S²MARTS Project 2012a: XM 215 Expendable Countermeasure

Request For Solutions (RFS) Questions & Answers | Posted December 17, 2020

1. **Question**: XM215 Expendable Countermeasure Will there be any plastic Injection molded parts required for this countermeasure?

   Response: Yes, there are plastic parts in the XM215, including the piston and end cap, that could be injection molded, however they are not required to be injection molded.

2. **Question**: Will the contractor be procuring all of the composition raw materials or will some be GFM?

   Response: The contractor should plan to procure all composition raw materials.

3. **Question**: Is there an in-process hazard classification assigned to the composition in powder form and consolidated form?

   Response: The composition material should be treated similar to standard Magnesium/Teflon/Viton flare compositions, which is a 1.3 hazardous material.

4. **Question**: Are there any unique handling/safety precautions that need to be followed?

   Response: The composition material should be treated similar to standard Magnesium/Teflon/Viton flare compositions, which is a 1.3 hazardous material.

5. **Question**: Is there any specialized mixing equipment required? a. Is it shear mixed? b. Is there a shock gel process? c. Is it Resodyn mixed?

   Response: The government used a Hobart bowl mixer (shock gel process) during initial prototyping, however it is expected that other mixers that have been used to process Magnesium/Teflon/Viton flare compositions would be feasible for the XM215 composition.

6. **Question**: Will there be customer support for onsite testing?

   Response: Yes, depending on the test being conducted and data to be collected, customer support may be provided or required.

7. **Question**: Does the customer have a recommended set of test equipment that we should procure?

Response: Details regarding the test equipment requirements will be provided in the classified specification (after contract award). In general, typical infrared countermeasure equipment will be required, to include radiometers, measurement filters, and standard and high speed video cameras.

8. **Question**: Will the customer provide assistance with getting a data analysis method set up?

   Response: The government will provide assistance in identifying test equipment and data analysis methods.

9. **Question**: Is the composition amenable to the extrusion process?

   Response: The government used a press during initial prototyping. It is unknown if the formulation could be extruded, but it could be evaluated by the contractor.

10. **Question**: Can an approximate raw material cost for the composition be provided?

    Response: The current government composition for a pressed pellet contains a total of 4 ingredients. Based on small prototype production run of pellets, the government estimates the mixture components not to exceed $30-$40 per pound

11. **Question**: Specifically what safety tests are expected to develop the safety data in Phase 2 & Phase 3? Specifically what tests are required to develop this data?

    Response: Impact, friction, ESD, small scale burn, and thermal stability. If performance safety tests cannot be done by the contractor, it is possible for the tests to be done by the government after submittal of samples.

12. **Question**: Is there a specific number of formulation iterations we should quote for prototyping?

    Response: The government would expect three (3) iterations are likely, with one (1) of these selected for the flight test build.

13. **Question**: Should we quote this design only as a parasitic flares using the M206 hardware set, or should we propose a more modern sequenced igniter flare potentially using the M212 hardware set with a plastic endcap?

    Response: The current design in the M206 hardware is the recommended and preferred design. It is very unlikely that any design changes would make a more modern sequenced igniter a requirement.

14. **Question**: What is the new formulation sensitivity to ESD, Friction, impact and thermal? If not known, will the contractor be expected to generate this data in support of the IHC?

    Response: The values are similar to M206. The data summary is:

    Grain composition: BAM Friction, > 360 N; ERL Impact, > 24.5 J; ABL ESD, > 0.025 J.
    RDX Class 5 Reference: BAM Friction, > 180 N; ERL Impact, 7.2 J; ABL ESD, > 0.012 J.

The grain composition was also subjected to small-scale burn testing. All test samples burned without signs of an explosion. This composition passes UN Test 3(d).

The grain composition was tested for thermal stability. There was no ignition or explosion and there was no evidence of instability such as fuming, decomposition, or color change. A small, 0.1% weight loss was attributed to moisture in the sample.

The contractor will be required to validate these results. If performance safety tests cannot be done by the contractor, it is possible for the tests to be done by the government after submittal of samples.

15. **Question**: Does the new material have in-process hazard class assigned? Is the rating different than M206 composition, if so what is it?

    Response: The composition material should be treated similar to standard Magnesium/Teflon/Viton flare compositions, which is a 1.3 hazardous material.

16. **Question**: Is there any safety or process reason the fuels could not be combined before mixing to facilitate remote addition to the mixer of fuels from one container?

    Response: Yes, there is a process reason, so fuels should not be combined before mixing

17. **Question**: Is there any safety or process reason the oxidizers could not be combined before mixing to facilitate remote addition to the mixer of oxidizers from one container?

    Response: Combining is satisfactory

18. **Question**: Is there any known reason the new formulation may not mix and perform well if mixed in a muller mixer? Has the new formulation been mixed in a muller mixer?

    Response: The government used a Hobart bowl mixer (shock gel process) during initial prototyping, however it is expected that other mixers that have been used to process Magnesium/Teflon/Viton flare compositions would be feasible for the XM215 composition

19. **Question**: Are there any solvents other than acetone or hexane (or iso-hexane) that are required for this formulation?

    Response: In addition to the solvents listed in the question, Isopropyl alcohol may also be required

20. **Question**: 13102720 Pellet Pressed drawing has redline dimension/tolerances in section B5 that are not legible. Please provide the information in a legible form.

    Response: The dimensions on this drawing are identical to the M206 grain configuration. A more legible version of the draft drawing can be provided after contract award.

21. **Question**: Drawings 9311656 and 9311655 have redline text additions that appear to be distribution statements, but they are not legible. Please provide a legible version of the text.

Response: Both of these drawings are Distribution Statement C. The red statements are on the current M206 drawings to reflect the Destruction Notice and an Export Control notice. The only change to the existing drawing is the addition of the XM215 as an application.

22. **Question**: Is the intention that the 1310270 pellet pressed be pressed in existing M206 press die tooling or is new tooling be required?

    Response: M206 die tooling should be adequate as is

23. **Question**: Is the intent to allow use of the alternate first fire (dip coat) on the XM215? Will qualification of dip coat be part of the contract?

    Response: The government may be interested in qualification if the alternate can be applied successfully and can be shown to work in static tests, but this determination has not yet been performed. The government is interested in the contractor doing that determination

24. **Question**: Will band pass filters be provided to use for contractor testing, or will the contractor be required to obtain their own filters? It is understood the government will complete official testing. It is expected the contractor will need to complete in process testing to assure performance of the product prior to committing to government testing.

    Response: The filter specifications are classified. The government anticipates that the contractor should have their own filters and test equipment

25. **Question**: Can a security class guide be provided for the XM215 or is an existing SCG to be used, if existing which one?

    Response: The "Expendable Airborne Infrared Countermeasures (IR Decoys/Devices) Joint Security Classification Guide" dated 21 June 2010 will be used to support this program.

26. **Question**: Do the additional ingredients used in the new formulation have any special handling, storage, exposure or disposal requirements outside the norm of other countermeasure flare materials we should take into consideration?

    Response: No issues. The materials should be handled similar to other Magnesium/Teflon/Viton flare compositions.

27. **Question**: Are all the formulation materials available from USA sources?

    Response: Yes, they are available from USA suppliers, and are generally standard pyrotechnic materials

28. **Question**: Will the test requirements for the XM215 require special test equipment other than that used for the M206? As an example radiometers, filters, Windstream requirement, etc.?

    Response: Standard M206 type test equipment will be used. Additional details regarding filter requirements will be available upon receipt of the classified specification (after award).

29. **Question**: Will MIL-DTL-XXXXX be available for review before a bid is submitted?

    Response: Yes, a draft copy is available and can be provided by sending a request to S2MARTS

30. **Question**: Will we be able to use either M796 or BBU-35A/B impulse cartridges for testing?

    Response: The government prefers to use the BBU-35A/B impulse cartridges

31. **Question**: If an offeror isn't selected or chooses not to participate in the prototype demo project, would they still be eligible to participate in LRIP and/or FRP?

    Response: The government has the option to award an initial production contract to the vendor supporting this prototype project, but may also elect to proceed directly to an open competition contract.

32. **Question**: Are the Qualification test specifications and Intensive Munition Test specifications defined and available as GFI?

    Response: Test requirements will be included in the draft specification, which will be provided after contract award. The government will test the XM215 against the required Qualification and Insensitive Munitions requirements after Phase 3 delivery. Typical expendable countermeasure test requirements are applicable, to include aircraft vibration, 14 day Temperature and Humidity, Thermal Shock, drop tests, bullet impact, slow cook off, fast cook off, etc...

33. **Question**: As far as phase 1 "Tooling" is concerned, will there be injection molds manufactured in this process, either prototype molds or production molds?

    Response: Yes, there are plastic parts in the XM215, including the piston and end cap, that could be injection molded, however they are not required to be injection molded. If not available, new prototype molds would likely be fabricated to support phase 2 tasking.

34. **Question**: Would it be acceptable for the offeror to experiment with different grain profiles that might be more optimal for pressing or extrusion?

    Response: Yes, the government would be interested in any new advancements in all aspects of processing energetics in support of this prototype effort. Contractors could propose their own pellet manufacturing process or formulation that meets the government requirements. The government would expect to receive these types of proposals during the phase 1 review of the Technical Data Package.

35. **Question**: What is the expected annual production volume once the flare is qualified?

    Response: The current estimated requirements are approximately 100K units plus sustainment quantities.

36. **Question**: How many other ingredients are there in addition to the typical MTV ingredients?

    Response: The current government composition for a pressed pellet contains a total of 4 ingredients.

37. **Question**: Follow up with the Injection molded components. It was mentioned that the parts would be identical to past parts for now, but would change. When is the change?

    Response: Updates to the injection-molded components (specifically the endcap to reflect the XM215 nomenclature) should occur prior to Phase 3 (fabrication of DT/OT units). The Government will provide the contractor with the final end cap configuration prior to Phase 3.