10 March 2014

Notice Type:
Special Notice (RFITropWeight)

Synopsis:
Request for Information (RFI): Light Weight Tropical Uniform

The Program Executive Office, Soldier (PEO Soldier) is seeking information on fabric that may be used in a light weight Tropical Uniform. This request for information (RFI) is issued solely for information gathering and planning purposes. This RFI does not constitute a formal solicitation for proposals. The following sections of this announcement contain details of the scope of technical efforts of interest, along with instructions for the submission of responses.

1.0 Background & Scope

PEO Soldier provides material solutions for the US Army. PEO Soldier is responsible not only for identifiable material solutions but also to identify emerging technologies that may benefit the Warfighter.

• As the war on terror continues, the Army must be prepared to engage the threat where ever the threat appears. This preparedness is not restricted to just the current Area of Operation (AO) but also projected areas where the army may be called on to engage the enemy.

• It is the responsibility of PEO Soldier to provide the right equipment for the mission in a timely manner to support the Warfighter.

• Efforts on a tropical uniform have not been resourced by the US Army since the early 1980's. It is the intent of this RFI to capitalize on the technical advances in industry that can be incorporated into a tropical uniform that may be used for deployment and training for the US Army.

• The Army is looking for light weight materials, both woven and knit, that are quick drying, breathable, and machine washable. No melt/no-drip materials and vector protection via permethrin treatment or other modes of action are desired, but other

proposed materials are welcomed. The material must be durable in a tropical environment and meet attributes outlined in this RFI.

• This RFI also seeks to identify innovative design approaches for a uniform that enhances Soldier performance, comfort, and protection while operating in a tropical environment.

2.0 Preparation Instructions to Respondents

•PEO Soldier requests that respondents submit materials and concepts related to this topic. The submissions may be used by the Government in formulating a program to assess the performance of the submitted materials and design concepts for functionality in a tropical environment. PEO Soldier requests that material submittals be accompanied by relevant performance and cost data. Design submittals should briefly and clearly describe the potential approach or concept, outline critical technical issues/obstacles, describe how the approach may address those issues/obstacles and comment on the expected performance of the proposed approach. If appropriate, respondents may also choose to provide a non-proprietary rough order of magnitude (ROM) regarding what such approaches might require in terms of funding and other resources for one or more years. This announcement contains all of the information required to submit a response. No additional forms, kits, or other materials are needed.

• PEO Soldier appreciates responses from all capable and qualified sources located within the US.

- An end item consists of a blouse/shirt and trouser. It is assumed that Soldiers will be wearing hot weather boots, belt, and a moisture wicking t-shirt under the uniform.

Responses must have the following:

1. A one page cover sheet that identifies the title, organization(s), respondent's technical and administrative points of contact - including names, addresses, phone and fax numbers, and email addresses of all co-authors, and clearly indicating its association with this RFI.
2. A substantive, focused, one-half page information paper that describes the tropical combat materials and end items being submitted or developed and a summary of the technical approaches taken to meet the performance

requirements of this RFI.
3. Production capability of 20,000 units and production schedule.
4. Estimated cost per linear yard and unit end item cost.
5. Test data demonstrating the performance of the material being submitted as it compares to the technical requirements of this RFI in Table 1. (See Table 1)
6. Five (5) linear yards of material (in any color) with written assurance that the shade, color fastness and spectral reflectance requirements can be met if printed in a multi-color earth tone camouflage pattern. Additionally, a narrative is required regarding how the manufacturer plans to meet the vector protection requirements if submitted product is not permethrin treated and accompanied with content and bite protection test data.
7. A material description including fiber blend percentages and Berry compliance documentation. Include information which certifies that the finished product is composed of materials which have been safely used commercially or provide sufficient toxicity data to show compatibility with prolonged direct skin contact.

3.0 Additional Information

Table 1

Material Attributes	Threshold and Objective	Test Procedure
Weave	TBD	Visual
Weight (oz/sq.yd)	Less than 6.2	ASTM D 3776 (Method C)
Air Permeability (cfm/minimum)	100 (T); 150 (O)	ASTM D 737
Woven Tensile Strength (lbs/minimum) W x F	175 x 125 (T); 190 x 135 (O)	ASTM D 5034
Knit Bursting Strength (lbs/minimum)	50 (T); 75 (O)	ASTM D 3783
Woven Dry Tear Strength (lbs/minimum) W x F	10 x 8 (T); 12 x 10 (O)	ASTM 1424
Woven Wet Tear Strength (lbs/ % loss) W x F	10% (T=O)	ASTM 1424
Drying time (minutes/maximum)	30 (T); 15 (O)	MM-TS-07
MVTR (g/m^2 24 hour /minimum)	2000 (T=O)	ASTM E 96 (Method B)
Wicking	1/	MM-TS-06
Woven Abrasion (cycles/minimum)	25,000 (T); 50,000 (O) 2/	ASTM D 3886 fabric as abradent
Flame Resistance Initial After laundering (25 launderings)	No melt/No drip (T) No melt/No drip & FR (O)	ASTM D 6413 AATCC 135, 3, V, Aiii and ASTM D 6413

Spectral Reflectance (NIR & SWIR)	600nm/-2000nm (T=O)	2/
Dimensional Stability WXF (5 launderings) Maximum	3.0 (T=O)	AATCC 135, 3, V, Aiii

Table 1 – Continued

Material Attributes	**Threshold and Objective**	**Test Procedure**
Permethrin Content GC/MS (0X, 20X)	.52% weight add-on of material +/- FEFRA allowable amount, 3/	Extraction and analysis by GC/MS or other quantitative analytical instrument
% Bite Protection (0X, 20X, 50X)	Objective: 90% at 0, 20 and 50X Threshold: 70% at 0, 20 and 50X, 4/	United States Department of Agriculture (USDA)
Ultraviolet Protection Factor (after 40 launderings)	40 min (T); 50 min (O)	AATCC 135, 3, V, Aiii and ASTM D 6544 AATCC 183

Notes:

1/ Shall wick 6" in no more than 60 minutes

2/ Spectral reflectance test. Spectral reflectance data shall be obtained from 200 to 2000 nanometers (nm) at 20 nm intervals on a spectrophotometer relative to the barium sulfate standard, the preferred white standard. Other white reference materials may be used provided they are calibrated to absolute white, e.g. magnesium oxide or vitrolite tiles. The spectral band width shall be less than 26 nm at 860 nm. Reflectance measurements shall be made by either the monochromatic or polychromatic mode of operation. When the polychromatic mode of operation is used, the spectrophotometer shall operate with the specimen diffusely illuminated with the full emission of a continuous source that simulates either CIE Source A or CIE Source D65. Measurements shall be taken on a minimum of two (2) different areas and the data averaged, specimens shall be oriented in different directions during testing. The measured areas should be at least 6 inches away from the selvage. The specimen shall be measured as a single layer backed with layers of the same fabric and shade. The specimen shall be viewed at an angle no greater than 10 degrees from normal, with the specular component included. Photometric accuracy of the spectrophotometer shall be within 1 percent and wavelength accuracy within 2 nanometers. The diameter for standard aperture size used in the color measurement device shall be the largest

possible depending upon each shade. Any color having spectral reflectance values falling outside the limits at four or more of the wavelengths specified shall be considered a test failure.

3/ Stop Testing when failure occurs; 2 broken yarns

4/ Must meet Environmental Protection Agency (EPA) requirements if using permethrin or other registered product for vector protection

Shall protect against the following vectors:

Vectors
Flea
Mites (chiggers)
Mosquito
Sand fly
Tick

4.0 Submission Instructions to Respondents:

Responses to this RFI are due no later than Thursday, 10 April 2014 at 1200EST. All submissions shall be electronically submitted to kelly.a.fratelli.civ@mail.mil. All material samples shall be shipped to the address found on the following page, by date stated above. Do not send questions with proprietary content. No telephone inquiries will be accepted.

Questions concerning this RFI may be submitted via email no later than Thursday, 03 April at 1200EST to the Textile Technologist at kelly.a.fratelli.civ@mail.mil. All questions, answers, discussed information, test protocols, and any other information pertinent to this RFI will be posted to the Federal Business Opportunities website (https://www.fbo.gov/). Information considered intellectual property and identified as such will not be posted.

5.0 DISCLAIMERS AND IMPORTANT NOTES

This is an RFI issued solely for information and planning purposes and does not constitute a solicitation. Respondents are advised that PEO Soldier is under no

obligation to acknowledge receipt of the information received, or provide feedback to respondents with respect to any information submitted under this RFI.

Responses to this notice are not offers and cannot be accepted by the Government to form a binding contract. Respondents are solely responsible for all expenses associated with responding to this RFI. PEO Soldier will not provide reimbursement for costs incurred in responding to this RFI. It is the respondent's responsibility to ensure that the submitted material has been approved for public release by the information owner.

The Government does not intend to award a contract on the basis of this RFI or to otherwise pay for the information solicited, nor is the Government obligated to issue a solicitation based on responses received. No proprietary or classified concepts or information should be included in the submittal. Input on technical aspects of the responses may be solicited by PEO Soldier from non-Government consultants/experts who are bound by appropriate non-disclosure requirements.

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