Material research report with MX-Lab

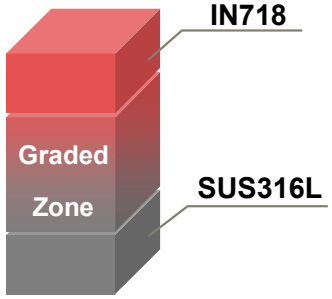
(New generation powder feeding system)

“The initial study of MMCs & FGMs”

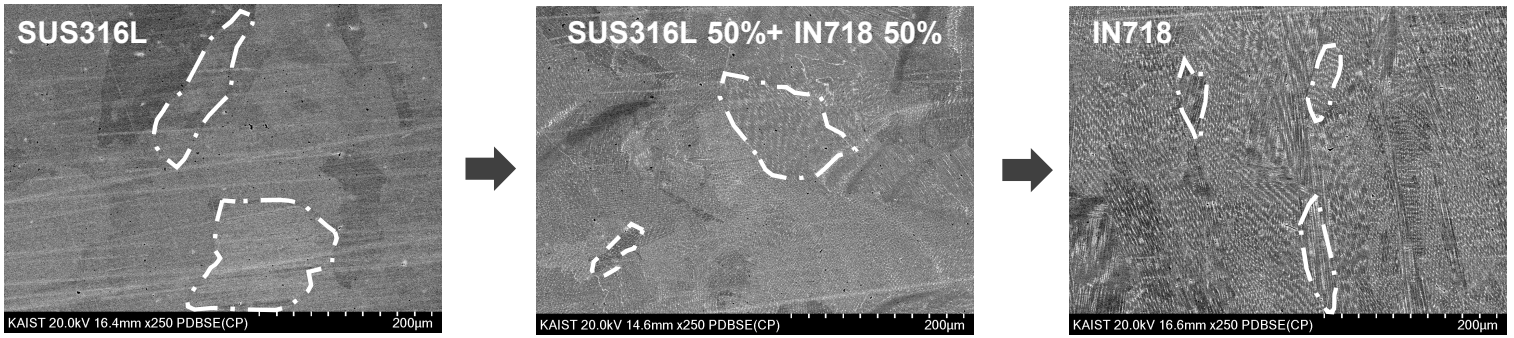
The initial study of MMCs and FGMs report contains information regarding functionally graded material such as SUS316L, IN718, CoCrNi, IN625 and T800.

All systems are integrated into one product. This functionally graded material demo shows how easy it is to research new material with the MX-Lab product.

Functionally Graded Material [SUS316L + IN718]



The MX-Lab equipment is based on six feeders and DED technologies. All systems are integrated into one product. This Functionally Graded Material demo shows how easy it is to research new material with the MX-Lab equipment.
In this demo, we stated with SUS316L and deposited the material gradually changing to IN718. After deposit, the specimens were analyzed by SEM & EDS & HV and the composition of the material gradually changed.



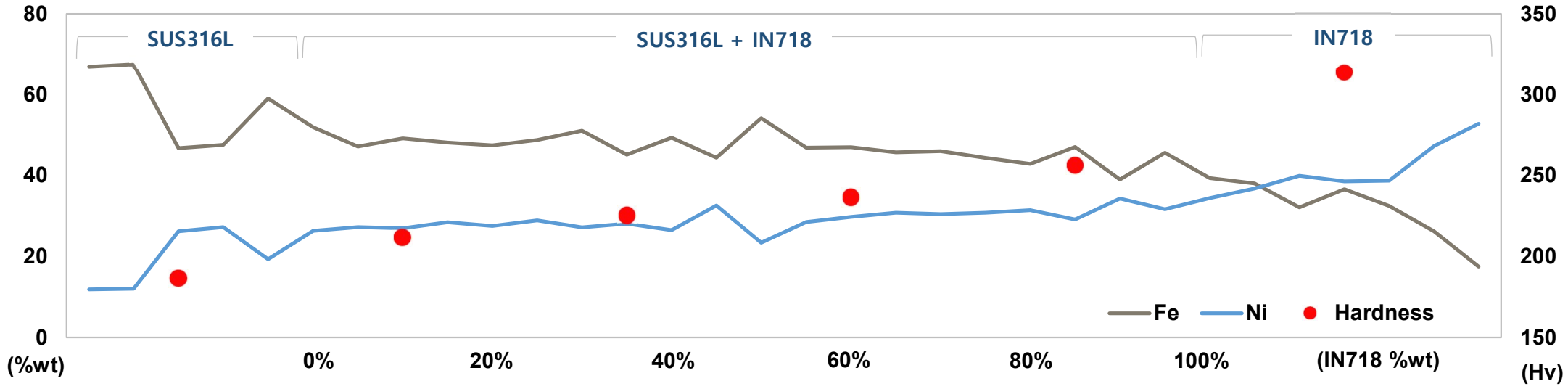
[SUS316L → IN718 SEM Analysis (x250)]

	SUS316L	IN718
Fe	67	18
Ni	11.5	53

[Powder Chemical Properties (%wt)]

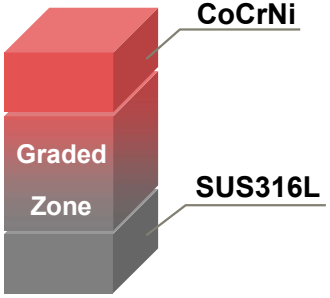
	Start(1%)	End (100%)
Fe	66.9	17.5
Ni	11.9	52.8

[Specimen Chemical Properties (%wt)]

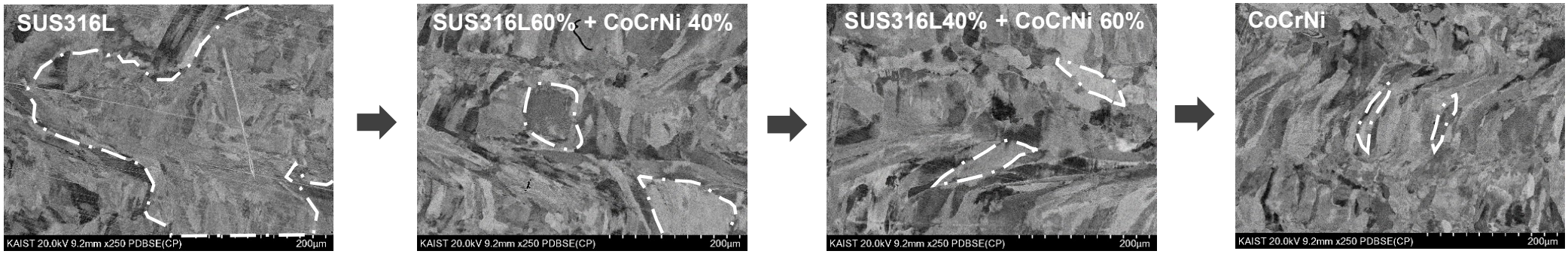


[SUS316L → IN718 Gradient Deposition Chemical Properties (wt%) & Hardness (Hv)]

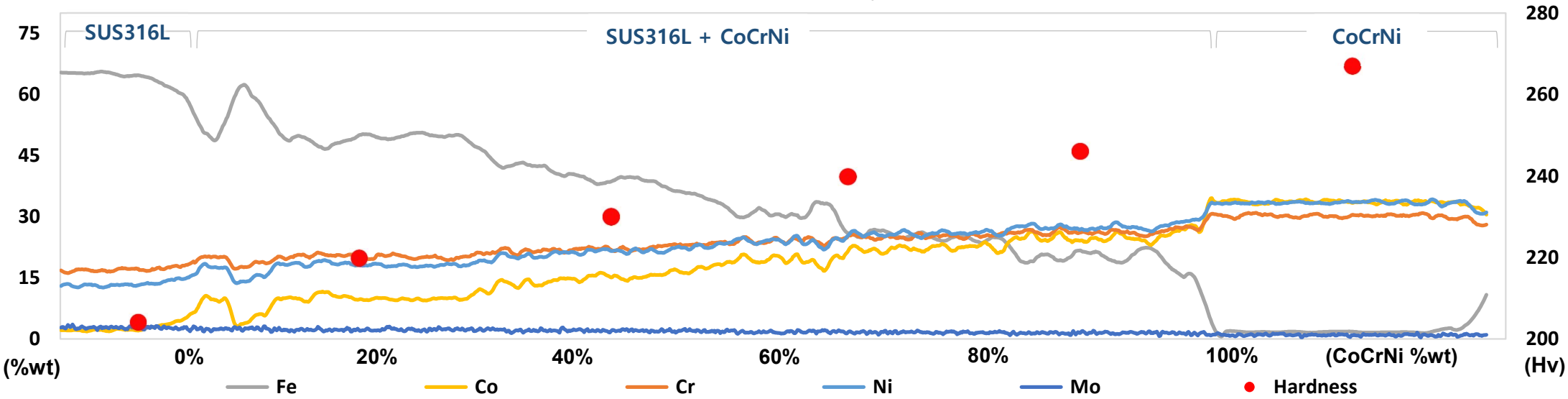
Functionally Graded Material [SUS316L + CoCrNi]



The MX-Lab equipment is based on six feeders and DED technologies. All systems are integrated into one product. This Functionally Graded Material demo shows how easy it is to research new material with the MX-Lab equipment.
In this demo, we stated with SUS316L and deposited the material gradually changing to CoCrNi. After deposit, the specimens were analyzed by SEM & EDS & HV and the composition of the material gradually changed.

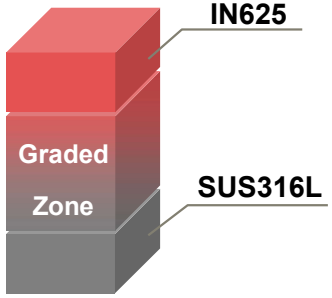


[SUS316L → CoCrNi SEM Analysis (x250)]

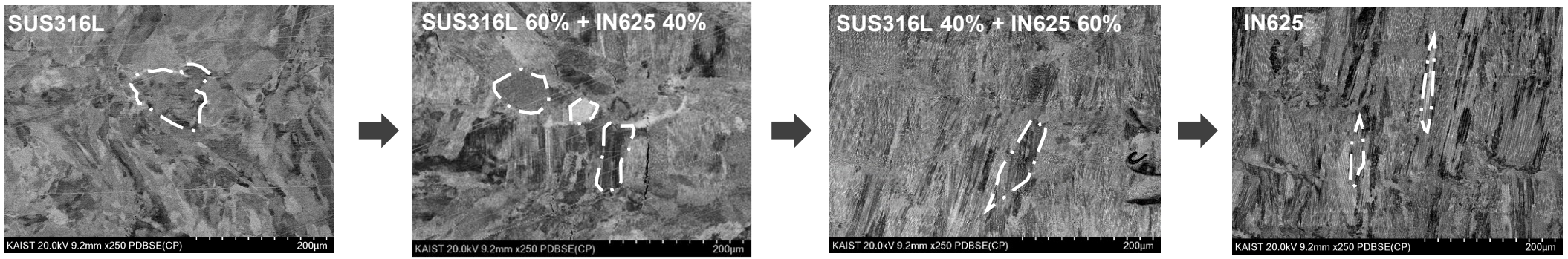


[SUS316L → CoCrNi Gradient Deposition Property (wt%) & Hardness (Hv)]

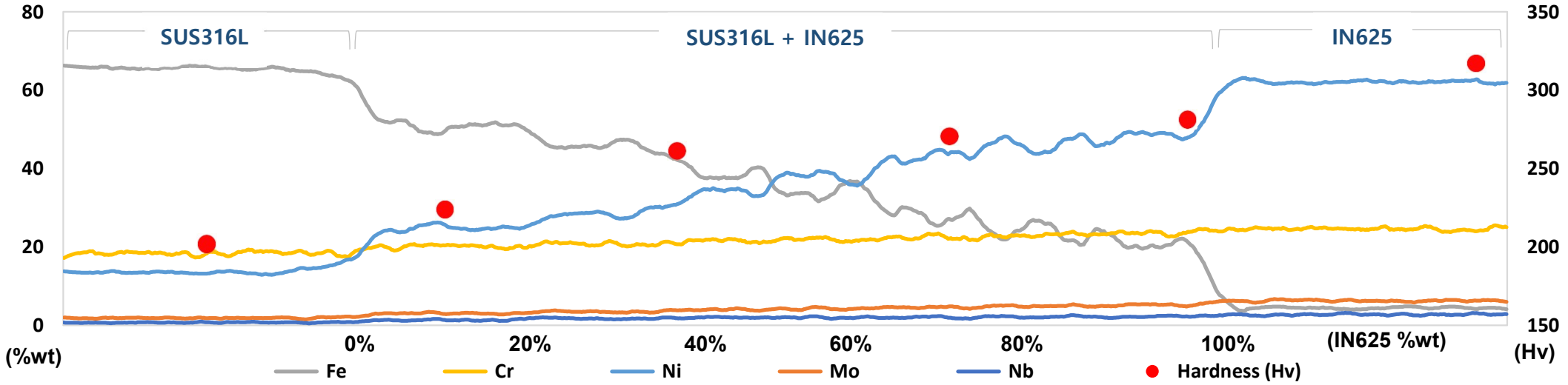
Functionally Graded Material [SUS316L + IN625]



The MX-Lab equipment is based on six feeders and DED technologies. All systems are integrated into one product. This Functionally Graded Material demo shows how easy it is to research new material with the MX-Lab equipment.
In this demo, we stated with SUS316L and deposited the material gradually changing to IN625. After deposit, the specimens were analyzed by SEM & EDS & HV and the composition of the material gradually changed.



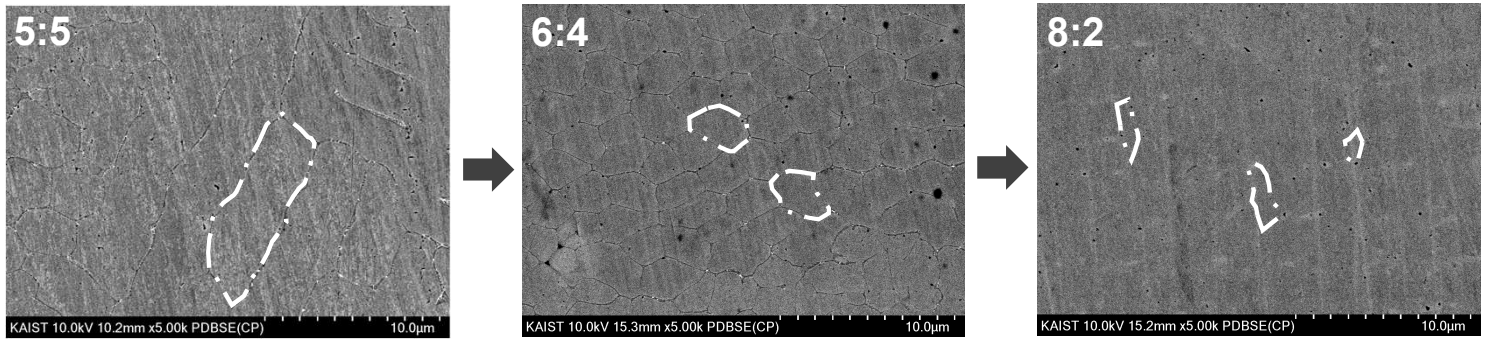
[SUS316L → IN625 SEM Analysis (x250)]



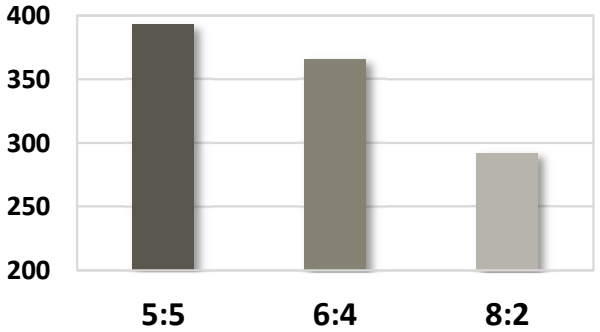
[SUS316L → IN625 Gradient Deposition Chemical Property (wt%) & Hardness (Hv)]

Metal Matrix Composite [SUS316L + T800]

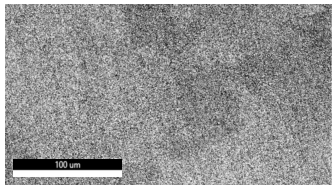
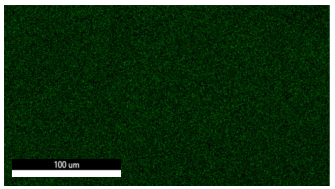
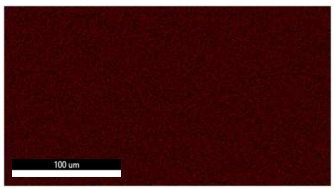
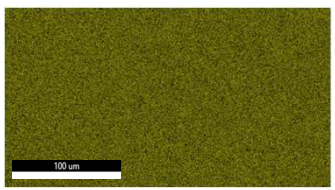
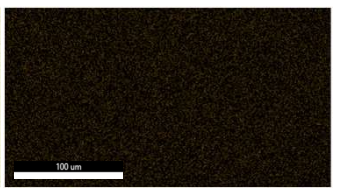
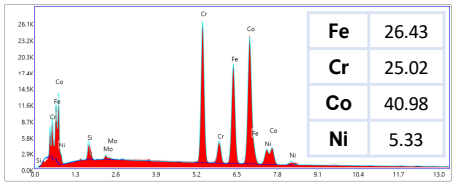
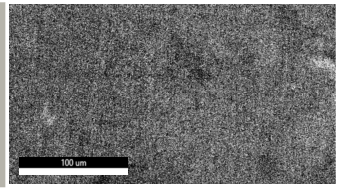
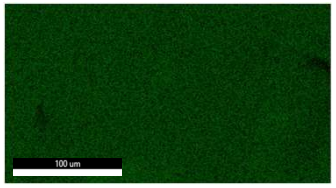
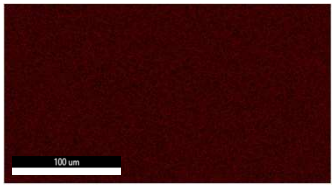
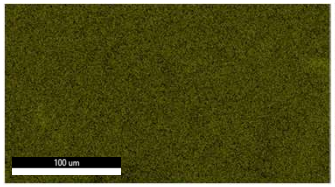
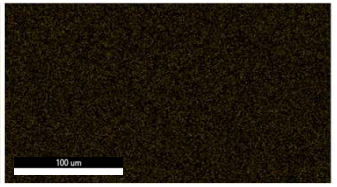
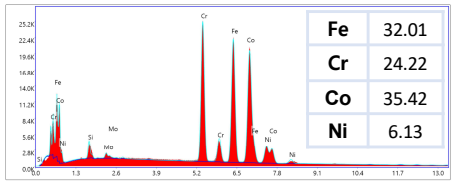
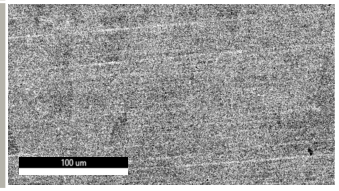
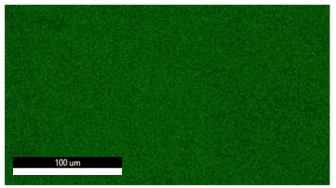
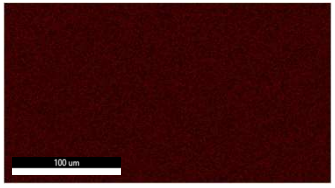
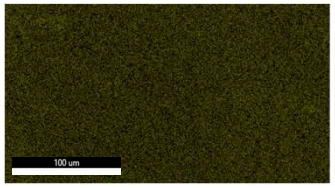
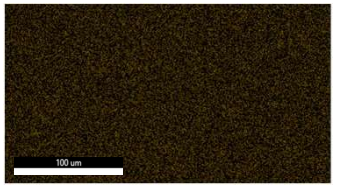
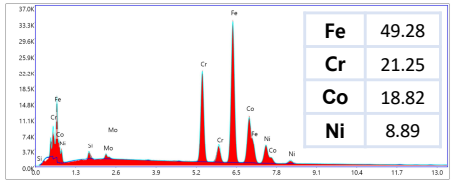
The MX-Lab Equipment is Based on six feeders and DED technologies. All systems are integrated into one product.
This Metal Matrix Composites demo shows how easy it is to research new material with the MX-Lab equipment.
In this demo, we stated SUS316L and T800 mixing powder in 5:5, 6:4, 8:2 ratio.
After deposit, the specimens of Metal Matrix Composites were analyzed by SEM & EDS & hardness.



[SUS316L + T800 SEM Analysis (x5.0K)]

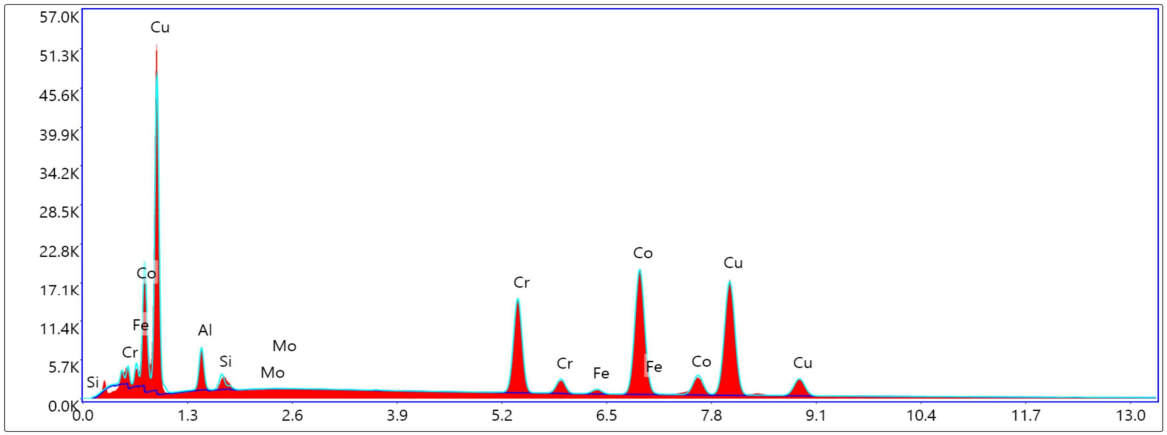


[SUS316L + T800 Hardness (Hv)]

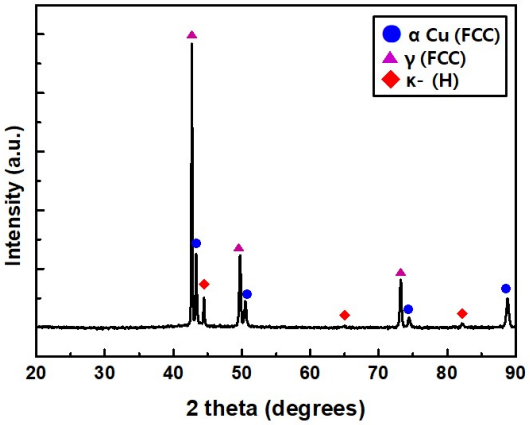
	Image	Fe	Cr	Co	Ni	Element Quantity (%wt)
5:5						 Fe 26.43 / Cr 25.02 / Co 40.98 / Ni 5.33
6:4						 Fe 32.01 / Cr 24.22 / Co 35.42 / Ni 6.13
8:2						 Fe 49.28 / Cr 21.25 / Co 18.82 / Ni 8.89

Metal Matrix Composite [AlBronze + T800]

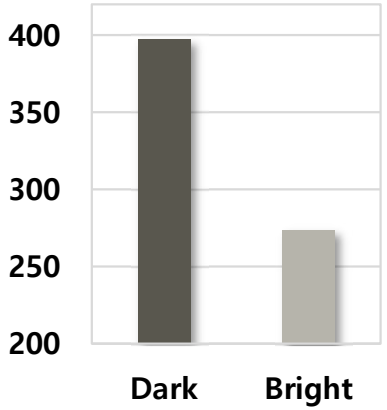
The MX-Lab Equipment is Based on six feeders and DED technologies. All systems are integrated into one product.
This Metal Matrix Composites demo shows how easy it is to research new material with the MX-Lab equipment.
In this demo, we stated AlBronze and T800 mixing powder in 7:3 ratio.
After deposit, the specimens of Metal Matrix Composites were analyzed by SEM & EDS & Hardness & XRD.



[EDS Spectrum Element Quant Results]



[XRD Analysis]



[Hardness (Hv)]