Mississippi State University
Invitation for Bid 22-78, Optical Emission Spectroscopy
Addendum One

April 28, 2022

The following questions were received pertaining to the above bid file. See answers below and bid accordingly. Acknowledge this addendum by writing the number and date of the addendum on the bid form.

1) Could you send any additional requirements that were not originally submitted?
   a) Attached is the full table that was not in original bid documents.

2) Is this a SPARK OES request or any OES for solid materials? (Example Glow Discharge)
   a) The OES is to be used to analyze solid metal samples in the alloy families described in the bidding document (Fe, Al, Mg, Ti, and Ni). Spark OES, or similar such as glow discharge, is acceptable.

3) Does the user want depth profiling capability along with the OES simultaneously? (correlation of depth and elemental profile)
   a) We are not requiring a machine with dedicated depth profiling capability, but if the proposed machine has that capability, it is acceptable.

Desired elemental composition limits (wt. %) for each alloy family (Ni, Ti).

Element	Ni		Ti	
	min	max	min	max
Ag				
Al	0.001	7	0.0005	8.1
As				
B	0.0001	0.03		
Ba				
Be				
Bi				
C	0.001	1.1	0.002	0.12
Ca				
Cd				
Ce				
Co	0.0025	21		
Cr	0.0005	35	0.001	3.6
Cu	0.0005	41	0.002	2.5
Fe	0.0006	54	0.0025	3.1
Ga				
Gd				
Hf	0.01	3		
Hg				
In				
La				
Li				
Mg	0.0001	0.75		
Mn	0.0005	4	0.002	7.1
Mo	0.0015	34	0.003	15.6
Na				
Nb	0.002	8	0.0025	7.1
Nd				
Ni	bal.	bal.	0.001	0.78

Desired elemental composition limits (wt. %) for each alloy family (Ni, Ti), continued.

Element	Ni		Ti	
	min	max	min	max
Pb	0.001	0.07		
Pd			0.002	0.2
Pr				
Re	0.1	6.4		
Ru			0.005	0.131
S	0.001	0.35		
Sb				
Sc				
Se				
Si	0.001	5	0.0015	0.63
Sn	0.001	16	0.0005	11.1
Sr				
Ta	0.005	11.7		
Te				
Th				
Ti	0.0005	6.2	bal.	bal.
V	0.0005	1.1	0.001	5.6
W	0.005	13		
Y			0.001	0.012
Zn				
Zr	0.001	0.3	0.001	5.8

Desired elemental composition limits (wt. %) for each alloy family (Fe, Al, Mg).

Element	Fe		Al		Mg	
	min	max	min	max	min	max
Ag			0.0001	1	0.0001	3.4
Al	0.0005	2.8	bal.	bal.	0.0001	11.6
As	0.001	0.2	0.001	0.011		
B	0.0002	0.11	0.0001	1.5		
Ba			0.0001	0.006		
Be			0.00005	0.022	0.00005	0.006
Bi	0.001	0.036	0.001	0.71		
C	0.001	4.35				
Ca	0.0001	0.013	0.0001	0.041	0.0001	0.42
Cd			0.0001	0.33	0.0002	0.071
Ce	0.001	0.54	0.0015	0.026	0.004	3.3
Co	0.001	21	0.0005	1.6		
Cr	0.0005	32	0.0003	0.5		
Cu	0.0005	8	0.0001	53	0.0001	0.23
Fe	bal.	bal.	0.0005	12	0.001	0.04
Ga			0.0005	0.13		
Gd					0.003	0.35
Hf			0.0035	10		
Hg			0.001	0.01		
In			0.0003	0.1		
La	0.0003	0.22	0.0003	10.5	0.0006	0.7
Li			0.0001	8.1		
Mg	0.0005	0.23	0.0001	12	bal.	bal.
Mn	0.0005	20	0.0003	30	0.0002	2.4
Mo	0.001	10	0.0005	0.012		
Na			0.0001	0.022	0.00005	0.002
Nb	0.001	3				
Nd					0.004	3.5
Ni	0.0015	44	0.0004	3	0.0008	0.042

Desired elemental composition limits (wt. %) for each alloy family (Fe, Al, Mg), continued.

Element	Fe		Al		Mg	
	min	max	min	max	min	max
Pb	0.001	0.38	0.0005	1.5	0.004	0.11
Pd						
Pr					0.0015	0.33
Re						
Ru						
S	0.0002	0.43				
Sb	0.001	0.24	0.003	0.55		
Sc			0.0005	0.42		
Se	0.002	0.3				
Si	0.001	18	0.0005	30	0.0008	1.6
Sn	0.0002	0.24	0.0005	20.1	0.0005	0.11
Sr			0.0001	10.5	0.001	2.1
Ta	0.007	0.76				
Te	0.001	0.08				
Th					0.01	4.3
Ti	0.0002	3.2	0.0004	5.5		
V	0.0005	11	0.0005	0.16		
W	0.005	21				
Y			0.0003	0.5	0.005	5.5
Zn	0.001	0.045	0.001	12	0.0001	7.1
Zr	0.001	0.23	0.0003	0.25	0.001	0.75