

**Justification Review Document  
For Other Than Full and Open Competition**

**Program/Equipment:** Modified Silica for Transparent Armor

Authority: 10 USC 2304(c)1

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**1. Contracting Agency** – U.S. Army Research, Development and Engineering Command Contracting Center (RDECOMCC), Adelphi Contracting Division, 2800 Powder Mill Road, Adelphi, MD 20783.

**2. Description of Action** – Approval is requested for a new Firm-Fixed-Price (FFP) contract with Momentive Performance Materials (Momotive) for the Army Research Laboratory (ARL) Materials & Manufacturing Science Division (RDRL-WMM), Ceramics & Transparent Materials Branch (RDRL-WMM-E), Transparent Materials Team, to provide melt-derived quartz plates with varying compositions in three (3) different sizes. This material will be used as a part of an ongoing ARL investigation of processing and composition effects on properties of silica based materials. FY10 RDT&E Army AMC funds will be used for this contract.

**3. Description of Supplies/Services** –The Contractor shall produce and deliver the following silica plates:

- (10) 2.5” diameter pucks of different Momentive Proprietary compositions for ARL testing
- (5) 12”x12”x1” plates of Momentive Proprietary composition 1 (10) 12”x12”x1/2” plates of composition 1
- (5) 12”x12”x1” plates of Momentive Proprietary composition 2
- (10) 12”x12”x1/2” plates of Momentive Proprietary composition 2
- (5) 12”x12”x1” plates of Momentive Proprietary composition 3
- (10) 12”x12”x1/2” plates of Momentive Proprietary composition 3

The estimated total value of the silica plates is \$

**4. Authority Cited:** 10 U.S.C. 2304(c)(1), as implemented by FAR 6.302-1, “Only one responsible source and no other supplies or services will satisfy agency requirements”

**5. Reason for Authority Cited:** ARL is undergoing an evaluation to determine the effect of processing different compositions of quartz and this procurement is to obtain melt-derived quartz from the original manufacturer. Momentive is the manufacturer of melt-derived silica for the sizes and geometries required and ARL has previously procured Momentive silica (GE124) material from the Momentive distribution network (Boehm Quartz). This procurement action is to obtain Momentive proprietary melt-derived silica compositions to compare and contrast to the commercial GE124 material. These proprietary materials are currently unavailable from Momentive distributors or any other commercial-grade distribution network and thus must be awarded to Momentive. These compositions are non-commercial variations of GE124, which is only produced by Momentive and which is currently under evaluation. For experimental continuity, this material must be produced by Momentive to allow adequate comparison to the previously procured GE124 produced by Momentive.

Momotive utilizes a proprietary melt derived process to produce its silica based material in geometries up to sizes 6 ft diameter x 22 inch thick.. It is known in the materials community that the mechanical and ballistic properties of materials are influenced by the method of manufacturer. For example, hot pressed material has long been shown to have different properties than sintered ceramic parts. The study that this particular procurement is part of is to investigate the effect of processing on the ballistic properties and the effects of composition on the properties of melt-derived silica. A sole source award to Momentive is imperative to properly compare and contrast these proprietary compositions to the baseline Momentive silica material (GE124) previously procured.

The estimated delivery schedule is as follows:

- 2.5” pucks - 14 weeks from contract award

- 12"x12" plates - 28 weeks from contract award

Desired lead time is as soon as possible since these evaluations are for programs developing solutions for current requirements.

**6. Efforts to Obtain Competition:** This effort is to procure Momentive proprietary materials that are not commercially available. There are no other sources for melt-derived fused silica in the large geometries required. The goal for this program is to evaluate the effect of processing on the performance of silica materials. Momentive is the only manufacturer of the GE124 baseline material currently being evaluated. Momentive is the manufacturer of the required composite material, which are also proprietary to Momentive and not available from any of Momentive's distributors.

**7. Actions to Increase Competition:** The Transparent Materials Team will continue to publicize all future requirements in an attempt to increase competition. Each manufacturer of silica has proprietary composition and properties for its particular material and their commercial markets. Thus, the availability of competition for future experimental requirements is considerable.

**8. Market Research:** ARL has a focused expertise in transparent ceramic materials whose function is to be cognizant of all technical developments in transparent materials such as silica, borosilicate glass, soda lime glass, glass-ceramics, ALON, spinel, and sapphire. ARL has developed a large database of the performance of many transparent materials, such as transparent polymers, glasses, glass-ceramics, and transparent glass-ceramics. Internet searches for relevant manufacturers and attendance at conferences focused on transparent materials are completed on a regular basis. Due to our known expertise and interest in transparent materials, we are frequently visited by manufacturers of new materials. Momentive was one such company and based on their description of their capabilities, it was decided it is in the interest of ARL to evaluate these materials. Momentive is the only manufacturer of melt-derived fused silica that can be used for the evaluation since it will be compared to current evaluation of GE124 material which is produced by Momentive. ARL has also contacted various glass distribution vendors to solicit other suppliers that produce large area silica products and will continue to perform this market research on a regular basis.

**9. Interested Sources:** A notice has been submitted to FedBizOps and posted on 17 March 2010 with a close date of 31 March 2010. To date only one source, Momentive, has been identified and expressed an interest in this requirement. However, as required by FAR 5.201, any responses received shall be forwarded to the approving official for consideration.

**10. Other Facts:**

a. Procurement history. The exact composition required for this procurement has not been previously purchased. However, Purchase Order W911QX-09-P-0596 was awarded in FY2009 to Boehm Quartz for the purchase of GE124 material which was available commercially from various vendors. The procurement initially started out as a sole source to Boehm Quartz, a direct distributor for Momentive, however the requirement was posted to ASFI on a competitive basis. There were four (4) responses to the solicitation, with Boehm Quartz the lowest acceptable offer. The composition required under this procurement is not commercial in nature and not available from any Momentive distributors, but can only be procured directly from Momentive.

b. Acquisition Data Availability. Technical data packages and/or specifications are not available since the GE124 material composition is proprietary to Momentive.

c. Unusual and Compelling Urgency. N/A

d. Subcontracting Competition. N/A

e. Follow-on Contracts. N/A

**11. Technical Certification:**

I certify that the supporting data under my cognizance which are included in the justification are accurate and complete to the best of my knowledge and belief.

**12. Requirements Certification:**

I certify that the supporting data under my cognizance which are included in the justification are accurate and complete to the best of my knowledge and belief.

**13. Fair and Reasonable Cost Determination:**

I hereby determine that the anticipated cost to the Government for this contract action will be fair and reasonable. Actions anticipated to ensure cost/price reasonableness will be accomplished in accordance with procedures and criteria contained in the Federal Acquisition Regulation as supplemented and the Armed Services Pricing Manual. Detailed documentation and justification of cost/price reasonableness will be disclosed in the official contract file.

**14. Procuring Contracting Officer Certification:**

I certify that this justification is accurate and complete to the best of my knowledge and belief.

**APPROVAL**

Based on the foregoing justification, I hereby approve the procurement of melt-derived quartz (GE 124 material) on an other than full and open competition basis pursuant to the authority of 10 U.S.C. 2304(c)(1), subject to availability of funds, and provided that the services and property herein described have otherwise been authorized for acquisition.