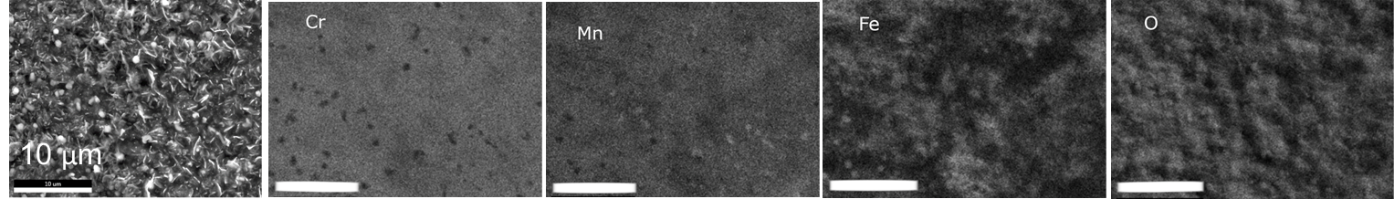
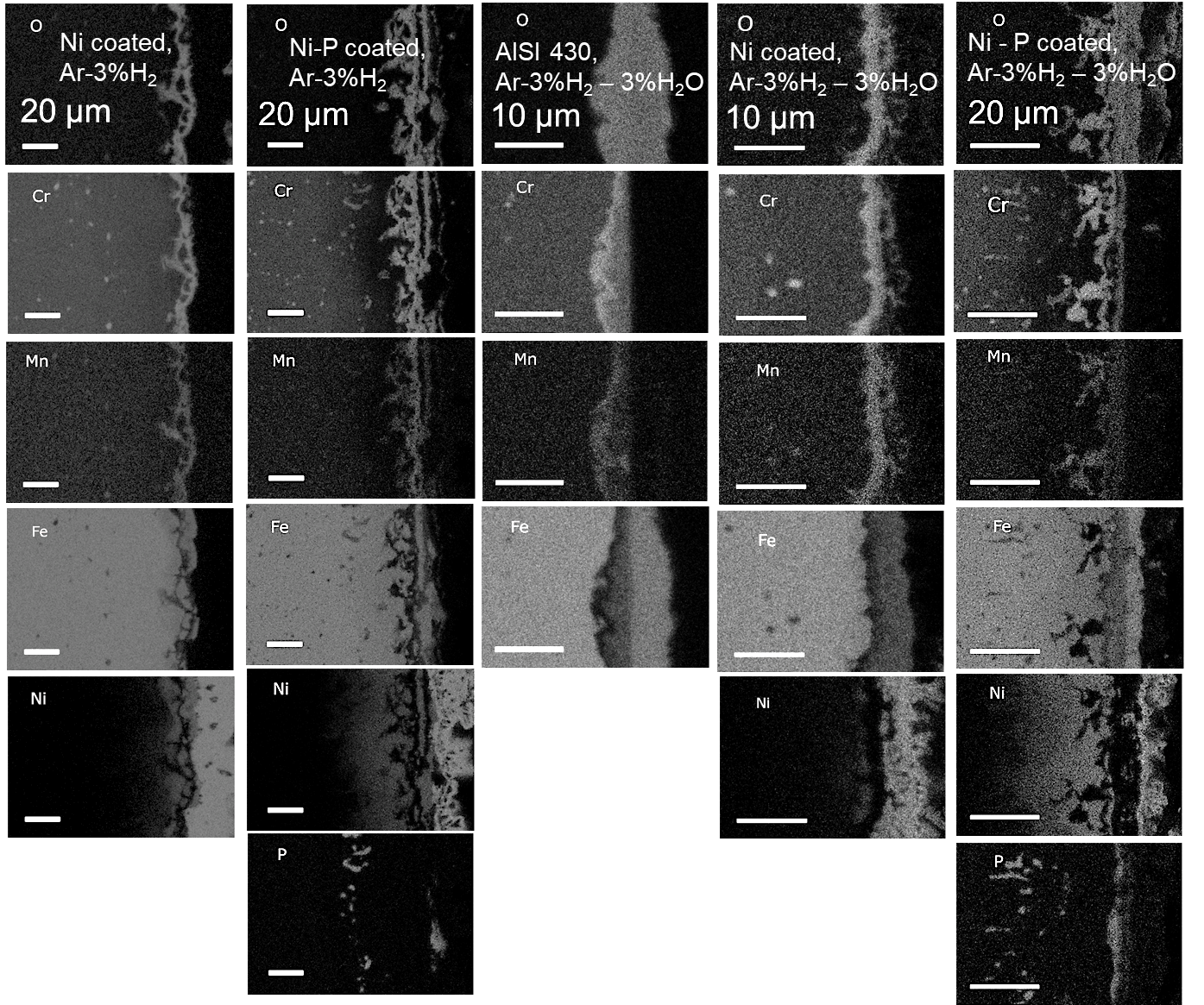
**Supplementary Information**

**Figures**

**Figure S1**: EDS elemental maps of AISI 430 surface corroded in Ar- 3%H2 at 800°C for 100 h. See text.



**Figure S2**: EDS elemental maps of uncoated, Ni coated, and Ni-P coated AISI 430 corroded in Ar- 3%H2, and at 8 Ar- 3%H2 – 3%H2O at 800°C for 100 h. See text. Outermost nickel, beyond corroded reaction zone, electrodeposited to avoid spallation during metallographic sample preparation.



**Figure S3**: (a) EDS line scan profile of AISI 430 corroded in Ar- 3%H2 -3%H2O at 800°C for 100 h. (b) Corresponding SEM image showing solid horizontal line corresponds to the EDS line scan. The numbers corresponds to different spots of interest. See text.

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(a) (b)

**Figure S4**: (a) EDS line scan profile of Ni-coated AISI 430 corroded in Ar- 3%H2 at 800°C for 100 h. (b) Corresponding SEM image showing solid horizontal line corresponds to the EDS line scan. The numbers corresponds to different spots of interest. See text.

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(a) (b)

**Figure S5**: (a) EDS line scan profile of Ni-coated AISI 430 corroded in Ar- 3%H2 – 3%H2O at 800°C for 100 h. (b) Corresponding SEM image showing solid horizontal line corresponds to the EDS line scan. The numbers corresponds to different spots of interest. See text.

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(a) (b)

**Figure S6**: (a) EDS line scan profile of Ni – P coated AISI 430 corroded in Ar- 3%H2 at 800°C for 100 h. (b) Corresponding SEM image showing solid horizontal line corresponds to the EDS line scan. The numbers corresponds to different spots of interest. See text.

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(a) (b)

**Figure S7**: (a) EDS line scan profile of Ni – P coated AISI 430 corroded in Ar- 3%H2 – 3%H2O at 800°C for 100 h. (b) Corresponding SEM image showing solid horizontal line corresponds to the EDS line scan. The numbers corresponds to different spots of interest. See text.

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(a) (b)