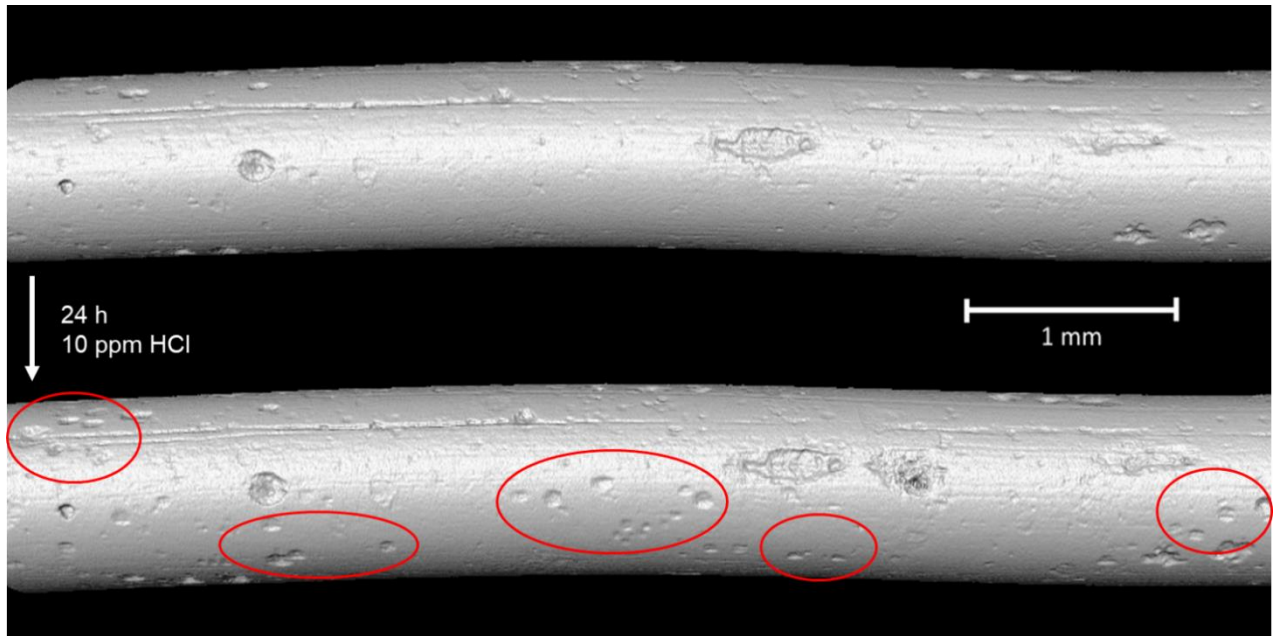
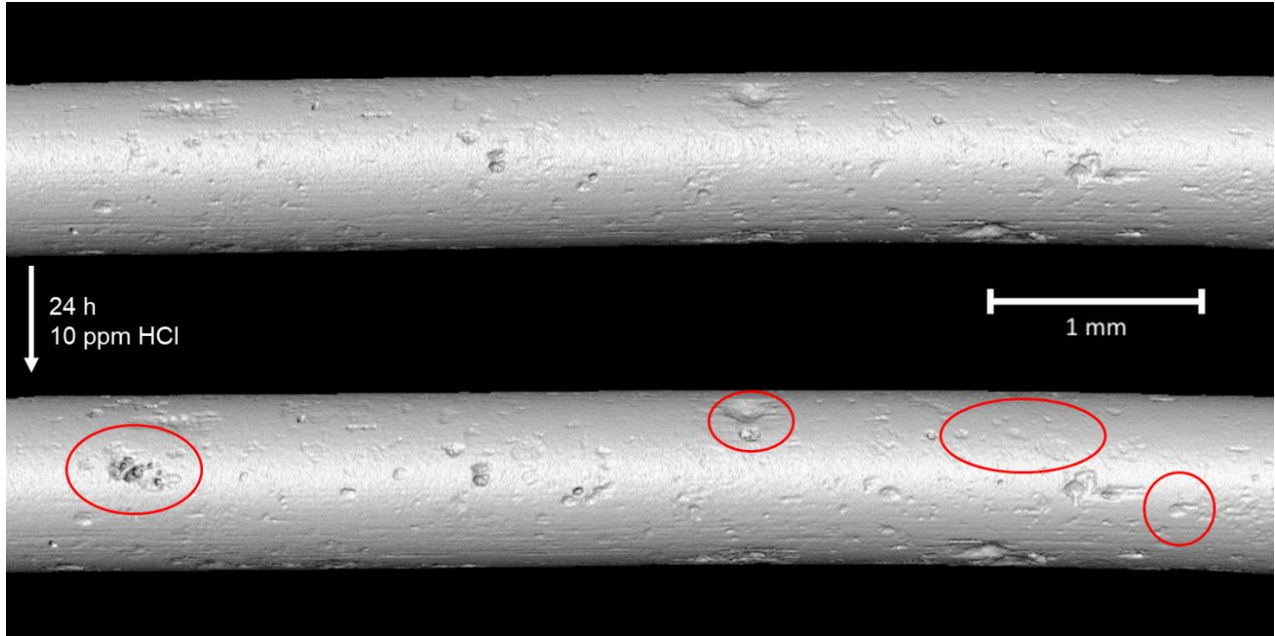


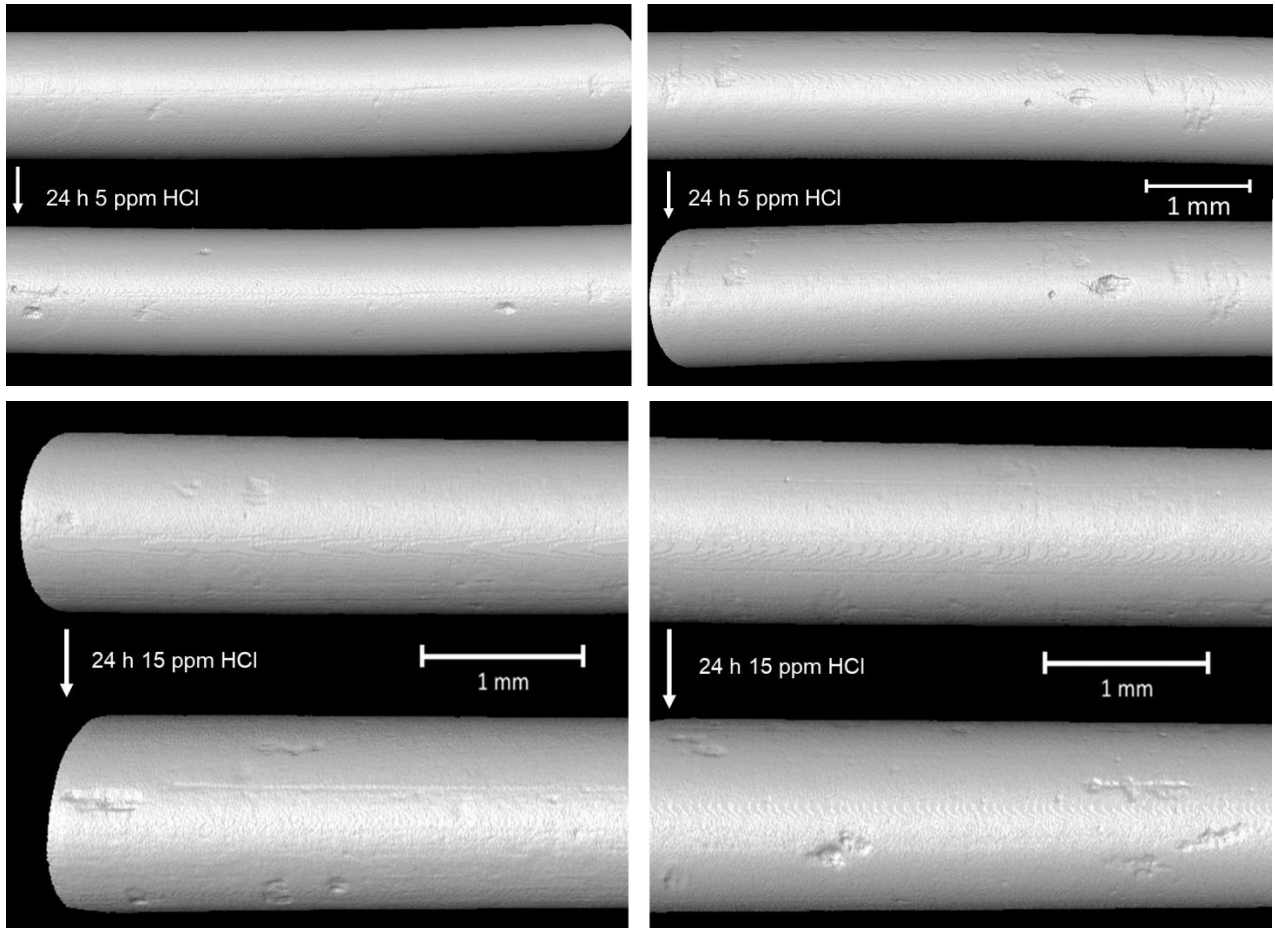


**Supplementary Figure 9: 2D cross-sectional views from CT data of corrosion coupons before and after different exposure durations to an AVT at 300 °C and 12.4 MPa to 5,10 and 15 ppm chloride.**

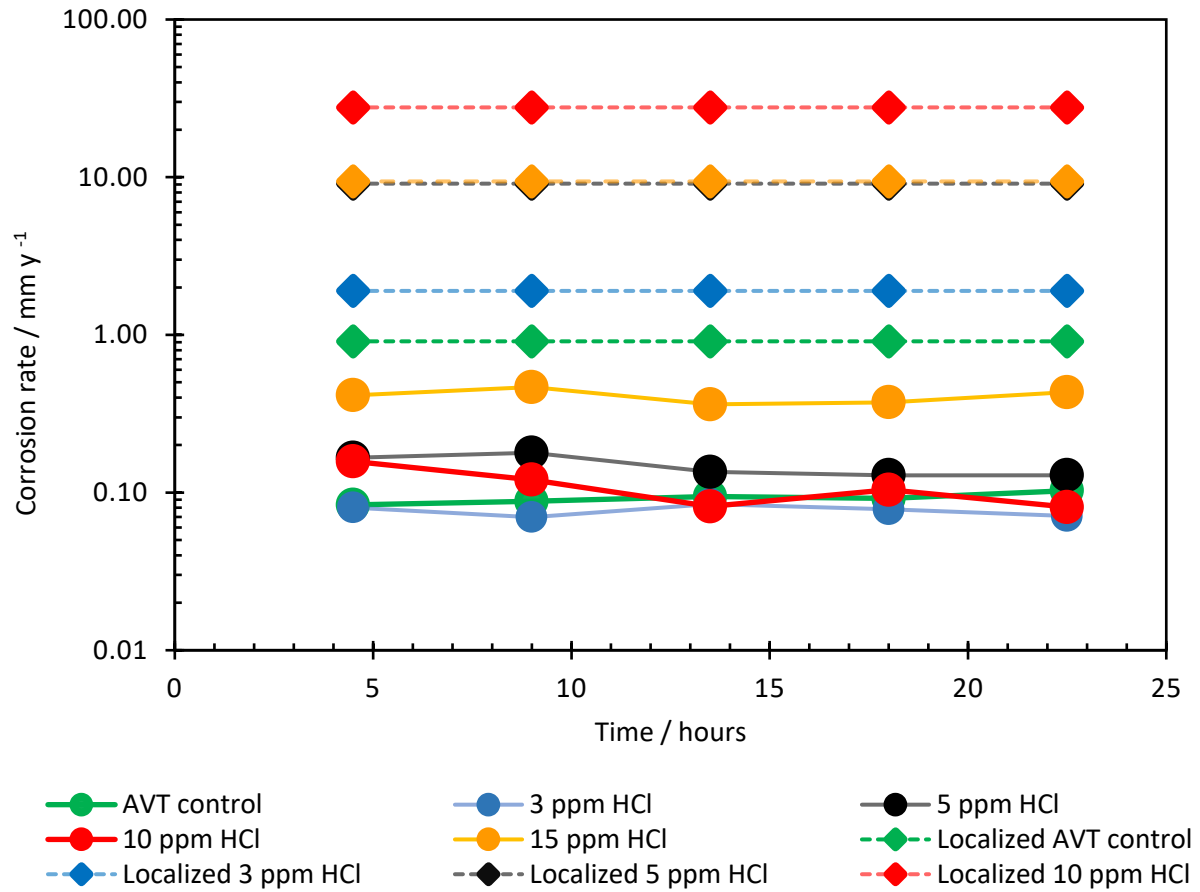
#### 4.2 3D volume rendered images







**Supplementary Figure 10: 3D renderings of corrosion coupons before and after different exposure durations to an AVT at 300 °C and 12.4 MPa to 5,10 and 15 ppm chloride.**



**Supplementary Figure 11: Plot showing the largest localized corrosion rates from different concentrations of chloride compared to the uniform corrosion rates calculated.**