TUCSON AIRPORT AUTHORITY
TUCSON INTERNATIONAL AIRPORT • RYAN AIRFIELD

NOTICE TO ALL PROPOSERS

ADDENDUM NO. 1

TO THE REQUEST FOR PROPOSALS FOR

TUCSON AIRPORT AUTHORITY PROJECT

10124625 FLUORINE FREE FOAM (F3) TRANSITION

DECEMBER 4, 2025

The following Addendum dated December 4, 2025, shall be made as part of the Request for Proposal (RFP) dated November 10, 2025, for 10124625 Fluorine Free Foam (F3) Transition.

GENERAL

1. The Pre-Proposal Meeting Summary dated December 1, 2025, and associated sign-in sheets are attached to this Addendum No. 1.

CHANGES TO DOCUMENTS

1. Section VI, Item 8 is hereby revised as follows:

F. Proposal Price

Total All-Inclusive Price should contain all direct and indirect costs, including out-of-pocket expenses, for performing the services as described in the Request for Proposals.

Selection Criteria	Relative Weight of Selection Criteria (Total = 100 points)
(A) Proposed approach, scope, and schedule, including method of disposal/destruction	30
(B) Firm Qualifications and Experience	20
(C) Staff Qualifications and Experience (Project Team)	20
(D) Client References	Pass/Fail
(E) Quality Control Plan	5
(F) Proposal Price	25

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2. Section VI – Selection Process, Item 4: Form of Proposals in the RFP is hereby revised as follows: The SF-330 is not a requirement for proposals under this solicitation.

RESPONSES TO QUESTIONS

Q1. What is the volume of AFFF tank on Rosenbauer 4x4 – 120 or 210?

Answer: The Rosenbauer tank capacity is 210 gallons.

Q2. Is there additional old AFFF stock needing disposal?

Answer: TAA maintains a store of AFFF onsite to maintain compliance with FAA requirements for commercial airports. Our ultimate goal is to be AFFF-free once the TAA ARFF fleet is fully transitioned to F3. We envision that destruction/disposal of all remaining bulk/stock AFFF should be able to occur as part of this project, should this opportunity align with the scope of work selected by TAA.

Q3. How long does TAA plan on taking for testing and calibration between each truck?

Answer: TAA is replacing two of its existing trucks with brand-new units. The two trucks being retired from service will not require calibration and testing. We envision that these trucks would be cleaned first, thereby removing the buffer needed to allow for testing and calibration between trucks.

Q4. Can you provide the SDS of the AFFF in use at the airport?

Answer: Please see data sheet attached.

Q5. Is there a forklift available and if so, what is the capacity?

Answer: TAA requires contractors to source their own equipment for project work.

Q6. Will the airport/fire department escort contractors or will badging be required?

Answer: The need for badging versus escorting will be determined by the scope of work selected for this project. Badging may not be ideal for a short-term project with minimal contractor personnel. On the other hand, escorting may not be ideal for a longer project requiring multiple personnel onsite. And should the scope not require airfield access, neither may be needed.

Q7. First Qualifications and Experience, P. 6: Will a team member (subcontractor) project be considered as a comparable project under this section, or must all projects be completed by the prime firm?

Answer: The project can be considered by identifying the subcontractor.

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Q8. Form of Proposals, P. 8: This paragraph references an SF-330. Is an SF-330 required?

Answer: Please refer to "Changes to Documents," Item No. 2 at the beginning of the addendum, which updates Section VI – Selection Process, Item 4: Form of Proposals in the RFP.

Q9. Please confirm that the appendix with resumes are not considered part of the 25-page proposal text.

Answer: Correct. Resumes are not included in 25-page limit.

Q10. Please provide the specific AFFF details (or Safety Data Sheet) in each ARFF vehicle.

Answer: Please see data sheet attached.

Q11. The RFP states, "Following completion of the cleaning and rinsing process, each unit will be transferred to the TAA Maintenance fleet facility for input of F3 and calibration. The SELECTION PROCESS Item 3b. requests a schedule duration for calibration.
Please confirm if both replenishment and calibration of F3 are included in the current scope of work? If yes, provide the F3 specification and what calibration is required.

Answer: SOLBERG® 3% MIL-SPEC Data Sheet https://www.perimeter-solutions.com/en/class-b-foam/3-mil-spec-sfff/ The scope wouldn't include them performing the test rather the capture of foam and water produced by the test.

Q12. Will TAA provide a specific area on TUS property to perform the draining and cleaning scope (Item I)? Is water and 120 V power available at this location?

Answer: We assume that the work will be done onsite and pulled up aerial imagery of two potential locations (the TAA Maintenance yard and the TAA Fire Station) in the pre-proposal meeting. We do expect that respondents to the RFP will identify a work area (be it onsite or off) in their proposed scope. We can confirm that power and water are available at the locations we highlighted in the meeting.

Q13. The RFP states, "TUS ARFF units will be serviced individually, with only 1 unit to be taken out of service at any time." Will TAA allow "sequential and consecutive" cleaning of each ARFF vehicle to complete all four vehicles during the same mobilization?

Answer: Cleaning will be sequential; we anticipate that cleaning of trucks slated for retirement will occur first, thereby removing the need to wait for F3 calibration and testing before moving on to those immediately following. However, to assure that we maintain operational readiness and FAA compliance within our fleet, we cannot necessarily guarantee that each unit will be moved through the process consecutively.

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Q14. Item II. Please define "proper TAA liability free disposal" and "confirmed zero TAA residual liability for the PFAS disposal." NOTE: Even destruction technologies generate residuals. In addition, RCRA TSD Facilities provide ownership and liability protection for EPA-approved disposal methodologies regarding PFAS.

Answer: Proposers should articulate how their approach will address the residual liability risks to the TAA associated with the disposal of PFAS from the AFFF under the scope of work.

Q15. Item 4 - Form of Proposals. Please state what TAA considers a KEY TEAM MEMBER.

Answer: A key team member is one who will spend the bulk of their time on this project.

Q16. Please state TAA's preference for cleaning. Does TAA prefer to comply with Federal DoD requirements (rinse out foam only) or achieve a higher degree of PFAS removal via a cleaning agent?

Answer: TAA's preference is to clean our trucks to a higher degree than what we understand can be achieved through a single rinse with water (per the DoD recommendations). Having said this, we will take numerous criteria into consideration when selecting our preferred scope and approach.

Q17. Section 8 - Selection Criteria. The Quality Control Plan is referenced as part of the Selection Criteria. However, Section 3F states "The QCP shall be submitted to TAA for approval and acceptance prior to beginning any work on the design documents. The QCP shall be prepared in accordance with International Standards Organization (ISO) 9001 guidelines. Please confirm if TAA requires the QCP to be submitted as part of the PROPOSAL, within the 25-page limit restriction OR after award but prior to beginning work?

Answer: TAA would want to see their typical QCP not this project specific. The final QCP will be finalized upon contract award.

Q18. For pricing purposes, please confirm the contract type (i.e. T&M, Firm Fixed Price, Other). Please confirm that the maximum aggregate Compensation to be paid to Vendor under this Agreement shall be $500,000.

Answer: The contract type is not to exceed. There is no maximum aggregate compensation to be paid to vendor.

Q19. For pricing purposes, should we assume each ARFF vehicle's foam tank is filled to capacity?

Answer: Yes

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Q20. Can TAA provide photos/schematics of each ARFF asset to identify access to tanks?

Answer: TAA will work with the selected company/proposal to ensure personnel have all of the information required to successfully design and execute this project.

Q21. Does TAA have any restrictions on combining field roles, such as safety and quality, with other operational personnel?

Answer: We are open to any personnel framework that will produce a safe, efficient, and effective environment for this project.

Q22. Please confirm if a completed SF-300 Form is required with the proposal submittal.

Answer: Please refer to "Changes to Documents," Item No. 2 at the beginning of the addendum, which updates Section VI – Selection Process, Item 4: Form of Proposals in the RFP.

Q23. Please confirm that a PRICE PROPOSAL is required with the PROPOSAL, and that TAA will negotiate with only the final selected contractor after the interview. No format was provided for presenting the PRICING.

Answer: Price Proposal was addressed under "Change to Documents" item No. 1 at the beginning of the addendum. No specific format will be provided for presenting pricing; please submit your pricing sheet in the format your company prefers. TAA will begin negotiation with the highest scoring proposer after the interview and final scores are tabulated. If TAA fails to reach a contract with the highest scoring proposer, TAA will cancel negotiations with the highest scoring proposer and commence negotiations with the second highest scoring proposer.

Q24. Will the TAA reconsider the method of proposal delivery and accept ELECTRONIC copies or links to a drop box?

Answer: TAA requires hard copies, one (1) original and five (5) copies. Please refer to SECTION VI, Item 5 of the RFP for detailed instructions on "Submission of Proposals."

Q25: Is the RFP document posted online?

Answer: The Notice is posted online. The RFP is not posted online. You can obtain a full copy of the RFP by contacting Matti Garry at mgarry@flytuscon.com.

Q26. Can you confirm the exact quantity and container types of all backstock AFFF requiring destruction?

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Answer: The foam is packaged in 5-gallon containers. TAA projects that approximately 1,500 gallons will be on hand at the anticipated start of the project.

Q27. Are the 5-gallon AFFF backstock buckets currently palletized?

Answer: Yes

Q28. Can you confirm the voltage and amp rating of the welder receptacle on-site?

Answer: 240 Volts 50 amp.

Q29. What are the amp capacities of the 120V receptacles on-site?

Answer: 20 amps.

Q30. Will restrooms be available for the team to use during field activities?

Answer: Restrooms may be available depending on the location where work is taking place. If work is taking place at the TAA Maintenance yard, onsite restrooms can be made available. If the work is to be staged at other locations on airport property, the contractor will need to provide alternatives. Please note that TAA's only public restrooms are in the main terminal and TAA does not provide portable toilets for onsite projects.

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PRE-PROPOSAL MEETING SUMMARY

Project Number/Name: 10124625 Fluorine-Free Foam (F3) Transition

Date: Monday, December 1, 2025

Time: 10:00 a.m.

Location: TAA - Catalina Room

Project Funding: TAA

TAA Contract Administrator: Sara Perry

TAA Project Director: Becca Cammack and Tom Tucker

SIGN-IN AND INTRODUCTIONS

1. See attached sign-in sheet for attendees.

2. Sara Perry welcomed all attendees and made brief introductions. She indicated that the minutes of the pre-proposal meeting and the sign-in sheets would be distributed to all attendees and RFP holders of record.

GENERAL INFORMATION

1. TAA intends to award this contract by Wednesday, February 11, 2026. The anticipated project completion date is to be determined.

2. Currently this project will be funded by TAA funds, with a possibility of future grant funding.

3. No representative or agent of the Respondent may contact any member of the staff or Selection Committee, any member or director of TAA or any other agent or consultant of TAA, either directly or indirectly, except as follows: all questions related to the RFP or RFP process and questions regarding the project may be directed in writing to Sara Perry at sperry@flytucson.com. TAA shall not be held responsible for any oral instructions. Any changes to this RFP will be in the form of an Addendum, which will be furnished to all registered RFP holders.

4. This RFP does not obligate TAA to award the contract to any firm or to pay any cost incurred in the proposal process or in the preparation of Request for Proposals (RFP) submitted in response to this RFP. TAA reserves the right to reject any and all Proposals or to accept any firm which is deemed to be advantageous to the public and TAA.

5. The Proposal and other requested information must be completed, in its entirety, to the best of the Respondent's ability and the Respondent must represent and warrant that all information contained therein is true and correct to the best of Respondent's knowledge.

6. Until an award and execution of a contract by TAA, only the name of each Respondent on the short list may be made available to the public. All other information received by TAA in response to this RFP or contained in the Proposals shall be confidential. The Proposals will be open to public inspection after the contract is awarded and executed by TAA. To the extent the firm designates, and TAA concurs, trade secrets and other proprietary data contained in the firms' Proposals will be kept confidential.

7. Any questions that Respondents may have about the RFP, or the project should be emailed to Sara Perry at sperry@flytucson.com no later than Monday, December 8, 2025. Answers will be provided via Addendum to all RFP holders of record. A final Addendum, if necessary, will be issued on Wednesday, December 10, 2025. Respondents who have obtained a copy of the RFP through a source other than TAA should confirm that they are included on the TAA RFP holder list to ensure receipt of all Addenda.

8. It is the policy of TAA to ensure that Disadvantaged Business Enterprise firms (DBEs) have a fair and equal opportunity to participate in TAA's contracts. Pursuant to the U.S. Department of Transportation's Interim Final Rule (IFR) issued September 30, 2025, (*see* Disadvantaged Business Enterprise Program and Disadvantaged Business Enterprise in Airport Concessions Program Implementation Modifications, 90 Fed. Reg. No. 190, page 47969-47982), until TAA completes the reevaluation process described in the IFR, TAA will not include DBE contract goals or count DBE participation toward overall program goals.

   Respondents are still encouraged to pursue subcontracting and partnership opportunities with disadvantaged and small businesses. If you have any questions about TAA's DBE Program, please contact Bert Resimont, TAA DBE Liaison Officer, at 520-573-8100.

PROPOSAL REQUIREMENTS

1. Sara Perry indicated that PROPOSAL requirements are outlined in Section VI (6) of the RFP, beginning on page 5.

2. Respondents should review the insurance requirements in Section V (5) page 3 of the RFP to confirm they can comply.

3. Client references provided in the Proposals should be current, limited to the last 5 years, and should not include TAA.

4. Failure on the part of a Respondent to provide any portion of the required documentation may be cause for rejection of the Proposal. Resolution of any conflict between any of the PROPOSAL documents that may arise shall be at TAA's sole discretion.

5. Proposals are due on or before 2:00 p.m. Local Tucson Time on Tuesday, December 16, 2025, at TAA's Administration Building, 7250 S Tucson Blvd Ste 300, Tucson, Arizona 85756 and must be time stamped by Procurement to record TAA's receipt of the Proposal. Proposals submitted after that time and date may not be accepted.

6. One (1) original and five (5) copies of the PROPOSAL should be submitted to TAA and should be clearly labeled with the project title and number and the Respondent's name and addressed to the attention of Sara Perry, Procurement Administrator.

7. Proposals may be withdrawn either personally or by written request any time before the scheduled date and time of receipt.

SELECTION PROCESS:

1. TAA is conducting a one-step selection process in accordance with the requirements of Title 34 A.R.S. to select one firm to provide Professional Services for the project listed in the RFP.

2. Proposals from interested firms will be evaluated by an in-house Selection Committee, which will rank the Proposals based on qualifications and select three to five Respondents to be short-listed. All proposers will be notified as to which firms have been selected for the short list.

3. Short-listed firms must be available for an interview scheduled for Tuesday, January 20, 2026.

SCOPE OF WORK:

1. Tom Tucker and Becca Cammack will review the Scope of Work.

DISCUSSION:

The floor was opened to questions and answers and discussion followed.

Q1. Do you have different clean "end points" for the trucks to be eliminated vs brought back online?

Answer: We require the same level of cleaning for all trucks, whether they are leaving the fleet or remaining in service. The goal is to clean them to a standard that allows for incineration, resale, donation, or continued use. In short, all trucks should be cleaned to the same level, regardless of their ultimate end-use.

Q2. Do you want contractors to assist with output testing? Specifically, containing and disposing of the output testing material?

Answer: We would like to hear ideas, as incorporating the F3 output would be a value-add for us. Effective methods to help contain the F3 from output-based testing will be a welcome inclusion into the scope.

Q3. Will you be using NFF for the output testing or will a surrogate be used?

Answer: We assume our F3 will serve as the surrogate. The test will involve using the actual foam (as required by the FAA for output-based testing).

Q4. Can you state which ARFFs are being "retired", and which go back into fleet?

Answer: The vehicles that are being retired are 762 and 766. The vehicle that is remaining in the fleet is 763 and 760. The 760 has already been transitioned, meaning the old tank has been removed (including some connecting hoses and valves) and a new tank is in the process of being installed. It's now just a matter of dealing with the 40-gallon foam that it maintains.

Q5. Is there a water hose and electrical connections close by?

Answer: Yes, at both locations.

Q6. During the F3 calibration test are you spraying on the ground or looking for containment for it?

Answer: By definition, output-based testing requires discharging foam from the hose. We will ideally discharge into some form of containment.

Q7. Is there a forklift or pallet jack available?

Answer: TAA requires contractors to source their own equipment for project work.

Q8. 110 volt?

Answer: Yes, 110.

Q9. Do you have 240 or 480 available?

Answer: We currently have 240 available.

Q10. Quantify total AFFF disposal, is there going to be more gallons onsite needed to dispose other than trucks? Is new F3 products needed, or no?

Answer: Yes, TAA maintains the reserve amount required for FAA compliance. And TAA is procuring F3 through a separate procurement effort. No F3 is needed for this project.

Q11. Will TAA provide a list of contractors bidding the entire transition?

Answer: The attendee list, including all participants both online and in person, will be attached to the addendum along with the pre-proposal meeting minutes.

Q12. How much AFFF will be cut out?

Answer: 2000 gallons is the estimate for total volume onsite.

Q13. Can you further define "proper TAA liability free disposal" and "confirmed zero TAA residual liability for the PFAS disposal?"

Answer: Proposers should articulate how their approach will address the residual liability risks to the TAA associated with the disposal of PFAS from the AFFF under the scope of work.

Q14. For AP-766, is the foam tank volume 120 gallons or 210?

Answer: 210

Q15. There was an attachment for a price sheet. There was a cover letter for a price sheet. You don't want any prices at this time? I just want to confirm you don't want us to return any price-related information for a complete proposal.

Answer: Price Proposal was addressed under "Change to Documents" item No. 1 at the beginning of the addendum. No specific format will be provided for presenting pricing; please submit your pricing sheet in the format your company prefers. TAA will begin negotiation with the highest scoring proposer after the interview and final scores are tabulated. If TAA fails to reach a contract with the highest scoring proposer, TAA will cancel negotiations with the highest scoring proposer and commence negotiations with the second highest scoring proposer.

Q16. What type of containers is the AFFF floor stock concentrate in?

Answer: 5-gallon buckets

Q17. Final Rinse 1PPB or less PFAS quantity in rinse the expected testing results per HPLC test report for tanks?

Answer: If you're asking whether the final rinse should achieve one part per billion or less PFAS concentration, the expected testing results will depend on the disposal requirements for the option you propose and we select. We are not generating drinking water; we are generating a waste stream. Therefore, the question is: what level of PFAS removal is necessary to meet disposal requirements if destruction of the waste stream is not feasible?

Q18. Is there any PPB that can be discharged to waste water? Minimum Standard?

Answer: There is no level of AFFF that can be discharged to wastewater. Our local wastewater authority has completely prohibited AFFF as a contaminant or product they will accept. Therefore, we cannot discharge any amount of AFFF into the industrial wastewater stream—either on-site or off-site.

Q19. Can we work on the weekends?

Answer: Generally, the airport permits work on weekends. There is no specific cutoff time restricting activities; however, certain notifications and permissions may be required.

Q20. Is it possible for us to go take a look at the maintenance facility to see eyes on it after this?

Answer: Yes

Q21. How long does it take for calibration testing?

Answer: Depends on the apparatus. The FAA requires us to do an output-based test. For every vehicle that we put new F3 in, we have to discharge it onto the ground and ensure that it's performing at a 3% mixture for the proportionate.

Q22. Have you already purchased or chosen your foam manufacturer for your F3?

Answer: That's a separate effort and that purchase is underway.

Q23. Is there a time period for that one truck that you want to get back in service and transition?

Answer: There are several moving parts to this answer. TAA has two new trucks that are being delivered sometime in January. Our goal is to have those trucks calibrated and in service prior to transitioning the existing fleet; in this case we can offer more flexibility. Overall, we want the downtime to be very minimal. It all depends on the output-based testing process.

Q24. In that facility is there a hydrant available?

Answer: Yes, it is easy to get to.

Attendees were reminded that the PROPOSAL due date and time is Tuesday, December 16, 2025, at 2:00 p.m.

The meeting was adjourned at 10:30 a.m. and a site visit was conducted.

The above is intended to be a summary of the proceedings as recalled by Sara Perry. The proceedings were tape-recorded, and the tape is on file in the TAA Planning & Development Department.

The End

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ATTENDANCE SIGN IN SHEET

PRE-PROPOSAL MEETING

10124625 - Fluorine Free Foam (F3) Transition

TUCSON AIRPORT AUTHORITY
TUCSON INTERNATIONAL AIRPORT • RYAN AIRFIELD

Date: 12/1/2025 Time: Location:

Name	Company Name	Address City/State/Zip	Phone	Fax	Email
Sara Perry	TAA		520-573-4777		sperry@flytucson.com
Matti Garry	TAA		520-573-4807		mgarry@flytucons.com
Kathy Myers	TAA		520-573-4823		kmyers@flytucson.com
Bert Resimont	TAA		520-573-4892		bresimont@flytucson.com
Becca Cammack	TAA		520-573-4842		bcammack@flytucson.com
Chris Deitz	TAA		520-573-5110		cdeitz@flytucson.com
Tom Tucker	TAA		520-573-8161		ttucker@flytucson.com
Chris Schmaltz	TAA		520-573-4875		cschmaltz@flytucson.com
Alan Mosley	TAA		520-573-5139		amoseley@flytucson.com
Jorge Ramos	TAA		520-573-4841		jramos@flytucson.com
Colton Salazar	Tetra Tech				colt.salazar@tetratech.com
Davien Pedroza	Southwest Hazard				dpedroza@swhaz.com
Eric Fritz	Southwest Hazard	1953 West Grant Road Tucson, AZ 85745	520.622.3607		efritz@swhaz.com
Roberto Gama	ECT2				rgama@ect2.com

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PRE-PROPOSAL MEETING

10124625 - Fluorine Free Foam (F3) Transition

Date: 12/1/2025 Time: Location:

Name	Company Name	Address City/State/Zip	Phone	Fax	Email
Abby Bazin	Parsons				abby.bazin@parsons.com
Jeff Gibson	TRS Group	8901 Rawles Avenue Indianapolis, IN 46219	(616) 437-3543		jgibson@thermalrs.com
Sara Simmons	GHD	6700 North Oracle Road Suite 238 Tucson, AZ 85704	(520) 203-0688		sarah.simmons@ghd.com
Paul Vosburg	Taplin				paulvosburg@taplingroup.com
Tom Tucker	TRS Group		(360) 560-4838		gknight@thermalrs.com
Roxanne Clarke	Tetra Tech		(2676) 798-9739		roxanne.clarke@tetratech.com
Ben Headington	Tidewater Inc		(614) 348-8939		ben.headington@tideh2o.net
David Fulton	Tetra Tech		(215) 779-9172		dave.fulton@teratech.com
Corey Theriault	Revive Environmental		(207) 210-0191		ctheriault@revive-environmental.com
Tyler Crosley	Summa Environmental		833-786-6289		summa.kfoam@gmail.com
Jack Besse	ECT2		(207) 776-4732		jackbesse@ect2.com
Frank Marine	Texas Molecular		(281) 222-6641		frank.marine@vlses.com
Ashby McMullan	Weston Solutions Inc				a.mcmullan@westonsolutions.com
Ryan Hall	Langan Engineering and Environmental Services, LLC		(551) 497-9024		ryhall@langan.com

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ATTENDANCE SIGN IN SHEET

PRE-PROPOSAL MEETING

10124625 - Fluorine Free Foam (F3) Transition

Date: 12/1/2025 Time: Location:

Name	Company Name	Address City/State/Zip	Phone	Fax	Email
Lisa Kammer	Weston Solutions Inc				lisa.kammer@westonsolutions.com
Grayson Basalyga	Langan Engineering and Environmental Services, LLC		(215) 845-8923		GBasalyga@Langan.com
Daniel Bosworth	Langan Engineering and Environmental Services, LLC				dbosworth@Langan.com
Greg Knight	thermalrs Engineering and Environmental Services, LLC				e472819@thermalrs.com
James Dugosh	alamo1				jdugosh@alamo1.com
Keith Durden	fireapparatus				Keith@fireapparatus.co
Patrick McKeown	ECT2				pmckeown@ect2.com

CHEMGUARD C306-MS 3% AFFF Concentrate

Description

CHEMGUARD C306-MS 3% AFFF (Aqueous Film-Forming Foam) Concentrate combines fluoro- and hydrocarbon-surfactant technology to provide superior fire and vapor suppression for Class B hydrocarbon fuel fires. This synthetic foam concentrate is intended for firefighting applications at 3% solution in fresh, salt, or hard water.

CHEMGUARD C306-MS foam solution utilizes three suppression mechanisms for rapid fire knockdown and enhanced burnback resistance:

- The foam blanket blocks oxygen supply to the fuel.
- Liquid drains from the foam blanket and forms an aqueous film that suppresses fuel vapor and seals the fuel surface.
- The water content of the foam solution produces a cooling effect for additional fire suppression.

TYPICAL PHYSIOCHEMICAL PROPERTIES AT 77 °F (25 °C)

Appearance	Pale yellow liquid
Density	1.02 ± 0.02 g/ml
pH	7.0 – 8.5
Refractive Index	1.3655 ± 0.0020
Viscosity	3.25 ± 1.0 cSt*
Spreading Coefficient	3.0 minimum at 3%
Pour Point	27 °F (-3 °C)
Freeze Point	27 °F (-3 °C)

*Cannon-Fenske viscometer at 25 °C

Application

CHEMGUARD C306-MS 3% AFFF Concentrate is intended for use on Class B hydrocarbon fuel fires having low water solubility such as crude oils, gasolines, diesel fuels, and aviation fuels. It is not suitable for use on polar fuels having appreciable water solubility, such as methyl and ethyl alcohol, acetone, and methyl ethyl ketone.

The concentrate has excellent wetting properties that can effectively combat Class A fires as well. It may also be used in conjunction with dry chemical agents to provide even greater fire suppression performance.

CHEMGUARD C306-MS Concentrate is ideal for fixed and emergency response firefighting systems designed to protect naval and aviation assets. Typical applications include:

- Military and civilian aircraft facilities
- Crash fire rescue (per US DOT FAA AC No. 150/5210-6D)
- On-board marine/naval fire suppression systems
- Storage tanks
- Docks/marine tankers

009787

Approvals, Listings, and Standards

CHEMGUARD C306-MS 3% AFFF Concentrate is approved, listed, qualified under, or meets the requirements of the following specifications and standards:

- US Department of Defense Military Specification
  - MIL-F-24385F: Fire Extinguishing Agent, Aqueous Film-Forming Foam (AFFF) Liquid Concentrate for Fresh and Sea Water.
- Underwriters Laboratories Inc. (UL)
  - UL Standard 162, Foam Liquid Concentrates
  - Fresh and Sea Water
- National Fire Protection Association (NFPA)
  - NFPA 403, Standard for Aircraft Rescue and Fire-Fighting Services at Airports
  - NFPA 409, Standard on Aircraft Hangars
  - NFPA 412, Standard for Evaluating Aircraft Rescue and Fire-Fighting Foam Fire Equipment
  - NFPA 414, Standard for Aircraft Rescue and Fire-Fighting Vehicles
  - NFPA 418, Standard for Heliports

Please contact Tyco Fire Protection Products Technical Services and/or refer to listing agency for current product and compatible hardware listings.

The environmentally-mindful CHEMGUARD C306-MS Concentrate formulation contains short-chain, C-6 fluoro-chemicals manufactured using a telomer-based process. The telomer process produces no PFOS, and these C-6 materials do not breakdown to yield PFOA. The fluorochemicals used in the concentrate meet the goals of the U.S. Environmental Protection Agency 2010/15 PFOA Stewardship Program.

Foaming Properties

CHEMGUARD C306-MS 3% AFFF Concentrate may be effectively applied using most conventional foam discharge equipment at 3% dilution with fresh, salt, or hard water. For optimum performance, water hardness should not exceed 500 ppm expressed as calcium and magnesium.

Because of the low energy required to create foam with CHEMGUARD C306-MS Concentrate, the foam solution may be applied with aspirating and non-aspirating discharge devices. Aspirating discharge devices typically produce expansion ratios from 3.5:1 to 10:1, depending on the type of device and the flow rate. Non-aspirating devices, such as handline water fog/stream nozzles or standard sprinkler heads, typically produce expansion ratios from 2:1 to 4:1. Medium-expansion discharge devices typically produce expansion ratios from 20:1 to 60:1.

TYPICAL FOAM CHARACTERISTICS (Fresh and Sea Water)**

Proportioning Rate	3%
Expansion Ratio LE	9.5
25% Drain Time (min:sec)	3:30
50% Drain Time (min:sec)	5:45

**per EN 1568-3, 2008 protocol

Proportioning

CHEMGUARD C306-MS 3% AFFF Concentrate can be correctly proportioned using most conventional, properly calibrated, in-line proportioning equipment such as:

- Balanced and in-line balanced pressure pump proportioners
- Balanced pressure bladder tanks and ratio flow controllers
- Around-the-pump type proportioners
- Fixed or portable in-line venturi type proportioners
- Handline nozzles with fixed eductor/pick-up tubes

For immediate use: The concentrate may also be diluted with fresh or sea water to a 3% pre-mix solution.

For delayed use: Consult Technical Services for guidance regarding suitability of a pre-mix solution (fresh water only).

Materials of Construction Compatibility

CHEMGUARD C306-MS Concentrate compatibility with HDPE has been successfully evaluated using ASTM D1693-70 protocol under UL-162 standard. Concentrate corrosion studies with cold-rolled carbon steel (UNS G10100), 90-10 copper-nickel (UNS C70600), 70-30 nickel-copper (UNC N04400), bronze (UNS C90500), and CRES steel (UNS S30400) have been successfully completed per ASTM E527 protocol under MIL-F-24385F specification.

To avoid corrosion, galvanized pipe and fittings should never be used in contact with undiluted concentrate. Please refer to Technical Bulletin No. 59 for recommendations and guidance regarding compatibility of CHEMGUARD concentrates with common materials of construction in the firefighting foam industry.

Storage and Handling

CHEMGUARD C306-MS 3% AFFF Concentrate should be stored in the original supplied package (HDPE totes, drums, or pails) or in the foam system equipment recommended by Technical Services. The product should be maintained within the recommended 35 °F to 120 °F (2 °C to 49 °C) operational temperature range. If the concentrate freezes during transport or storage, full product serviceability can be restored upon thaw with gentle re-mixing.

Factors affecting the foam concentrate long-term effectiveness include temperature exposure and cycling, storage container, air exposure, evaporation, dilution, and contamination. The effective life of CHEMGUARD C306-MS Concentrate can be maximized through optimal storage conditions and proper handling.

CHEMGUARD foam concentrates have demonstrated effective firefighting performance with contents stored in the original package under proper conditions for more than 10 years.

CHEMGUARD C306-MS 3% AFFF Concentrate has been successfully evaluated by the US Naval Sea Systems Command for prolonged compatibility with other 3% AFFF concentrates qualified under MIL-F-24385F specification.

- Mixing with foam concentrates not vetted by MIL-F-24385F is not recommended.
- For immediate incident response, it is appropriate to use the concentrate in conjunction with comparable 3% AFFF products.

Inspection

CHEMGUARD C306-MS 3% AFFF Concentrate should be inspected periodically per NFPA 11 "Standard for Low-, Medium-, and High-Expansion Foam," EN 13565-2 "Foam System Standard," or other relevant standard. A representative concentrate sample should be sent to Tyco Fire Protection Products Foam Analytical Services or other qualified laboratory for quality analysis per the applicable standard. An annual inspection and sample analysis is typically sufficient, unless the product has been exposed to unusual conditions.

Ordering Information

Concentrate is available in commercial packaging only under CHEMGUARD C306-MS-C product designation and is not available for direct, contract government acquisition (per MIL-F-24385F packaging provision). Concentrate is available in pails, drums, totes or bulk shipment, with pail and drum containers being UL-162 compliant.

Part No.	Description	Shipping Weight	Cube
770809	Pail 5 gal (19 L)	45 lb (20.4 kg)	1.25 ft³ (0.0353 m³)
770810	Drum 55 gal (208 L)	495 lb (224.5 kg)	11.83 ft³ (0.3350 m³)
770811	Tote 265 gal (1000 L)	2463 lb (1117 kg)	50.05 ft³ (1.42 m³)

Safety Data Sheet (SDS) available at www.chemguard.com

Note: The converted metric values in this document are provided for dimensional reference only and do not reflect an actual measurement.

CHEMGUARD

Safety Data Sheet

This safety data sheet complies with the requirements of: 2012 OSHA Hazard Communication Standard (29CFR 1910.1200)

Product name CHEMGUARD 3% AFFF C306-MS-C

1. Identification

1.1. Product Identifier

Product name CHEMGUARD 3% AFFF C306-MS-C

1.2. Other means of identification

Product code 770809
Synonyms None
Chemical Family No information available

1.3. Recommended use of the chemical and restrictions on use

Recommended use Fire extinguishing agent.
Uses advised against Consumer use.

1.4. Details of the Supplier of the Safety Data Sheet

Company Name Tyco Fire Protection Products
One Stanton Street
Marinette, WI 54143-2542
Telephone: 715-735-7411
Contact point Product Stewardship at 1-715-735-7411
E-mail address psra@tycofp.com

1.5. Emergency Telephone Number

Emergency telephone CHEMTREC 800-424-9300 or 703-527-3887

2. Hazards Identification

Classification

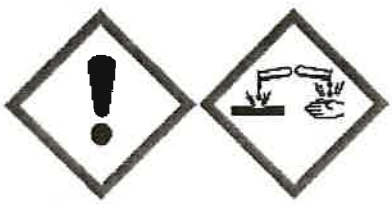
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Serious eye damage/eye irritation - Category 1
Skin Sensitization - Category 1B

2.2. Label Elements

Signal Word
DANGER

Hazard Statements
Causes serious eye damage
May cause an allergic skin reaction



Precautionary Statements

Prevention
Wear protective gloves/protective clothing/eye protection/face protection. Avoid breathing dust/fume/gas/mist/vapors/spray. Contaminated work clothing should not be allowed out of the workplace.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.
IF ON SKIN: Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before reuse.

Disposal
Dispose of contents/container to an approved waste disposal plant.

2.3. Hazards Not Otherwise Classified (HNOC)
Not Applicable.

2.4. Other Information
Unknown Acute Toxicity 28.333% of the mixture consists of ingredient(s) of unknown toxicity

3. Composition/information on Ingredients

3.1. Mixture
The following component(s) in this product are considered hazardous under applicable OSHA(USA)

Chemical name	CAS No.	weight-%
2-(2-Butoxyethoxy)ethanol	112-34-5	10 - 30
Laurylamidopropyl betaine	4292-10-8	1 - 5
Caprylcaprilyl glucoside	68515-73-1	1 - 5
Polyfluorinated alkyl polyamide	Proprietary	1 - 5
Octylphenoxypolyethoxyethanol	9036-19-5	1 - 5
Polyfluorinated alkyl quaternary amine chloride	Proprietary	0.1 - 1

4. First aid measures

4.1. Description of first aid measures
Eye Contact Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.

Skin contact Wash skin with soap and water. Get medical attention if irritation develops and persists.

Inhalation Remove to fresh air. If breathing is difficult, give oxygen. (Get medical attention immediately if symptoms occur.).

Ingestion Rinse mouth. Do not induce vomiting without medical advice. If swallowed, call a poison control center or physician immediately.

4.2. Most Important Symptoms and Effects, Both Acute and Delayed
Symptoms No information available.

4.3. Indication of Any Immediate Medical Attention and Special Treatment Needed
Note to physicians Treat symptomatically.

5. Fire-fighting measures

5.1. Suitable Extinguishing Media
Product is extinguishing agent. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

5.2. Unsuitable Extinguishing Media
None.

5.3. Specific Hazards Arising from the Chemical
None known.

Hazardous Combustion Products	Carbon oxides, Fluorinated oxides, Nitrogen oxides (NOx), Oxides of sulfur

5.4. Explosion Data
Sensitivity to Mechanical Impact None.
Sensitivity to Static Discharge None.

5.5. Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal Precautions	Ensure adequate ventilation, especially in confined areas.
For emergency responders	Use personal protection recommended in Section 8.

6.2. Environmental Precautions

Environmental Precautions	Prevent further leakage or spillage if safe to do so. Prevent entry into waterways, sewers, basements or confined areas. See Section 12 for additional Ecological Information.

6.3. Methods and material for containment and cleaning up

Methods for Containment	Prevent further leakage or spillage if safe to do so.
Methods for Cleaning Up	Pick up and transfer to properly labeled containers.

7. Handling and Storage

7.1. Precautions for Safe Handling

Advice on safe handling	Avoid contact with skin and eyes. Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions	Keep containers tightly closed in a dry, cool and well-ventilated place.
Incompatible Materials	Strong oxidizing agents. Strong acids. Strong bases.

8. Exposure Controls/Personal Protection

8.1. Control Parameters

Exposure guidelines

Chemical name	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL
2-(2-Butoxyethoxy)ethanol 112-34-5	TWA: 10 ppm inhalable fraction and vapor	-	-	-

ACGIH (American Conference of Governmental Industrial Hygienists) OSHA (Occupational Safety and Health Administration of the US Department of Labor) NIOSH IDLH Immediately Dangerous to Life or Health

8.2. Appropriate Engineering Controls

Engineering controls Showers
Eyewash stations
Ventilation systems.

8.3. Individual protection measures, such as personal protective equipment

Eye/Face Protection Avoid contact with eyes. Tight sealing safety goggles.

Skin and Body Protection Wear protective gloves and protective clothing.

Respiratory Protection If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

Ventilation Use local exhaust or general dilution ventilation to control exposure with applicable limits

8.4. General hygiene considerations

Do not eat, drink or smoke when using this product. Handle in accordance with good industrial hygiene and safety practice.

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State Liquid
Odor Characteristic **Color** Light yellow
Odor Threshold No data available

Property	Values	Remarks • Method
pH	7- 8.5	
Melting point/freezing point	No data available	
Boiling point / boiling range	No data available	
Flash Point	No data available	
Evaporation Rate	No data available	
Flammability (solid, gas)	No data available	
Flammability limit in air		
Upper flammability limit:	No data available	
Lower flammability limit:	No data available	
Vapor Pressure	No data available	
Vapor Density	No data available	
Specific gravity	No data available	
Water Solubility	No data available	
Solubility in Other Solvents	No data available	

Partition coefficient	No data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Kinematic viscosity	No data available
Density	1.02

10. Stability and Reactivity

10.1. Chemical Stability

Stable under recommended storage conditions.

10.2. Reactivity

No data available

10.3. Possibility of hazardous reactions

None under normal processing.

Hazardous Polymerization Hazardous polymerization does not occur.

10.4. Conditions to Avoid

Extremes of temperature and direct sunlight.

10.5. Incompatible Materials

Strong oxidizing agents. Strong acids. Strong bases.

10.6. Hazardous decomposition products

Carbon oxides. Nitrogen oxides (NOx). Oxides of sulfur. Fluorinated oxides.

11. Toxicological Information

11.1. Information on Likely Routes of Exposure

Product information

Inhalation No data available.

Eye Contact Corrosive to the eyes and may cause severe damage including blindness.

Skin contact May cause allergic skin reaction.

Ingestion No data available.

Component Information

Acute Toxicity

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
2-(2-Butoxyethoxy)ethanol 112-34-5	= 5660 mg/kg (Rat)	= 2700 mg/kg (Rabbit)	-
Laurylamidopropyl betaine 4292-10-8	> 2000 mg/kg (Rat)	-	-
Polyfluorinated alkyl polyamide	>2000 mg/kg	>2000 mg/kg	>5.11 mg/l
Octylphenoxypolyethoxyethanol	= 1700 mg/kg (Rat) = 4190 mg/kg	-	-

9036-19-5 Polyfluorinated alkyl quaternary amine chloride	(Rat) >300 - <2000 mg/kg	-	-

11.2. Information on Toxicological Effects

Symptoms No information available.

11.3. Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin Corrosion/Irritation No information available.
Serious eye damage/eye irritation Risk of serious damage to eyes.
Sensitization May cause sensitization by skin contact.
Germ Cell Mutagenicity No information available.
Carcinogenicity No information available.
Reproductive Toxicity No information available.
STOT - Single Exposure No information available.
STOT - Repeated Exposure No information available.
Aspiration Hazard No information available.

11.4. Numerical Measures of Toxicity - Product information

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral) 11648 mg/kg
ATEmix (dermal) 12061 mg/kg
ATEmix (inhalation-dust/mist) 223.9 mg/l

12. Ecological Information

12.1. Ecotoxicity

0.1011% of the mixture consists of components(s) of unknown hazards to the aquatic environment

Chemical name	Algae/aquatic plants	Fish	Crustacea
2-(2-Butoxyethoxy)ethanol 112-34-5	EC50 (96h) > 100 mg/L Desmodesmus subspicatus	LC50 (96h) static = 1300 mg/L Lepomis macrochirus	EC50 (48h) > 100 mg/L Daphnia magna EC50 (24h) = 2850 mg/L Daphnia magna
2-Methyl-2,4-pentanediol 107-41-5	-	LC50 (96h) flow-through = 8690 mg/L Pimephales promelas LC50 (96h) flow-through 10500 - 11000 mg/L Pimephales promelas LC50 (96h) static = 10000 mg/L Lepomis macrochirus LC50 (96h) static = 10700 mg/L Pimephales promelas	EC50 (48h) 2700 - 3700 mg/L Daphnia magna
t-Butanol 75-65-0	EC50 (72h) > 1000 mg/L Desmodesmus subspicatus	LC50 (96h) flow-through 6130 - 6700 mg/L Pimephales promelas	EC50 (48h) Static 4607 - 6577 mg/L Daphnia magna EC50 (48h) = 933 mg/L Daphnia magna
Polyethylene Glycol 25322-68-3	-	LC50 (24h) > 5000 mg/L Carassius auratus	-
Sodium chloride 7647-14-5	-	LC50 (96h) semi-static = 7050 mg/L Pimephales promelas LC50 (96h) flow-through 4747 - 7824 mg/L Oncorhynchus mykiss LC50 (96h) static = 12946 mg/L Lepomis macrochirus LC50 (96h) static 6020 - 7070 mg/L Pimephales promelas LC50 (96h) flow-through 5560 - 6080 mg/L Lepomis macrochirus LC50 (96h) static 6420 - 6700 mg/L Pimephales promelas	EC50 (48h) Static 340.7 - 469.2 mg/L Daphnia magna EC50 (48h) = 1000 mg/L Daphnia magna
4,4'-bis-(sulfostyryl)-biphenyl disodium salt	EC50 (72h) = 10 mg/L Desmodesmus subspicatus EC50	LC50 (96h) static = 76 mg/L Brachydanio rerio	EC50 (48h) = 1000 mg/L Daphnia magna

27344-41-8	(96h) 10.0 - 11.0 mg/L Desmodesmus subspicatus		

Polyfluorinated alkyl polyamide					
Method	Species	Endpoint type	Effective dose	Exposure time	Results
OECD Test No. 203: Fish, Acute Toxicity Test	Oncorhynchus mykiss (rainbow trout)	LC50	>14 mg/l	96h	NOEC: 14 mg/L No toxic effects at saturation.
OECD Test No. 201: Freshwater Alga and Cyanobacteria, Growth Inhibition Test	Algae	ErC50	>15 mg/l	72h	Growth rate >15, Yield 13. NOEC: 4.0 mg/L, LOEC: 8.5 mg/L
OECD Test No. 202: Daphnia sp., Acute Immobilization Test	Daphnia magna	EC50	>20 mg/l	48h	NOEC: 20 mg/L No toxic effects at saturation.

12.2. Persistence and Degradability
No information available.

12.3. Bioaccumulation
No information available.

12.4. Other Adverse Effects
No information available

13. Disposal Considerations

13.1. Waste Treatment Methods
Disposal of wastes Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated Packaging Do not reuse container.

14. Transport Information

DOT NOT REGULATED

TDG NOT REGULATED

MEX NOT REGULATED

ICAO (air) NOT REGULATED

IATA NOT REGULATED

IMDG NOT REGULATED

15. Regulatory Information

15.1. International Inventories
TSCA Complies
DSL/NDSL Does not comply

ENCS	Does not comply
IECSC	Does not comply
KECL	Does not comply
PICCS	Does not comply
AICS	Does not comply

Legend:
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

15.2. US Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Chemical name	SARA 313 - Threshold Values %
2-(2-Butoxyethoxy)ethanol - 112-34-5	1.0

SARA 311/312 Hazard Categories

Acute Health Hazard	Yes
Chronic health hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

CWA (Clean Water Act)
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

CERCLA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

15.3. US State Regulations

U.S. State Right-to-Know Regulations

Chemical name	New Jersey	Massachusetts	Pennsylvania
2-(2-Butoxyethoxy)ethanol 112-34-5	X	-	X

16. Other information, including date of preparation of the last revision

NFPA	**Health Hazards** 2	**Flammability** 0	**Instability** 0	**Physical and chemical properties** -
HMIS	**Health Hazards** 2	**Flammability** 0	**Physical Hazards** 0	**Personal Protection** X

Revision date 10-Apr-2017
Revision note SDS sections updated, 2, 11, 12.
Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet