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Defense Logistics Agency (DLA) 25.4 Small Business Innovation Research (SBIR) Proposal Submission Instructions Release 7

INTRODUCTION

The Defense Logistics Agency's (DLA) mission has three lines of effort the DLA Small Business Innovation Program (SBIP) supports. They include supporting the **NUCLEAR ENTERPRISE** by maintaining nuclear systems readiness, qualifying alternate sources of supply, improving the quality of consumable parts, and increasing materiel availability. **FORCE READINESS & LETHALITY** through improvements to life cycle performance through technological advancement, innovation, and reengineering, mitigate single points-of-failure that threaten the readiness of weapons systems used by our Warfighters. **SUPPLY CHAIN INNOVATION & ASSURANCE** through improved lead times, reduced lifecycle costs, maintaining a secure and resilient supply chain, providing opportunities for the small business industrial base to enhance supply chain operations with technological innovations. Lastly supply chain assurance securing the microelectronics supply chain, development of a domestic supply chain for rare earth elements, the adoptions of industrial base best practices associated with counterfeit risk reduction.

Proposers responding to a topic in this Broad Agency Announcement (BAA) must follow all general instructions provided in the Department of Defense (DoD) SBIR Program BAA. DLA requirements in addition to or deviating from the DoD Program BAA are provided in the instructions below.

Proposers are encouraged to thoroughly review the DoD Program BAA and register for the DSIP Listserv to remain apprised of important programmatic and contractual changes.

- The full DoD Program BAA is available on DSIP at <https://www.dodsbirsttr.mil/submissions/solicitation-documents/active-solicitations>. Be sure to select the tab for the appropriate BAA cycle.
- Register for the DSIP Listserv at: <https://www.dodsbirsttr.mil/submissions/login>.

Specific questions pertaining to the administration of the DLA Program and these proposal preparation instructions should be directed to:

Defense Logistics Agency
Small Business Innovation Program (SBIP) Office DLA/J68
Email: DLASBIR2@DLA.mil

PHASE I PROPOSAL GUIDELINES

The Defense SBIR/STTR Innovation Portal (DSIP) is the official portal for DoD SBIR/STTR proposal submission. Proposers are required to submit proposals via DSIP; proposals submitted by any other means will be disregarded. Detailed instructions regarding registration and proposal submission via DSIP are provided in the DoD SBIR Program BAA.

Technical Volume (Volume 2)

DLA's objective for the Phase I effort is to determine the merit and technical feasibility of the concept. The technical volume is not to exceed 20 pages and must follow the formatting requirements provided in the DoD SBIR Program BAA. Any pages submitted beyond the 20-page limit within the Technical Volume (Volume 2) will not be evaluated. If including a letter(s) of support, they should be included in Volume 5, and they will not count towards the 20-page

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Volume limit. Any technical data/information that should be in the Volume 2 but is contained in other Volumes will not be considered.

Content of the Technical Volume

Refer to the instructions provided in the DoD Program BAA.

Cost Volume (Volume 3)

A list of topics currently eligible for proposal submission is included in these instructions, followed by full topic descriptions. These are the only topics for which proposals will be accepted at this time. Refer to the topic for cost and duration structure. Proposers must utilize the excel cost volume provided during proposal submission on DSIP.

Please review the updated Percentage of Work (POW) calculation details included in the DoD Program BAA. DLA will occasionally accept deviations from the POW requirements with written approval from the Funding Agreement officer.

Company Commercialization Report (CCR) (Volume 4)

Completion of the CCR as Volume 4 of the proposal submission in DSIP is required. Please refer to the DoD Program BAA for full details on this requirement. Information contained in the CCR will be considered by DLA during proposal evaluations.

Supporting Documents (Volume 5)

Volume 5 is provided for proposers to submit additional documentation to support the Coversheet (Volume 1), Technical Volume (Volume 2), and the Cost Volume (Volume 3).

Please refer to the DoD Program BAA for more information.

Additional DLA-specific supporting documents:

- Optional, A qualified letter of support is from a relevant commercial or government agency procuring organization(s) working with DLA, articulating their support for the technology (i.e., what DLA need(s) the technology supports and why it is important to fund it), and possible commitment to provide additional funding and/or insert the technology in their acquisition/sustainment program.
- Letters of support shall not be contingent upon award of a subcontract.

Fraud, Waste and Abuse Training (Volume 6)

Fraud, Waste and Abuse training material can be found in the Volume 6 section of the proposal submission module in DSIP and must be thoroughly reviewed once per year to proceed with proposal submission.

Disclosures of Foreign Affiliations or Relationships to Foreign Countries (Volume 7)

Small business concerns must complete the Disclosures of Foreign Affiliations or Relationships to Foreign Countries webform in Volume 7 of the DSIP proposal submission. Please be aware that the Disclosures of Foreign Affiliations or Relationships to Foreign Countries WILL NOT be accepted as a PDF Supporting Document in Volume 5 of the DSIP proposal submission. Do not upload any previous versions of this form to Volume 5. For additional details, please refer to the DoD Program BAA.

The standard formal deliverables for a Phase I are the:

- Plan of Action and Milestones (POAM) with sufficient detail for monthly project tracking.

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- Initial Project Summary: one-page, unclassified, non-sensitive, and non-proprietary summation of the project problem statement and intended benefits (must be suitable for public viewing).
- Monthly Status Report. A format will be provided at the Post Award Conference (PAC).
- The Technical Point of Contact (TPOC) and the Program Manager (PM) will determine a meeting schedule at the PAC. Phase I awardees can expect monthly (or more frequent) project reviews.
- Draft Final Report including major accomplishments, business case analysis, commercialization strategy, transition plan with timeline, and proposed path forward for Phase II.
- Final Report including major accomplishments, business case analysis, commercialization strategy and transition plan with timeline, and proposed path forward for Phase II.
- Final Project Summary (one-page, unclassified, non-sensitive and non-proprietary summation of project results, high resolution photos or graphics intended for public viewing).
- Applicable patent documentation.
- Other deliverables as defined in the Phase I Proposal.
- Phase II Proposal is optional at the Phase I Awardee's discretion (as applicable).

DISCRETIONARY TECHNICAL AND BUSINESS ASSISTANCE (TABA)

The DLA SBIR Program does not participate in the Technical and Business Assistance (formally the Discretionary Technical Assistance Program). Contractors should not submit proposals that include Technical and Business Assistance.

PHASE II PROPOSAL GUIDELINES

Per SBA Policy Directive SBIR Phase II Proposal guidance, all Phase I awardees are permitted to submit a Phase II proposal for evaluation and potential award selection, without formal invitation.

Details on the due date, format, content, and submission requirements of the Phase II proposal will be provided by the DLA SBIP Program Management Office (PMO) on/around the midway point of the Phase I period of performance. Only firms who receive a Phase I award may submit a Phase II proposal.

DLA will evaluate and select Phase II proposals using the same criteria as Phase I evaluation. Funding decisions are based upon the results of work performed under a Phase I award, the Scientific & Technical Merit, Feasibility, and Commercial Potential of the Phase II proposal; Phase I final reports may be reviewed as part of the Phase II evaluation process. The Phase II proposal should include a concise summary of the Phase I effort including the specific technical problem or opportunity addressed and its importance, the objective of the Phase I effort, the type of research conducted, findings or results of this research, and technical feasibility of the proposed technology.

Due to limited funding, DLA reserves the right to limit awards under any topic and only proposals considered to be of superior quality will be funded.

Phase II Proposals should anticipate a combination of any or all the following deliverables:

- Plan of Action and Milestones (POAM) with sufficient detail for monthly project tracking.
- Initial Project Summary: one-page, unclassified, non-sensitive, and non-proprietary summation of the project problem statement and intended benefits (must be suitable for public viewing).
- Monthly Status Report. A format will be provided at the PAC.
- Meeting schedule to be determined by the Technical Point of Contact (TPOC) and PM at the PAC.
- Phase II awardees expect Monthly (minimum) Project Reviews (format provided at the PAC).
- Draft Final Report including major accomplishments, commercialization strategy and transition plan and timeline.

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- Final Report including major accomplishments, commercialization strategy, transition plan, and timeline.
- Final Project Summary (one-page, unclassified, non-sensitive and non-proprietary summation of project results, non-proprietary high-resolution photos, or graphics intended for public viewing).
- Applicable patent documentation.
- Other deliverables as defined in the Phase II Proposal.

EVALUATION AND SELECTION (Phase I and Phase II)

Use of Support Contractors in the Evaluation Process

Only government personnel with active non-disclosure agreements will officially evaluate proposals.

Non-government technical consultants (consultants) to the government may review and provide support in proposal evaluations during source selection.

Consultants may have access to the offeror's proposals, may be utilized to review proposals, and may provide comments and recommendations to the government's decision makers. Consultants will not establish final assessments of risk and will not rate or rank offerors' proposals. They are also expressly prohibited from competing for DLA SBIR awards in the SBIR topics they review and/or on which they provide comments to the government.

All consultants are required to comply with procurement integrity laws. Consultants will not have access to proposals or pages of proposals that are properly labeled by the offerors as "FEDONLY." Pursuant to FAR 9.505-4, DLA contracts with these organizations include a clause which requires them to

- (1) Protect the offerors' information from unauthorized use or disclosure for as long as it remains proprietary and
- (2) Refrain from using the information for any purpose other than that for which it was furnished. In addition, DLA requires the employees of those support contractors that provide technical analysis to the SBIR/STTR Program to execute non-disclosure agreements. These agreements will remain on file with the DLA SBIP PMO.

Non-government consultants will be authorized access to only those portions of the proposal data and discussions that are necessary to enable them to perform their respective duties. In accomplishing their duties related to the source selection process, employees of the organizations may require access to proprietary information contained in the offerors' proposals.

All proposals will be evaluated in accordance with the evaluation criteria listed in the DoD SBIR Program BAA. DLA will evaluate and select Phase I and Phase II proposals using scientific review criteria based upon technical merit and other criteria as discussed in this Announcement document.

- DLA reserves the right to award none, one, or more than one contract under any topic.
- DLA is not responsible for any money expended by the offeror before award of any contract.
- Due to limited funding, DLA reserves the right to limit awards under any topic.
- Only proposals considered to be "Highly Acceptable" as determined by DLA will be funded.

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Please note that potential benefit to the DLA will be considered throughout all the evaluation criteria and in the best value trade-off analysis. When combined, the stated evaluation criteria are significantly more important than cost or price.

It cannot be assumed that reviewers are acquainted with the firm or key individuals or any referenced experiments. Technical reviewers will base their conclusions only on information contained in the proposal. Relevant supporting data such as journal articles, literature, including government publications, etc., should be listed in the proposal and will count toward the applicable page limit.

Final Selection may require an oral presentation. This may include an in-person meeting or a Zoom.gov meeting.

The two-part evaluation process is explained below:

Part I: The evaluation of the Technical Volume will utilize the Evaluation Criteria provided in the DoD SBIR BAA. Once the initial evaluations are complete, all offerors will be notified as to whether they were selected to present the slide deck portion of their proposal within 60 days of the BAA close date. Only proposals receiving a “Highly Acceptable” rating will receive an invitation to present orally.

Part II: If selected for an oral presentation, offerors shall submit a slide deck not to exceed 15 PowerPoint slides to DLASBIR@dla.mil.

- There are no set format requirements other than the 15-page maximum page length.
- It is recommended (but not required) that more detailed information is included in the technical volume and higher-level information is included in the slide deck.

Selected offerors will receive an invitation to present a slide deck (15-minute presentation time / 15-minute question and answer) in a technical question and answer forum to the DLA evaluation team via electronic media. This presentation will be evaluated by a panel against the criteria listed above and your overall presentation. DLA will evaluate the presentation for Business Acumen, and Core Business Capabilities (Customer Engagement / Presentation Skills). The rating of the presentation will be a Go/No-Go rating.

Notification of the Go/No-Go rating decision will occur within 5 days of the presentation. Input on technical aspects of the proposals may be solicited by DLA from non-government consultants and advisors who are bound by appropriate non-disclosure requirements.

The SBIP PMO will distribute selection and non-selection email notices to all firms who submit a SBIR/STTR proposal to DLA. The email will be distributed to the “Corporate Official” and “Principal Investigator” listed on the proposal coversheet. DLA cannot be responsible for notification to a company that provides incorrect information or changes such information after proposal submission. DLA will distribute the selection and non-selection notifications to all offerors within 90 days of the BAA close date.

DLA will provide written feedback to unsuccessful offerors regarding their proposals on the non-selection notification. Only firms that receive a non-selection notification are eligible for written feedback.

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AWARD AND CONTRACT INFORMATION

Typically, the contract period of performance for Phase I should be up to 12 months and the award should not exceed \$100,000. However, each topic may have a different threshold. The DLA Contracting Office utilizes a Firm Fixed Price (FFP) Contract for DLA Phase I Projects

The expected budget for Phase II should not exceed \$1,000,000 unless approved by the DLA Program Manager, and the duration should not exceed 24 Months. Proposals more than \$1,000,000 will not be considered without written PM approval. The DLA Contracting Office utilizes a Firm Fixed Price Level of Effort (FFP/LOE) Contract for DLA Phase II Projects.

Proposals not conforming to the terms of this Announcement will not be considered. DLA reserves the right to limit awards under any topic, and only those proposals of superior scientific and technical quality as determined by DLA will be funded.

DLA reserves the right to withdraw from negotiations at any time prior to contract award.

Post Award, DLA may terminate any award at any time for any reason to include matters of national security (foreign persons, foreign influence or ownership, inability to clear the firm or personnel for security clearances, or other related issues).

Please read the entire DoD Announcement and DLA instructions carefully prior to submitting your proposal. Please go to <https://www.sbir.gov/about/about-sbir#sbir-policy-directive> to read the SBIR/STTR Policy Directive issued by the Small Business Administration.

USE OF FOREIGN NATIONALS (also known as Foreign Persons), GREEN CARD HOLDERS AND DUAL CITIZENS

If proposing to use foreign nationals (also known as foreign persons), they must be green card holders, and/or dual citizens. (No Student or Temporary Visa holders will be approved). The offeror must identify the personnel they expect to be involved on this project, the type of visa or work permit under which they are performing, country of origin and level of involvement.

You will be asked to provide additional information during negotiations to verify the foreign citizen's eligibility to participate on a SBIR contract. Supplemental information provided in response to this paragraph will be protected in accordance with the Privacy Act (5 U.S.C. 552a), if applicable, and the Freedom of Information Act (5 U.S.C. 552(b)(6)).

Proposals submitted to export control-restricted topics and/or those with foreign nationals, dual citizens, or green card holders listed will be subject to security review during the contract negotiation process (if selected for award).

DLA reserves the right to vet all uncleared individuals involved in the project, regardless of citizenship, who will have access to Controlled Unclassified Information (CUI) such as export controlled information. If the security review disqualifies a person from participating in the proposed work, the contractor may propose a suitable replacement.

In the event a proposed person and/or firm is found ineligible by the government to perform proposed work, the contracting officer will advise the offeror of any disqualifications but is not required to disclose the underlying rationale.

V. EXPORT CONTROL RESTRICTIONS

The technology within most DLA topics is restricted under export control regulations including the International Traffic in Arms Regulations (ITAR) and the Export Administration Regulations (EAR). ITAR controls the export and import of listed defense-related material, technical data and services that provide the United States with a critical military advantage. EAR controls military, dual-use and commercial items not listed on the United States Munitions List or any other export control lists. EAR regulates export-controlled items based on user, country, and purpose. The offeror must ensure that their firm complies with all applicable export control regulations. Please refer to the following URLs for additional information: <https://www.pmddtc.state.gov/> and <https://www.bis.doc.gov/index.php/regulations/export-administration-regulations-ear>.

Most DLA SBIR topics are subject to ITAR and/or EAR. If the topic write-up indicates that the topic is subject to International Traffic in Arms Regulation (ITAR) and/or Export Administration Regulation (EAR), your company may be required to submit a Technology Control Plan (TCP) during the contracting negotiation process.

CLAUSE H-08 PUBLIC RELEASE OF INFORMATION (Publication Approval)

Clause H-08 pertaining to the public release of information is incorporated into all DLA SBIR contracts and subcontracts without exception. Any information relative to the work performed by the contractor under DLA SBIR contracts must be submitted to DLA for review and approval prior to its release to the public. This mandatory clause also includes the subcontractor who shall provide their submission through the prime contractor for DLA's review for approval.

FLOW-DOWN OF CLAUSES TO SUBCONTRACTORS

The clauses to which the prime contractor and subcontractors are required to comply include but are not limited to the following clauses:

- 1) DLA clause H-08 (Public Release of Information),
- 2) DFARS 252.204-7000 (Disclosure of Information),
- 3) DFARS clause 252.204-7012 (Safeguarding Covered Defense Information and Cyber Incident Reporting), and
- 4) DFARS clause 252.204-7020 (NIST SP 800-171 DoD Assessment Requirements). Your proposal submission confirms that any proposed subcontract is in accordance with the clauses cited above and any other clauses identified by DLA in any resulting contract.
- 5) DFARS Clause 252.223-7999 Ensuring Adequate COVID-19 Safety Protocols for Federal Contractors.

OWNERSHIP ELIGIBILITY

Prior to award, DLA may request business/corporate documentation to assess ownership eligibility as related to the requirements of SBIR Program Eligibility. These documents include, but may not be limited to, the Business License; Articles of Incorporation or Organization; By-Laws/Operating Agreement; Stock Certificates (Voting Stock); Board Meeting Minutes for the previous year; and a list of all board members and officers.

If requested by DLA, the contractor shall provide all necessary documentation for evaluation prior to SBIR award. Failure to submit the requested documentation in a timely manner as indicated by DLA may result in the offeror's ineligibility for further consideration for award.

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ADDITIONAL INFORMATION

Classified Proposals

Classified proposals **ARE NOT** accepted under the DLA SBIR Program. The inclusion of classified data in an unclassified proposal is grounds for the agency to determine the proposal as non-responsive and the proposal not to be evaluated.

Contractors currently working under a classified contract must use the security classification guidance provided under that contract to verify new SBIR proposals are unclassified prior to submission.

Phase I contracts are not typically awarded for classified work. However, in some instances, work being performed on DLA SBIR/STTR contracts will require security clearances. If a DLA SBIR/STTR contract develops into or identifies classified work, the offeror must have a facility clearance, appropriate personnel clearances to perform the classified work and coordinate the DD254 with the Contract Officer and the service owning the classified data.

For more information on facility and personnel clearance procedures and requirements, please visit the Defense Counterintelligence and Security Agency Web site at: <https://www.dcsa.mil>.

Use of Acronyms

Acronyms should be spelled out the first time they are used within the technical volume (Volume 2), the technical abstract, and the anticipated benefits/potential commercial applications of the research or development sections. This will help avoid confusion when proposals are evaluated by technical reviewers.

Communication

All communication from the DLA SBIR/STTR PMO will originate from the DLASBIR2@DLA.mil email address. Please white list this address in your company's spam filters to ensure timely receipt of communications from our office.

All attachments sent via email require encryption. The firm will have to purchase External Certificate Authority (ECA) certificates to send and receive encrypted email if they do not have a Common Access Card (CAC) or Personal Identity Verification (PIV) issued. The cost is approximately \$100 per year per user. This will be a Cybersecurity Maturity Model Certification CMMC requirement for all future contracts.

ORGANIZATIONAL CONFLICTS OF INTEREST (OCI)

The basic OCI rules for contractors which support development and oversight of SBIR topics are covered in FAR 9.5 as follows (the offeror is responsible for compliance):

- (1) The contractor's objectivity and judgment are not biased because of its present or planned interests which relate to work under this contract.
- (2) The contractor does not obtain unfair competitive advantage by virtue of its access to non-public information regarding the government's program plans and actual or anticipated resources.
- (3) The contractor does not obtain unfair competitive advantage by virtue of its access to proprietary information belonging to others.

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All applicable rules under the FAR Section 9.5 apply.

If you, or another employee in your company, developed or assisted in the development of any SBIR requirement or topic, please be advised that your company may have an OCI. Your company could be precluded from an award under this BAA if your proposal contains anything directly relating to the development of the requirement or topic. Before submitting your proposal, please examine any potential OCI issues that may exist with your company to include subcontractors and understand that if any exist, your company may be required to submit an acceptable OCI mitigation plan prior to award.

PHASE III GUIDELINES & INSTRUCTIONS

Phase III is any proposal that “Derives From”, “Extends” or completes a transition from a Phase I or II project. Phase III proposals will be accepted after the completion of Phase I and or Phase II projects.

There is no specific funding associated with Phase III, except Phase III is not allowed to use SBIR/STTR coded funding. Any other type of funding is allowed.

Phase III proposal submission. Phase III proposals are emailed directly to DLASBIR2@dla.mil. The PMO team will set up evaluations and coordinate the funding and contracting actions depending on the outcome of the evaluations. A Phase III proposal should follow the same format as Phase II for the content, and format. There are, however, no limitations to the amount of funding requested, or the period of performance. All other guidelines apply. More specific instructions may be available when a firm submits a Phase III proposal.

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DLA254-003	Domestic Sourcing or Recycling of Gallium for various Military Applications
DLA254-004	[Topic Removed]
DLA254-005	Advanced Technology for Extending Shelf Life of Fresh Fruits and Vegetables During Storage and Transportation
DLA 254-006	Extending the Shelf-Life of Rapid-Setting Cement for Military Applications
DLA 254-007	Advancing Testing and Analytics of Indicative and Conductive Material Seals for Near Real Time Tamper Detection

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DLA254-003 TITLE: Domestic Sourcing ~~or Recycling~~ of Gallium for various Military Applications

OUSD (R&E) CRITICAL TECHNOLOGY AREA(S): Advanced Materials

OBJECTIVE: The Defense Logistics Agency (DLA) seeks to provide responsive, best value supplies of related materials consistently to our Department of Defense (DoD) customers and other DoD stakeholders. DLA continually investigates a variety of critical minerals for more efficient means of their production, ~~opportunities for recycling~~, and more competitive domestic supply chains which would lead to higher levels of innovation in current and future systems combined with benefits to other commercial and government technology applications. DLA is looking for domestic capability to produce raw materials for gallium-based devices used in various military applications. The end goal of the project would be for the development of domestic suppliers that would produce gallium oxide and/or metal. New and novel ideas that would allow for competitive pricing with imported raw materials will have preference. Ideally, the production process would be modular and scalable. Proposed efforts funded under this topic may encompass diverse feedstock and processing at any level that will result in increasing production capacity, affordability, and supply chain resiliency. Solutions that promote a domestic circular economy around gallium are encouraged. Research and Development (R&D) efforts selected under this topic shall demonstrate and involve a degree of risk where the technical feasibility of the proposed work has not been fully established. Further, proposed efforts must be judged to be at a Technology and/or Manufacturing Readiness Level (TRL/MRL) 6 or less, but greater than TRL/MRL 3 to receive funding consideration. TRL 3. (Analytical and Experimental Critical Function and/or Characteristic Proof of Concept) TRL 6. (System/Subsystem Model or Prototype Demonstration in a Relevant Environment)

DESCRIPTION: DLA is looking for domestic capabilities to ~~recycle and~~ produce both gallium metal and oxide for defense applications. Novel techniques that increase domestic availability and supply chain resiliency of gallium will have preference. The ideal production process will be both modular and easily scalable. Respondents must be **ITAR-compliant** to qualify for submission of a proposal and receive any subsequent data for this project.

PROJECT DURATION and COST: Proposals exceeding these limits will not be evaluated.

PHASE I: Not to exceed a duration of 12 months and cost of \$100,000.

PHASE II: Not to exceed a duration of 18 months and cost of \$1,000,000.

PHASE I: Phase I will deliver a proof-of-concept demonstration of a high efficiency gallium extraction ~~or recycling~~ method. A technology development and commercialization roadmap will be produced along with a preliminary technoeconomic analysis. An alignment or collaboration with a relevant DoD Component organization/supplier (e.g., DoD lab, defense system program office or prime contractor) and one or more relevant DoD weapon system supply chain participants or other suitable organization is highly desirable.

PHASE II: Phase II will consist of establishing a pilot scale process to produce gallium oxide and/or metal. Produced materials will be characterized for purity, phase, and other relevant properties. Input materials will be required to be sourced domestically. (Domestically available waste streams recycled to extract gallium may be considered a domestic source, regardless of origin.) A business case will be generated using both DoD and commercial markets. Collaboration with a relevant DoD Component

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organization/supplier (e.g., DoD lab and/or prime contractor) and one or more relevant DoD weapon system supply chain participants or other suitable organization is highly desirable. Performers will identify commercial benefit or application opportunities of the innovative processes should be developed with the intent to readily transition to production in support of DoD and its supply chains.

PHASE III DUAL USE APPLICATIONS: At this point, no specific funding is associated with Phase III. Relationships developed and progress made in Phase I and Phase II projects should result in the ability to produce to DoD orders and organic growth of business from there.

REFERENCES:

1. *Critical Materials Assessment 2023*, U.S. Department of Energy, <https://doi.org/10.2172/1998242>
2. Nedal T. Nassar and Steven M. Fortier, *Methodology and Technical Input for the 2021 Review and Revision of the U.S. Critical Minerals List*, Open-File Report 2021-1045 (Reston, VA: 2021, USGS), <https://doi.org/10.3133/ofr20211045>.
3. Sydney J. Freedberg Jr., *LTAMDS: Raytheon to Build Linchpin of Army Air & Missile Defense*, Breaking Defense, October 17, 2019, <https://breakingdefense.com/2019/10/ltamds-raytheon-to-build-linchpinof-army-air-missile-defense/> .
4. *DARPA Selects Northrop Grumman to Develop Gallium Nitride Components for Future Military Space Communication and Radar Systems*, Northrop Grumman, March 8, 2005, <https://news.northropgrumman.com/news/releases/darpa-selects-northrop-grumman-to-develop-gallium-nitride-components-for-future-military-space-communication-and-radar-systems>.
5. *Turning Point in RF GaN Patenting over Last 2 Years*, Semiconductor Today 14, no. 9 (November/ December 2020), <https://www.semiconductor-today.com/features/PDF/semiconductor-today-november-december-2020-Turning-point.pdf> .

KEYWORDS: Gallium, gallium oxide, extraction, recycling, domestic supply chain

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DLA254-005 TITLE: Advanced Technology for Extending Shelf Life of Fresh Fruits and Vegetables During Storage and Transportation

OUSD(R&E) CRITICAL TECHNOLOGY AREA(S): Biotechnology

OBJECTIVE: Develop innovative, safe, and scalable technologies to extend the shelf life of fresh fruits and vegetables (FF&V) in military supply chains. These safe, effective, and practical solutions should reduce spoilage, enhance quality, and improve logistical efficiency.

DESCRIPTION: The Defense Logistics Agency (DLA) Troop Support Subsistence seeks research into storage, transportation, packaging, and coating technologies to address spoilage in military supply chains, where up to 30% of FF&V is lost during transit and storage. The focus is on technologies such as ethylene-absorbing materials, controlled-atmosphere packaging or transport mechanisms, edible coatings, and inhibitors that target climacteric produce (e.g., bananas, tomatoes, avocados). The goals are to decrease spoilage, reduce resupply frequency, and enhance food security/availability.

Key focus areas include:

- Ethylene Absorption: Development of materials capable of effectively capturing or mitigating ethylene gas within storage and transportation units.
- Ripening Inhibition: Technologies or additives that slow metabolic processes in climacteric produce to increase shelf-life.
- Operational Compatibility: Safe and effective solutions compatible with existing refrigerated containers and subsistence supply chain processes.
- Cost-Effectiveness: Economic viability and scalability for widespread use across military and commercial supply chains.

The desired outcome is to increase the freshness and usability of fruits and vegetables delivered to military dining facilities and forward operating bases, reducing dependency on frequent resupply. This research initiative invites technology companies to submit proposals and innovations that align with the outlined areas of interest. Respondents must be **ITAR-compliant** to qualify for submission of a proposal and receive any subsequent data for this project.

PHASE I: Conduct a feasibility study to develop and demonstrate ethylene mitigation technologies in controlled environments. Deliverables include:

- A comprehensive report on the technology's potential, including cost analysis, scalability, and integration with existing military logistics systems.
- Prototype materials or methods for FF&V shelf-life extension.
- Experimental data demonstrating the safety and efficacy of the proposed solution in extending FF&V shelf life.

PHASE II:

- Refine and optimize the Phase I technology for deployment in military supply chains. Activities include:
- Testing the technology in operational conditions, such as refrigerated containers used for transporting produce.

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- Collaborating with DLA Troop Support to identify critical supply routes and storage facilities for pilot implementation.
- Producing a detailed concept of operations (CONOPs) and cost-benefit analysis.

PHASE III: Dual Use (military/civilian) - Currently, no specific funding is associated with PHASE III. Progress documented from PHASE I and PHASE II may result in vendor's qualification as an approved source for future procurements for operational integration and use. The vendor will pursue the commercialization of the storage, transportation, packaging, or edible coating technology, targeting dual-use applications in military and civilian supply chains. Emphasis will be placed on partnerships with produce suppliers, logistics companies, and packaging manufacturers to scale the solution. Demonstrating compliance with regulatory standards for food safety and transportation will be critical to market adoption.

REFERENCES:

1. USDA National Institute of Food and Agriculture. [Link](#)
2. Defense Logistics Agency: DLA Troop Support Subsistence. [Link](#)
3. Nguyen L.P.L. et al. (2018), Effect of ethylene absorber on banana during storage. Acta Hort. 1216, 55-58.

KEYWORDS: Shelf Life, FF&V, Ethylene Absorption, Biotechnology

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DLA 254-006 TITLE: Extending the Shelf-Life of Rapid-Setting Cement for Military Applications

OUSD (R&E) CRITICAL TECHNOLOGY AREA(S): Materials

OBJECTIVE: The Defense Logistics Agency (DLA) seeks to promote responsive, best value supplies of related materials, components, and systems to Department of Defense (DoD) customers and other DoD stakeholders. DLA investigates advancements in technologies and business processes for new and improved materials, more efficient means of their production, and competitive domestic supply chains which will lead to greater innovation in current and future defense systems combined with benefits to other commercial and government applications.

Currently, many rapid-setting cement have a shelf-life of on the average of six months to one year. DLA is interested in exploring future defense industrial base development and production of rapid-setting cement with a shelf-life of 5-7 years that meets military specifications and standards. Proposed solution must not be cost prohibitive and demonstrates organic ability for large-scale testing and production. Given the important properties of rapid setting cement with long shelf-life in Airport Damage Repair (ADR) and other military applications, DLA is interested in engaging small businesses with the capability to develop and rapidly expand the industrial base production capacity of rapid-setting cement with long shelf-life for DoD end-uses.

DESCRIPTION: Rapid strength cements have limited shelf life. This can be due to the reaction of calcium sulfoaluminate (CSA) with moisture or physical water. The use of rapid strength cement in practice has been hindered by its unstable performance and short shelf-life caused by the prehydration of CSA clinker. The effect of ambient humidity on the prehydration rate and process of CSA clinker is detrimental. Experiments revealed that the ambient humidity of 60% Relative Humidity (RH) can be considered a threshold value for the storage of a CSA clinker. Exposure of CSA clinker to RH higher than 60% will not only result in a significant decrease of hydraulic reactivity, but also in agglomeration of the clinker. Moisture is present in the process of cement production, transportation, and storage. Although improved packaging may help, the prehydration of cement cannot be fully prevented. Chemical changes and improvements are needed.

A recent study shows that the exposure of commercial CSA cement to RH above 60% (ranging from 67%–78%) has negative effects on the hydration and strength development of both CSA and calcium sulfoaluminate-ordinary portland cement (CSA-OPC) pastes. In fact, fast and unpredictable prehydration of CSA cement resulting from accidental moisture exposure has long been a problem in practical applications, especially in tropical and subtropical coastal regions. As a result, CSA have limited shelf life. Some rapid-strength cement manufacturers claim a 6-month shelf life while a few may claim up to 3 years; many claim about one year. Nevertheless, these expiration lifespans must be increased.

DLA seeks SBIR project opportunities in new and innovative materials, processing, and manufacturing of rapid setting cement that has five to seven-year (5–7-year) shelf-life. DLA seeks opportunities that include strong industry partners with established rapid-setting cement manufacturing capabilities and capacities with relevant experience in the Department of Defense and industry. DLA desires SBIR opportunities with small businesses that has relevant experience with DLA Troop Support Construction and Equipment and United States Army Corps of Engineers. Respondents must be **ITAR-compliant** to qualify for submission of a proposal and receive any subsequent data for this project.

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PROJECT DURATION and COST: Proposals exceeding these limits will not be evaluated.

PHASE I: Not to exceed a duration of 12 months and cost of \$100,000.

PHASE II: Not to exceed a duration of 24 months and cost of \$1,000,000.

PHASE I: Phase I will demonstrate proof of concept in rapid-setting cement that shows at least 5 years of shelf-life. A technology development and commercialization roadmap will be produced along with a preliminary business case analysis for transition and industrial scale up. Strong DLA Troop Support Construction and Equipment and United States Army Corps of Engineers relevant experiences in the experimentation and production of rapid setting cement are required.

PHASE II: Depending on Phase I results, Phase II will consist of establishing pilot scale or low-rate production of rapid-setting cement with 5 years shelf-life successfully demonstrated in Phase I. Additional activities may include further materials and processing testing, characterization, demonstration in military operational environments, and further extension of shelf-life up to 7 or more years. Development of a detailed business case analysis and commercialization plan will be required. Innovative materials and processes, and commercially viable sources of supply shall be developed with the goal of transitioning readily towards production in support of DLA and Military Services supply chains.

PHASE III Phase III is any proposal that derives from, extends or completes a transition from a Phase I or II project. Phase III proposals will be accepted after the completion of Phase I and or Phase II projects.

There is no specific funding associated with Phase III, except Phase III is not allowed to use SBIR/STTR coded funding. Any other type of funding is allowed.

Phase III proposal Submission. Phase III proposals are emailed directly to DLA SBIR2@dla.mil. The PMO team will set up evaluations and coordinate the funding and contracting actions depending on the outcome of the evaluations. A Phase III proposal should follow the same format as Phase II for the content and format. There are, however, no limitations to the amount of funding requested, or the period of performance. All other guidelines apply.

Transition Plan

1. Period of Performance: TBD
2. Budget: \$ TBD

This Phase of the project should include:

1. Delivery of a production level product to J68 ready for integration into the overall DLA Enterprise system.
2. Develop a sustainment plan to support the delivered system for the lifetime of the program.

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KEYWORDS: calcium sulfoaluminate, Relative Humidity, rapid setting cement, domestic supply chain, manufacturing capacity,

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DLA 254-007 TITLE: Advancing Testing and Analytics of Indicative and Conductive Material Seals for Near Real Time Tamper Detection

OUSD (R&E) CRITICAL TECHNOLOGY AREA(S): Materials

OBJECTIVE: The Defense Logistics Agency (DLA) seeks to promote responsive, best value supplies of related materials, components, and systems to Department of Defense (DoD) customers and other DoD stakeholders. DLA investigates advancements in technologies and business processes for new and improved materials, more efficient means of their production, and competitive domestic supply chains which will lead to greater innovation in current and future defense systems combined with benefits to other commercial and government applications.

Electronic seal locking tracking devices provide near real time tracking of high value sensitive cargo with the added benefit of tamper detection of the shipment to determine supply chain integrity. Different types of materials utilized in indicative and conductive seals provide real time tamper detection. DLA is interested in the testing, evaluation and analytics of indicative and conductive seals used for tamper detection. Proposed solution must include testing and evaluation of various seal materials and analytics derived from situational data coming from tamper signals of various tracking and locking devices using indicative and conductive seals. Results will be used to calculate the probabilities of false detections of various indicative and conductive seals used in electronic seal locking and tracking devices.

DESCRIPTION: Tamper-indicating seals plays a key role in supply chain management particularly in customs, nonproliferation, law enforcement, and counterterrorism. Several reports indicate that in 2023, there were 1,183 incidents of cargo theft in the United States with losses averaging around \$586,917 per case which is a 67% increase from 2022. About 49,366 cargo crimes were reported across Europe, the Middle East and Africa in just the first nine months of 2023. However, many tamper-indicating seals currently available today, tend to provide false positives and can be quickly and easily spoofed by almost anyone.

DLA seeks SBIR project opportunities in new and innovative materials, processing, analytics, and manufacturing of indicative and conductive seals for near real time tamper detection. Proposed solution must include testing and evaluation of various seal materials and analytics derived from situational data coming from tamper signals from actual locking and/or tracking devices. Actual electronic seal locking device data from transcontinental surface (truck and rail) and ocean (vessels) of containerized and vehicle shipments must be produced by the performers for the analytical study. DLA desires SBIR opportunities with small businesses that has relevant experience with DLA Troop Support Construction and Equipment and United States Army Corps of Engineers. Respondents must be **ITAR-compliant** to qualify for submission of a proposal and receive any subsequent data for this project.

PROJECT DURATION and COST: Proposals exceeding these limits will not be evaluated.

PHASE I: Not to exceed a duration of 12 months and cost of \$100,000.

PHASE II: Not to exceed a duration of 24 months and cost of \$1,000,000.

PHASE I: Phase I will demonstrate proof-of-concept of the automated calculation of confidence level of tamper signals coming from locking and tracking devices using advanced indicative and conductive electronic seals. Actual electronic seal locking device data from transcontinental surface (truck and rail)

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and ocean (vessels) of containerized and vehicle shipments will be sourced by the performers of the analytical study. A technology development and commercialization roadmap will be produced along with a preliminary business case analysis for transition and industrial scale up. Strong DLA Troop Support Construction and Equipment and United States Army Corps of Engineers relevant experiences will be ideal.

PHASE II: Depending on Phase I results, Phase II will consist of establishing pilot scale of successfully demonstrated analytics in Phase I. Additional activities may include further materials and processing testing, characterization, demonstration in military operational environments, and further calibration of the accuracy of tamper detection of indicative and material seals. Development of a detailed business case analysis and commercialization plan will be required. Innovative materials and processes, and commercially viable sources of indicative and conductive seals shall be developed with the goal of transitioning readily towards production in support of DLA and Military Services supply chains.

PHASE III Phase III is any proposal that derives from, extends or completes a transition from a Phase I or II project. Phase III proposals will be accepted after the completion of Phase I and or Phase II projects. There is no specific funding associated with Phase III, except Phase III is not allowed to use SBIR/STTR coded funding. Any other type of funding is allowed.

Phase III proposal Submission. Phase III proposals are emailed directly to DLA SBIR2@dla.mil. The PMO team will set up evaluations and coordinate the funding and contracting actions depending on the outcome of the evaluations. A Phase III proposal should follow the same format as Phase II for the content and format. There are, however, no limitations to the amount of funding requested, or the period of performance. All other guidelines apply.

Transition Plan

1. Period of Performance: TBD
2. Budget: \$ TBD

This Phase of the project should include:

1. Delivery of a production level product to J68 ready for integration into the overall DLA Enterprise system.
2. Develop a sustainment plan to support the delivered system for the lifetime of the program.

REFERENCES:

1. Johnston, Roger G., *Tamper-Indicating Seals: Practices, Problems, and Standards*, Los Alamos National Laboratory, Los Alamos, NM.

KEYWORDS: electronic seals, indicative and material, false positives, tamper indicating seals, near real-time detection.