Department of Metallurgy and Materials Science
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COEP/MET/STV/2019/288 Date: 26th July2019

Subject: Invitation of Quotation for consumables/materials.

Dear Sir/Madam

Please quote for the following consumables/materials with technical specifications, detail bifurcation of basic cost, taxes and other charges if any. Send two sealed envelopes one containing with detail technical specifications, and other containing with commercial details.The quotation should carry chemical/composition test certificate of consumables / materials from authorized laboratory. Sealed envelope shall super scribe " Quotation for consumables/materials "It should be posted to Head, Metallurgy and Materials Science, College of Engineering Shivajinagar Pune – 411005.

Sr. No.	Material Description	Particular	Quantity
1	Inconel 738 solid bar	12 mm X 1000 mm	1 Nos.
2	Bond Coat NiCoCrAlY (Powder)	APS < 50 µm	0.15kg
3	Bond Coat NiCoCrAlY (Pellet)	5 mm X 5 mm X 5 mm	0.15kg
4	Yttria Stabilized Zirconia (YSZ) (Powder)	APS < 50 µm	0.5kg
5	Yttria Stabilized Zirconia (YSZ) (Pellet)	5 mm X 5 mm X 5 mm	0.5kg
6	Lanthanum Titanum Aluminum (LTA) (Powder)	APS < 50 µm	0.5kg
7	Lanthanum Titanum Aluminum (LTA) (Pellet)	5 mm X 5 mm X 5 mm	0.5kg

(APS = Average particle size)

TECHNICAL SPECIFICATION SHEET

1. INCONEL 738

Vacuum-cast and precipitation-hardened

Chemical Composition of Inconel 738 (wt. %)
Carbon 0.15-0.20
Cobalt 8.00-9.00
Chromium 15.70-16.30
Molybdenum 1.50-2.00
Tungsten 2.40-2.80
Tantalum 1.50-2.00
Columbium 0.60-1.10
Aluminum 3.20-3.70
Titanium 3.20-3.70
Aluminum and titanium 6.50-7.20
Boron 0.005-0.015
Zirconium 0.05-0.15
Iron 0.50 max
Manganese 0.20 max
Silicon 0.30 max
Sulfur 0.015 max
Nickel : Balance

Heat Treatment of Inconel 738
1121°C for 2 hours
Air cool
843°C for 24 hours
Air cool
Purity: 99%+
Form: Solid bar

2. BOND COAT(NiCoCrAlY)

Chemical Composition (wt. %)
Cobalt 20.0 - 26.0
Chromium 18.0 - 23.0
Aluminium 6.0 - 11.0
Tantalum 2.0 - 6.0
Yttrium 0.3 - 0.9
Nickel : Balance

Particle Size Distribution
Nominal Particle Size Distribution (µm): < 50
Manufacturing Method: Gas Atomized
Morphology: Spheroidal
Purity: 99% +
Form: Powder and Pellet

3. YTTRIA-STABILIZED ZIRCONIA (YSZ)

Yttria-stabilized zirconia (ZrO_2-3 mol%Y_2O_3, YSZ) ceramic with ultra-low thermal conductivity(As low as 0.06 W/mK). Should be fabricated by tert-butyl alcohol (TBA)-based gel-casting process with low solid loadings of 10 and 15 vol%. High porosity (52–76%) and fine pores with average pore size of 0.7–1.8 micro meter if possible.

Chemical Composition (Approx. wt. %)
Zirconium 26.13%
Yttrium 50.80%
Oxygen 22.9%
Zn 0.15%
MgO 0.21%
TiO_2 0.20%
Density: Approx. 5.89 g/cm^3
Purity: 99%+
Form: Powder and Pellet
Average Particle Size (µm) : <50

4. LANTHANUM TITANIUM ALUMINIUM (LTA)

$LaTi_2Al_9O_{19}$ (LTA)

Chemical Composition (Approx. wt. %)
Aluminium 31.07%
Titanium 12.05%
Lanthanum 17.45%
Oxygen 38.70%
Fe 0.25%
Others 0.50%
Density: Approx. 3.25 g/cm^3
Purity: 99%+
Form: Powder and Pellet
Average Particle Size (µm) : <50

Note: Materials in the form of Pellet and solid bar should evaporate with the help of Electron Beam Physical vapor Deposition System (EB-PVD), without breaking it into pieces. Purpose of the process is to coat the YSZ, LTA and Bond coat materials over Inconel 738. Certification of material analysis is mandatory.

Opening date for submission of sealed quotation: 8th August 2019

Closing datefor submission of sealed quotation: 22nd August 2019 till 2.00 p.m.; sealed quotation opening:22nd August 2019 3.00 p.m. in Dept. of Metallurgy and Materials Science.

Director,
CoEP