



Produced Foam Testing App User Guide

General App Use

This app has been developed to aid in the field testing of produced foam (finished foam) from fire-fighting foam systems including fixed systems, mobile systems and marine systems.

It uses the Conductivity and Refractive Index test methods described in NFPA11:2021 Annex D which are not limited to systems covered by NFPA11 and are widely accepted for determining produced foam concentration.

The app includes the current acceptable produced foam concentration criteria from the following standards:

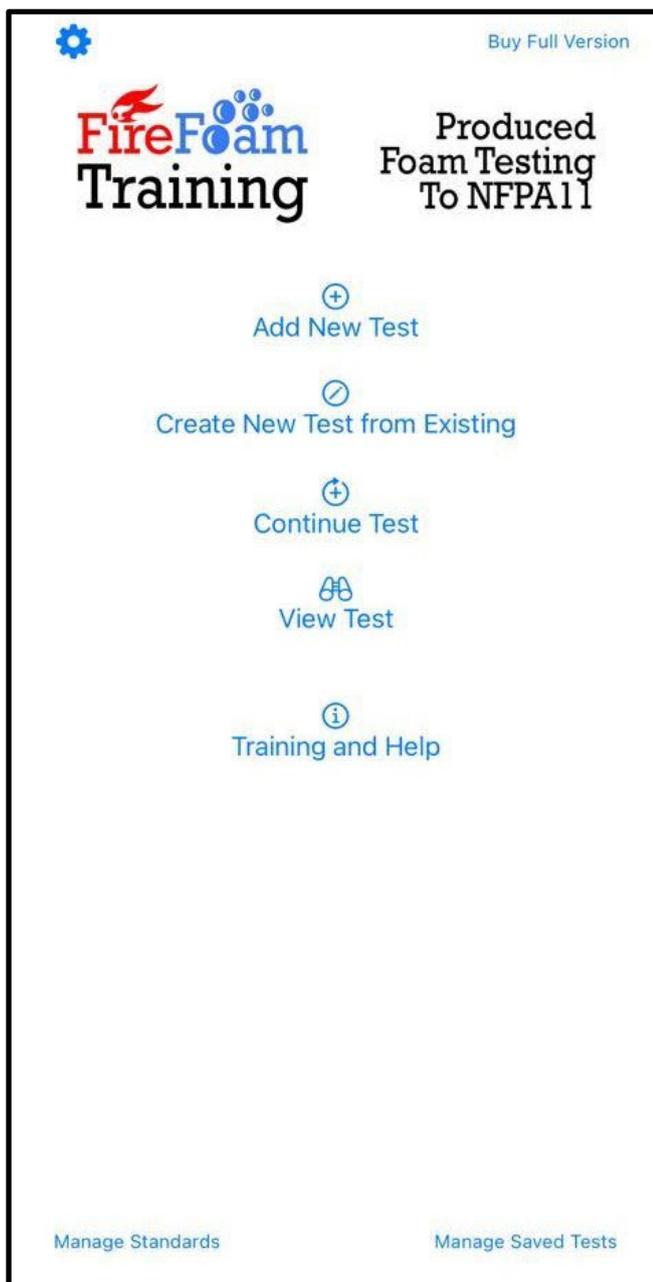
Standard Name	Description
BS EN 13565-1: 2019	Fixed Firefighting Systems. Foam Systems Requirements and Test Methods For Components
ICAO Doc 9137-AN/898 4th Ed 2015	Airport Services Manual - Part 1 Rescue and Fire Fighting
IMO MSC.327(90)	Amendments to the International Code for Fire Safety Systems (FSS Code)
NFPA11-2021	Standard for low, Medium and High Expansion Foam
NFPA412-2020	Standard for Evaluating Aircraft Rescue and Fire-Fighting Foam Equipment
NFPA1925-2018	Standard on Marine Fire-Fighting Vessels
NFPA1901-2016	Standard for Automotive Fire Apparatus
UKCAA CAP437 Edition 8, Amendment 1, 2018	Standards for Offshore Helicopter Landing Areas

Whilst every attempt has been made to ensure the accuracy of this app against the respective Standards, Fire Foam Training Ltd take no responsibility for its use in assessing systems against the Standards and the User should familiarise themselves with the latest version of the Standard applicable to their system.

The app includes the option for the User to add their own test criteria in the event that the applicable Standard is inaccurate or not covered by the app.

The app will continue to develop to include other Standards and feedback on new Standards or changes to supported Standards is welcomed.

Main Screen



Select the gear symbol to edit the Company details that will appear on the Test Report

[Buy Full Version](#)

Takes the User to the Purchase Screen. The free version will allow the User to perform 10 tests without being able to save the data.

[Add New Test](#)

Creates a new test set to today's date with no data entered.

[Create New Test from Existing](#)

Creates a new test using the data from a previous test. The date is changed to today and all data is carried over except for the Produced Foam test sample. This option is useful for creating a new test for the same test point or for a new test point using the same calibration line.

[Continue Test](#)

All data for a saved test is retrieved and work can continue from whatever point was reached.

[View Test](#)

Test data can be reviewed but no data can be added or changed and the test cannot be saved.

[Training and Help](#)

This takes the User to the help Section

[Manage Standards](#)

Takes the User to the Standards Management page where Standards can be added or deleted.

[Manage Saved Tests](#)

Takes the User to the Test Management page where Tests can be viewed and deleted.

Test Screen

The Test Screen is used to enter test data.

Enter the facility and User information to identify the test. Note that this information will appear on the Produced Foam Test Report.

The default standard for the test is NFPA11, change the Standard to be used by holding NFPA11 until the list of available standards pops up. Tap on a Standard to select it and return to this screen.

The default measurement type is Refractive Index (%Brix), change the Measurement Type by holding Refractive Index (%Brix) until the list of available measurements pops up. Tap on a measurement type to select it and return to the Test Screen.

Enter the expected Produced Foam Concentration % which is either the foam manufacturers recommended concentration or the concentration the proportioner was commissioned to.

This unlocks the Calibration screen, click "Set Calibration Points" to enter the Calibration screen.

Fuel Depot - 19/10/2021 [Save](#)

Select Date of Test : 19 Oct 2021

Facility : Fuel Depot

Sample Point : Tank 01A Roof

Name : AN Other

Standard Selected : NFPA11-2021
All

Induction Water Used : River Water

Foam Under Test : AFFF-AR

Produced Foam Concentrati...

Measurement Type : Refractive Index (%Brix)

There are 4 Calibration Points

[Set Calibration Points](#)

Calibration is Accepted

%Brix Result for Sample under Test
Concentration Result : 3.33 **Pass**

Laboratory result (Concentration)

[Show on Graph](#) [Produce PDF report](#)

Once a calibration has been accepted the User will be returned to the Test Screen.

Enter the measurement for the produced foam sample under test.

The app will determine the Produced Foam concentration and report whether it is a Pass or Fail as per the acceptable proportioner range defined by the selected Standard, examples of **Pass** and **Fail** are shown.

Click on **“Save”** to save the test and return to the Main Screen. Failing to save the test will lose all the data if the User returns to the Main Screen.

Click **“Show on Graph”** to see the graphical solution.

Click on **“Produce PDF Report”** to view the Produced Foam Test Report.

Space is provided to add a laboratory determined foam concentration for the sample which may be useful in assessing site sampling/testing accuracy.

Fuel Depot - 19/10/2021 [Save](#)

Select Date of Test : 19 Oct 2021

Facility : Fuel Depot

Sample Point : Tank 01A Roof

Name : AN Other

Standard Selected : NFPA11-2021
All

Induction Water Used : River Water

Foam Under Test : AFFF-AR

Produced Foam Concentrati...

Measurement Type : Refractive Index (%Brix)

There are 4 Calibration Points

[Set Calibration Points](#)

Calibration is Accepted

%Brix Result for Sample under Test
Concentration Result : 4.00 **Fail**

Laboratory result (Concentration)

[Show on Graph](#) [Produce PDF report](#)

Calibration Screen

Calibration

Calibration Samples recommended for Produced Foam Concentration :

	<u>3.0</u> %	
Optional		1.0%
Low		2.0%
Base		3.0%
High		4.0%
Optional		5.0%

Enter Calibration Points Clear Calibration Points

Concentration %	%Brix	Inc
Induction Water		<input checked="" type="checkbox"/>

Add Calibration Point

Verify Calibration

Accept Calibration

Show Graph

The Calibration Screen is used to enter measurements for the calibration samples and determine the best fit calibration line.

Based on the produced foam concentration % entered on the Test Screen the app provides the recommended calibration sample concentrations from NFPA11 as Low, Base and High figures.

Additional optional points are suggested if the User wishes to extend the number of cases to improve test accuracy or to create samples differing from those in NFPA11.

The Induction Water data point is mandatory and represents 0% foam concentrate. Enter the Induction Water measurement and press "Return" on the device keypad.

Click on "Add Calibration Point" and a new data entry line will appear, enter the Concentration% and measurement for the sample and press "Return" on the device keypad.

Repeat the sequence for each calibration sample, up to 9 calibration data points can be entered.

Calibration

Calibration Samples recommended for Produced Foam Concentration :

	<u>3.0</u> %	
Optional		1.0%
Low		2.0%
Base		3.0%
High		4.0%
Optional		5.0%

Enter Calibration Points Clear Calibration Points

Concentration %	%Brix	Inc
Induction Water	0	<input checked="" type="checkbox"/>
2	0.6	<input checked="" type="checkbox"/>
3	0.9	<input checked="" type="checkbox"/>
4	1.2	<input checked="" type="checkbox"/>

Add Calibration Point

Verify Calibration

Accept Calibration

Show Graph

Once all data points are entered, click on "Verify Calibration", the App will determine the mathematically best fit calibration line and checks the validity of the supplied data. Any points that are more than 10% away from the calibration line are considered suspect and should be investigated.

Calibration

Calibration Samples recommended for Produced Foam Concentration :

Optional	<u>3.0</u> %	1.0%
Low		2.0%
Base		3.0%
High		4.0%
Optional		5.0%

Enter Calibration Points Clear Calibration Points

Concentration %	%Brix	Inc
Induction Water	<input type="text" value="0"/>	OK <input checked="" type="checkbox"/>
<input type="text" value="2"/>	<input type="text" value="0.6"/>	OK <input checked="" type="checkbox"/>
<input type="text" value="3"/>	<input type="text" value="0.9"/>	OK <input checked="" type="checkbox"/>
<input type="text" value="4"/>	<input type="text" value="1.2"/>	OK <input checked="" type="checkbox"/>

Add Calibration Point

Calibration Verified

Accept Calibration

Show Graph

If the data is close to the calibration line, the app will mark each data point as “OK” and “Verify Calibration” will change to “Calibration Verified”.

The graphical solution to the best fit calibration line can be viewed by clicking “Show Graph”.

Note that the app will generate the best fit calibration line and determine the produced foam concentration, even if the User has selected the wrong units of measurement, but the graphs will be unavailable and the app will report a “Measurement Type Error” message if the User tries to view the graph.

The User must click on “Accept Calibration” before the app will use the data and return to the Test Screen. Note that calibration can be accepted before the data has been verified.

IMPORTANT

The User takes responsibility for accepting the calibration data whether the data has been verified or not.

Calibration

Calibration Samples recommended for Produced Foam Concentration :

Optional	<u>3.0</u> %	1.0%
Low		2.0%
Base		3.0%
High		4.0%
Optional		5.0%

Enter Calibration Points Clear Calibration Points

Concentration %	%Brix	Inc
Induction Water	<input type="text" value="0.0"/>	OK <input checked="" type="checkbox"/>
<input type="text" value="2.0"/>	<input type="text" value="0.6"/>	Suspect <input checked="" type="checkbox"/>
<input type="text" value="3.0"/>	<input type="text" value="0.9"/>	Suspect <input checked="" type="checkbox"/>
<input type="text" value="4.0"/>	<input type="text" value="1.5"/>	OK <input checked="" type="checkbox"/>

Add Calibration Point

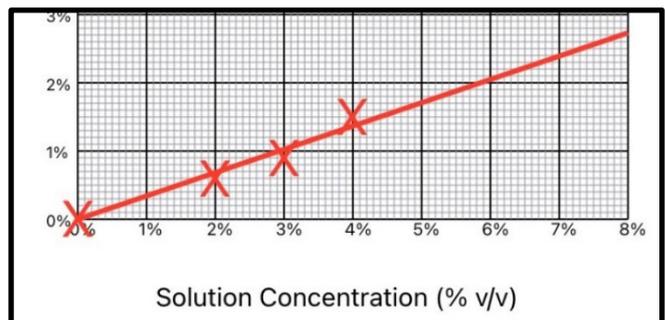
Verify Calibration

Accept Calibration

Show Graph

If any datapoints are highlighted as “Suspect”, it is recommended the User clicks on “Show Graph” and reviews the points against the calibration line. This is because it may be a different point that is incorrect and is forcing the calibration line away from good points.

eg in this example the 2% and 3% samples are highlighted as “Suspect” but inspection of the calibration graph shows the 4% sample is more likely to be incorrect, inspection of the data trend suggests a value of 1.2 %Brix should be expected for the 4% sample although it is entirely possible that the 2% and 3% samples were incorrect. If in doubt, it is recommended new calibration samples are made up and tested.



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Calibration

Calibration Samples recommended for Produced Foam Concentration :

	3.0 %		
Optional		1.0%	
Low		2.0%	
Base		3.0%	
High		4.0%	
Optional		5.0%	

Enter Calibration Points
Clear Calibration Points

Concentration %	%Brix		Inc
Induction Water	0.0	OK	<input checked="" type="checkbox"/>
2.0	0.6	OK	<input checked="" type="checkbox"/>
3.0	0.9	OK	<input checked="" type="checkbox"/>
4.0	1.5		<input type="checkbox"/>

Add Calibration Point
Calibration Verified
Accept Calibration
Show Graph

The User can edit the calibration data points at any time to correct suspect data eg if a new test solution was made up and a different result was obtained.

Alternatively, clicking on the “Inc” tick box will include/exclude a given point from the calibration line calculation. Data points not included in the calibration line will still appear on the graph but will be a lighter colour.

If the data is changed or a data point is included/excluded then the data should be verified again by clicking “Verify Calibration” and the process repeated until the data has been verified.

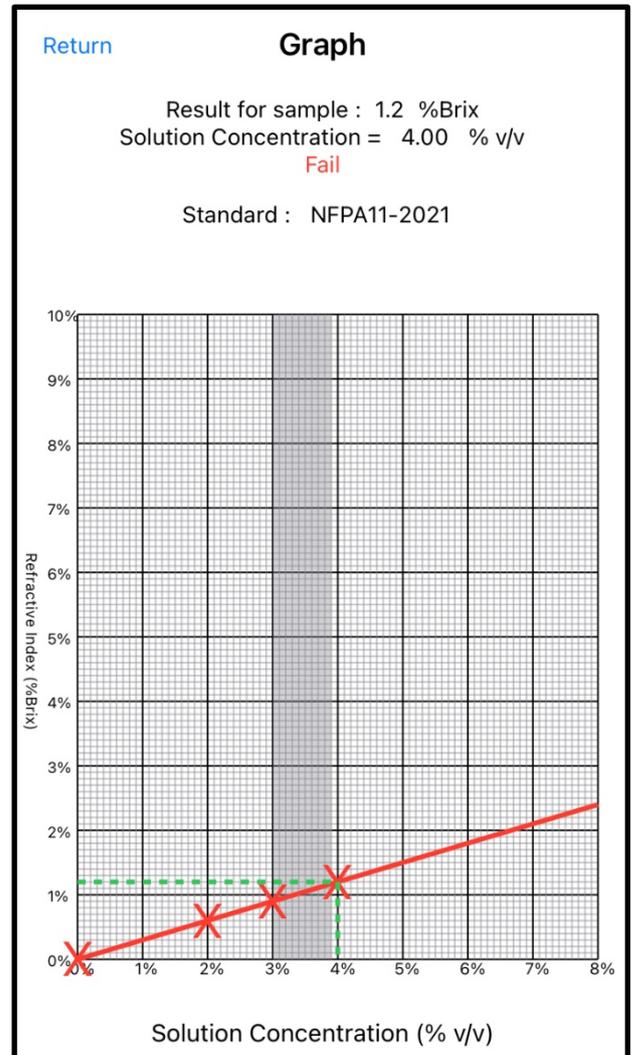
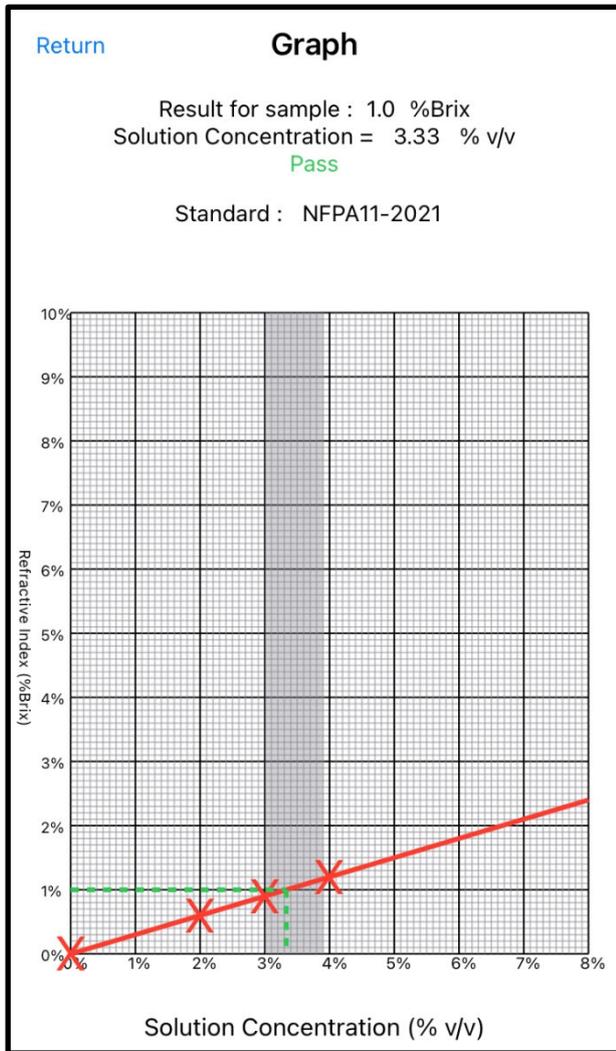
The User must click on “Accept Calibration” before the app will use the data and return to the Test Screen. Note that calibration can be accepted before the data has been verified.

IMPORTANT
The User takes responsibility for accepting the calibration data whether the data has been verified or not.

Graph Screen

The Graph screen shows the best fit calibration line based on the data points entered and, once the produced foam measurement has been entered, it also shows the result for the produced foam concentration %.

The shaded area represents the proportioner pass range as per the selected Standard.



PDF Report Screen

This screen is a one page Produced Foam Test Report in PDF format containing all of the data associated with the test. It includes the testing organisation's (or site owner's) logo and details which can be edited on the Company Information screen, the default is Fire Foam Training Ltd. The report can be printed, emailed or saved depending on the facilities available on the device the app is running on.



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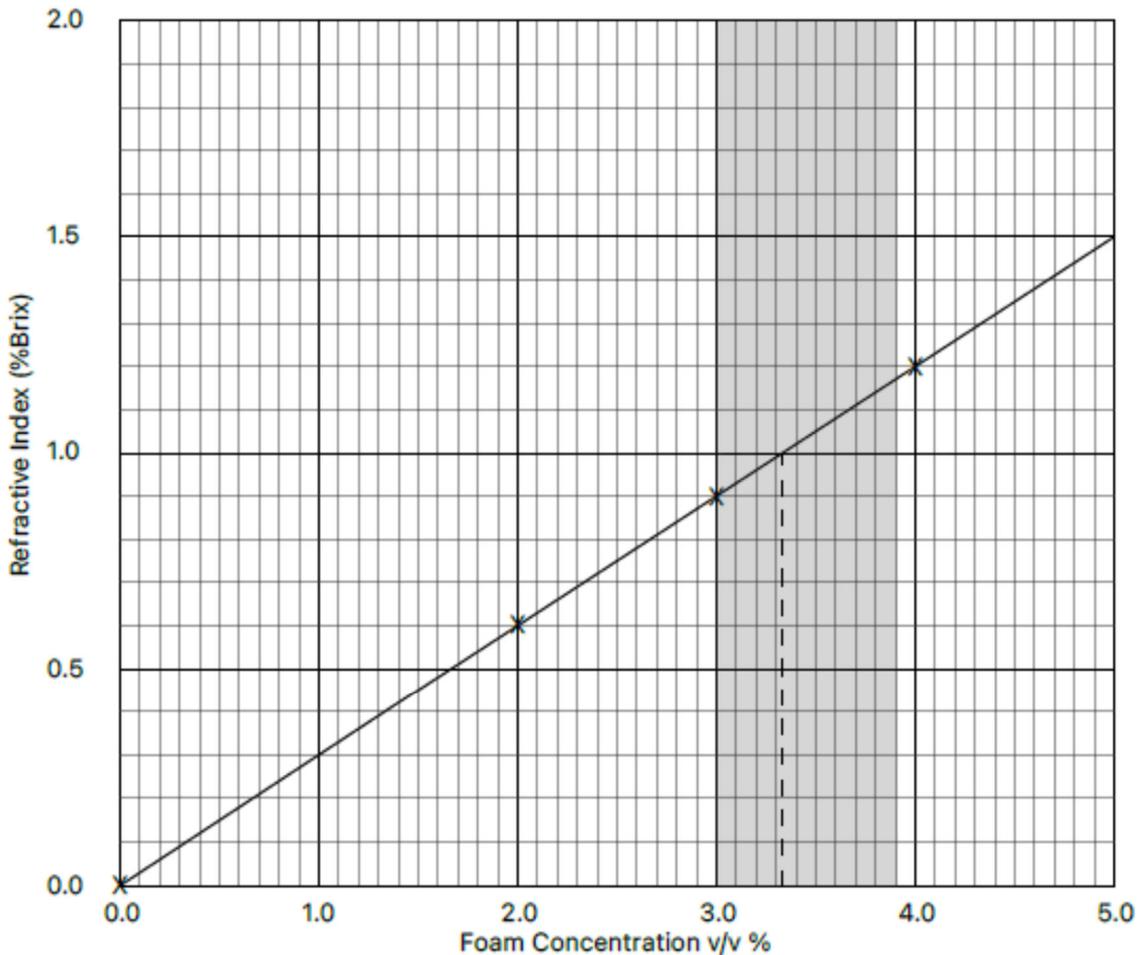
Produced Foam Test Report

Test Date: 19/10/2021	Facility: Fuel Depot	Test Point: Tank 01A Roof
Test By: AN Other	Foam: AFFF-AR	Foam v/v%: 3

Calibration Sample v/v%	%Brix	Calibration Sample v/v%	%Brix
2.0	0.6		
3.0	0.9		
4.0	1.2		

Test Sample	%Brix
Induction Water	0.0
Produced Foam	1.0

Measured Produced Foam Concentration 3.33% meets the requirements of NFPA11-2021



This graph is produced using the Produced Foam Testing App from Fire Foam Training Ltd

Standards Management Screen

[Return](#) **Manage Standards** [Add](#)

There are 10 Standards
(Select to View, Swipe Left to Delete)

Standard	Device Type
BS EN 13565-1:2019	All
ICAO Doc 9137-AN/898 4th Ed 2015	Induced Systems
ICAO Doc 9137-AN/898 4th Ed 2015	Pre-Mixed Foam
IMO MSC.327(90)	All
NFPA11-2021	All
NFPA1901-2016	All
NFPA1925-2018	All
NFPA412-2020	Hand Line and Undertruck Nozzles
NFPA412-2020	Turret & Ground Sweep Nozzles

[Reload Standards](#)

The Manage Standards screen allows Users to view the current Standards available in the app and add new Standards.

Clicking on “[Add](#)” will allow the User to enter details of a new Standard via the Add User Defined Criteria screen.

Standards can be deleted by swiping the standard entry left. Note that Standards that have already been used in a test cannot be deleted.

Deleted Standards can be re-instated by clicking on “[Reload Standards](#)”.

Clicking on a Standard will show further details.

[Manage Standards](#)

Standard : ICAO Doc 9137-AN/898 4th Ed 2015

Description : Airport Services Manual - Part 1 Rescue and Fire Fighting

Device Type : Induced Systems

General Criteria : -10%/+10%

ACCEPTANCE RANGE		
FOAM%	LOW	HIGH
1.0%	0.9	1.1
3.0%	2.7	3.3
6.0%	5.4	6.6

[Add User Concentration](#)

For each Standard, typical proportioner foam concentrations have been populated with their respective upper and lower pass range as well as the general rule (if applicable) for the proportioner pass range.

Clicking on “[Add User Concentration](#)” will allow the User to enter additional proportioner concentration points which will then appear in the list for the Standard.

[Return](#) **Add Concentration** [Add](#)

Concentration Level : 2

Low Pass Criteria : 1.8

High Pass Criteria : 2.2

Populate the data then click “[Add](#)” which will return the User to the Standard screen.

[Return](#) **Add User Defined Criteria** [Add](#)

Standard :

Company Standard

Description :

Our Company Standard which is narrower than NFPA11

Device Type :

All

Acceptance Criteria :

Manufacturers % -0%/+10%

ACCEPTANCE RANGE

Foam%	Low	High
1%	1	1.1
3%	3	3.3
6%	6	6.6

The User can add a new Standard eg to add International, National or Company Standards not already covered by the App and also to add an updated version of a pre-populated Standard if this has changed and the App has not yet been updated.

“Standard” is the Standard identifier which will appear in the Manage Standards screen, often a document number or title.

“Description” allows the User to add more information other than the identifier.

“Device Type” allows the User to define a test criteria within a Standard which may be useful if one Standard covers several systems that have different proportioner pass ranges. This information will appear in the Manage Standards screen.

Foam concentrations of 1%, 3% and 6% have been provided as typical foam concentrations. The User can delete a concentration by swiping left and additional points can be added via the Manage Standards screen once the new Standard has been added.

Enter the details as appropriate then click “Add” which will take the User back to the Manage Standards screen.

Training and Help Screen

[Return](#) **Help Section** [i](#)

FireFoam Training Produced Foam Testing To NFPA11

[Produced Foam Training](#)

[Testing Tips](#)

[Test Kits](#)

[App User Guide](#)

Contact

Fire Foam Training
 Phone : +44(0)7775614332
 Email : enquiries@firefoamtraining.com

App Support
 Email : brpegar@gmail.com

Click [i](#) for app revision

[Produced Foam Training](#)

Provides details of the Produced Foam Testing Course offered by Fire Foam Training Ltd

[Testing Tips](#)

Provides a short summary of the common pitfalls that can result in failed tests and is an extract from our Produced Foam Testing Course.

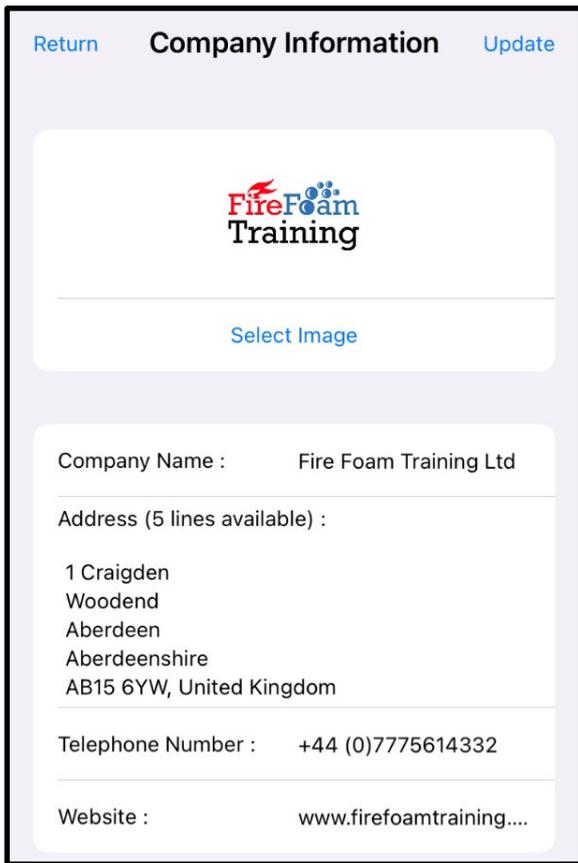
[Test Kits](#)

Provides details of our Fresh/Saltwater and Fresh Water Only Produced Foam Test Kits.

[App User Guide](#)

Provides a step by step guide to using this app.

Company Information Screen



Return Company Information Update

FireFoam Training

Select Image

Company Name : Fire Foam Training Ltd

Address (5 lines available) :

1 Craigden
Woodend
Aberdeen
Aberdeenshire
AB15 6YW, United Kingdom

Telephone Number : +44 (0)7775614332

Website : www.firefoamtraining....

The Company Information screen allows Users to include the testing organisation or site organisation details and logo which will appear on the Produced Foam Test Report.

The default Company information is Fire Foam Training Ltd.

Tap on a detail to edit and Click “Update” once the new company information has been added

Purchase Screen



Cancel Purchase Full Version

FireFoam Training

Produced Foam Testing To NFPA 11

The trial version allows 10 tests without saving or PDF reporting.

The full version of the app provides :

1. Unlimited Tests.
2. Save Tests.
3. Export Reports.

Full features of the app available for £14.99.

Buy Full App

Restore Purchases

The free version of the app allows 10 tests to be executed without the ability to save the data.

The full functionality of the app provides unlimited tests, the ability to save tests and the production of the Produced Foam Test Report.

To access the full app functionality click on “Buy Full App”.

If the full app has been purchased then all the app data can be re-instated by clicking “Restore Purchases”