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SOLICITATION AMENDMENT MODIFICATION DE L'INVITATION

The referenced document is hereby revised; unless otherwise indicated, all other terms and conditions of the Solicitation remain the same.

Ce document est par la présente révisé; sauf indication contraire, les modalités de l'invitation demeurent les mêmes.

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Title - Sujet Lab Research Grade Comp. Oven	
Solicitation No. - N° de l'invitation 31184-133963/B	Amendment No. - N° modif. 001
Client Reference No. - N° de référence du client 31184-133963	Date 2014-09-08
GETS Reference No. - N° de référence de SEAG PW-\$\$PV-915-65568	
File No. - N° de dossier pv915.31184-133963	CCC No./N° CCC - FMS No./N° VME
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2014-09-30	Time Zone Fuseau horaire Eastern Daylight Saving Time EDT
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This amendment is raised to modify the Request for Proposal (RFP) document and to publish all questions and answers.

ANNEX A - MANDATORY SPECIFICATIONS FOR A RESEARCH LABORATORY OVEN

To add the following mandatory specifications:

3.5 The research laboratory oven must be of Class B;

Reference in Contractors Proposal: _____

3.6 The temperature requirements must be as follows:

3.6.1 Tsoak= 800°F ±10°F

3.6.2 rmax = 10°F/min ±2°F/min (RT – 500°F), rmax = 5 °F/min±1°F/min (500 – 800°F)

Reference in Contractors Proposal: _____

3.7 The oven must have double doors with no centre mullion;

Reference in Contractors Proposal: _____

3.8 The single door must swing to the left (hinge on the left).

Reference in Contractors Proposal: _____

All other terms and conditions of the RFP remain unchanged.

QUESTIONS AND ANSWERS

Q.1 Can you please advise what class of oven is required. Class “A” or Class “B”?

A.1 Oven must be Class B.

Q.2 If this is a Class “A” oven, could you please provide what volatiles and quantities would be in the oven.

A.2 Oven will be mainly used for composite post-cure processes, where only trace volatiles are expected. These mainly water, CO₂ and residual solvents like styrene and methanol. The latter set is almost negligible.

Q.3 Is there a uniformity requirement that needs to be met?

A.3 Yes there is temperature uniformity to be met. This will be research equipment and temp uniformity is important. The temperature requirements be as follows:

a. $T_{\text{soak}} = 800^{\circ}\text{F} \pm 10^{\circ}\text{F}$

b. $r_{\text{max}} = 10^{\circ}\text{F}/\text{min} \pm 2^{\circ}\text{F}/\text{min} \text{ (RT} - 500^{\circ}\text{F)}$, $r_{\text{max}} = 5^{\circ}\text{F}/\text{min} \pm 1^{\circ}\text{F}/\text{min} \text{ (500} - 800^{\circ}\text{F)}$

Q.4 Your requirement 2.2 specifies that there should not be a centre mullion post dividing doors. Could you please clarify, is the oven to have double doors with no centre mullion or one single door and what side of the oven should it swing open.

A.4 The oven must have double doors with no centre mullion. Also, the single door must swing to the left (hinge on the left). Alternatively, top loading oven would be acceptable.

Q.5 Is there a preference what side the control panel should be mounted on?

A.5 Controller should be on left side (not mandatory)

Q.6 Could you please advise what process the oven will be used for, and what materials being processed. Also, are there any MSDS sheets that would be available for the materials being processed.

A.6 The oven will be used for post-processing (post-curing) of composite materials, featuring classes of matrix materials: epoxies, polyimides, and cyanate esters. See attached MSDS sheets.

Q.7 For the process, is there any process programs that should be set up in the programmable temperature controller? (Heat-up, soak, cool down rates)

A.7 They would consist of pre-described steps (including heat up, temp holds and cool downs). As we are interested in exploring the limits of the materials, the process cycles tend to get very complex. Ideally, the process would be inputted from a controller software app on a stand-alone PC (to be provided by NRC), which would also collect the temperature data. This is a relatively common and inexpensive controller capability.

Q.8 Typically it is required to include a powered exhaust fan when there are unsafe volatiles being put into an oven like this. Your answer to our question with regard to the Oven being Class "A" or Class "B" you have stated Class "B".

Is this correct? A Class "A" oven includes a powered vented exhaust.

A.8 I was under the impression that all (A and B) convection ovens have a recirculating fan with an exhaust bleed-off and extraction - at least our existing (Class B) oven does. Albeit, this oven features lower operating temperatures ($T_{\text{max}} = 450^{\circ}\text{F}$), which may be relevant.

I thought that Class A are fire- and explosion-proof ovens, something we don't need or can afford. Manufacturer should be able to provide the cost difference. In any case, we do want an oven with the exhaust bleed-off and extraction, regardless of its Class.

Q.9 Our Engineer would like to know how much residual solvents, (styrene, methanol) would be in the oven with a maximum load.

A.9 It is very hard to measure the actual amount of solvents, as they are residual. However, based on some coupon studies (TGA), we know that the resins have released 98% of their volatiles prior to post-processing in the oven. The amounts are enough to be smelled, but way below saturation point required for combustion.