

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
NASA SHARED SERVICES CENTER

RECOMMENDATION AND DETERMINATION TO SOLICIT FROM ONE SOURCE
OR BRAND NAME

PICK ONE

Sole Source:

☒ I recommend that NASA, NASA Shared Services Center negotiate with Avient-Fiberline only for Yarn Procurement. The total estimated cost of this effort is [REDACTED] and the estimated period of performance or lead-time for delivery is 6 months from ATP.

OR

Brand Name Justification:

☐ I recommend that NASA, NASA Shared Services Center negotiate with only with vendors who can provide the subject brand name from vendor for supply or service to be procured. The total estimated cost of this effort is dollar amount and the estimated period of performance or lead-time for delivery is date.

This recommendation is for the acquisition of supplies or services determined to be reasonably available from only one source/only one manufacture. Competition is impractical for the following reasons (please answer the questions below):

1. **What are the reasons for soliciting only the suggested source/suggested brand name?** Please provide the unique characteristics of the items or services along with the supporting rationale and the market research performed to substantiate your reason for the suggested source/brand name.

Avient-Fiberline possesses a distinct combination of expertise, infrastructure, and technical capabilities that make them the only viable source for procuring virgin yarns and performing custom yarn modifications necessary for the Artemis Suit Materials Project. Their specialized services include the development of high-strength, high-modulus yarns, such as Vectran, aramid, PBI, and UHMWPE fibers, which are critical for extreme lunar environments. Avient-Fiberline employs advanced spinning and processing techniques that ensure precise fiber alignment and mechanical consistency, meeting stringent abrasion resistance, tensile strength, and thermal stability requirements. Unlike standard yarn suppliers, Avient-Fiberline provides integrated yarn modifications, including twisting, wrapping, and coating, using proprietary resin impregnation and nano-coatings to enhance abrasion resistance, dust mitigation, and thermal durability. Their ability to perform single-source processing from raw fiber to modified yarn ensures process control, consistency, and traceability, all of which are critical for NASA's Artemis mission. Additionally, Avient-Fiberline has proven experience in aerospace and defense applications, having supplied high-performance fibers for NASA, DoD, and commercial spaceflight programs. Their established certifications and quality control standards align with ASTM, MIL-SPEC, and aerospace industry requirements, ensuring that their materials meet radiation, micrometeoroid, and thermal insulation challenges expected in lunar conditions. Market research has shown that no other vendor can provide the required virgin yarn procurement and custom yarn modifications under a single supply chain. While multiple suppliers can offer commercial off-the-shelf high-performance fibers, none possess the necessary custom modification capabilities combined with yarn coating and aerospace-grade quality assurance.

2. **What is the impact to the government if another vendor/brand is used?** Include any dollar, schedule, or compatibility impacts if possible.

Competing vendors such as DSM, DuPont, and Honeywell manufacture raw high-performance fibers but do not provide post-processing services such as twisting, blending, or coatings, which would require outsourcing to a third-party processor. This fragmented approach introduces inconsistencies in coating

adhesion, fiber compatibility, and mechanical performance, potentially compromising the structural integrity and protective properties of woven materials used in Artemis suits. Using another vendor would also increase supply chain complexity, leading to longer lead times, higher costs, and quality control challenges. Furthermore, fragmented supply chains introduce technical risks that could result in performance failures during critical space operations. Given the strict timeline and mission-critical nature of the Artemis program, using an alternative vendor would jeopardize schedule milestones, increase procurement costs, and create higher risks of non-compliant materials, ultimately impacting the success of the mission. To ensure consistency, performance reliability, and compliance with NASA's stringent requirements, Avient-Fiberline is the only vendor capable of meeting all procurement needs for the Artemis Suit Materials Project.

ADDITIONAL COMMENTS:

Pursuant to FAR 5.201, any contract action over \$25,000 (not bought via GSA or SEWP) shall be synopsisized in the Government wide Point of Entry (GPE) by the Contracting Officer. In addition, the brand name justification must be referenced or attached.

[REDACTED]
Technical User Name

2/18/2025
Date

[REDACTED]
Title
[REDACTED]
Office