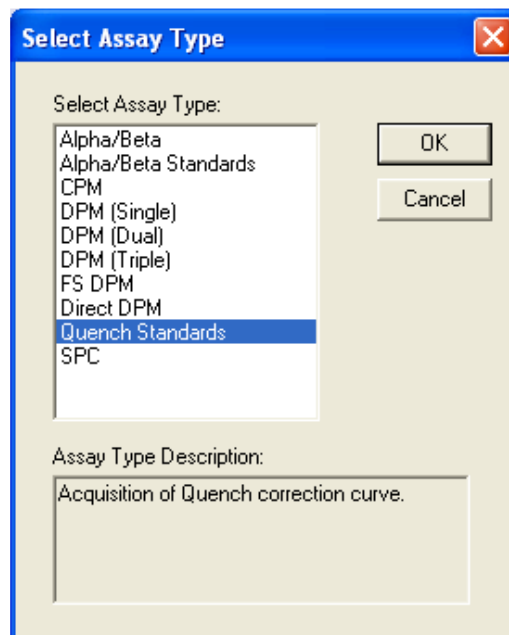


19 steps to install quench correction curves using QuantaSmart™ software on Tri-Carb scintillation counters

- Step 1** From the QuantaSmart™ desktop click on **File**
- Step 2** Click on **New Assay**. This screen will appear
- Step 3** Click on **Quench Standards**



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This screen will be displayed – **Assay Parameters**

(Note that the screen has folders at the top. Use the mouse to move between folders. If you use the Enter or OK key the assay will immediately move to the Save As situation and you will not be able to enter any more information.)

The screenshot shows the 'Assay Definition' window with the 'Assay Parameters' tab selected. The window has a title bar with a close button. Below the title bar are several tabs: 'Assay Parameters', 'Count Conditions', 'Count Corrections', 'Report Definition', 'Report Output', 'Special Files', and 'Worklist'. The main area contains the following fields and controls:

- Assay Type:
- Password: Lock Assay
- Author:
- Assay Description:
- Date Created:
- Date Modified:

At the bottom of the window are buttons for 'OK', 'Apply', 'Undo', 'Save As...', and 'Help'.

Step 4 & 5 Enter **Author** and **Description**
(usually your name and the date and what type of quench standards)

The description may be for example:-

Step 4	Author:	Simon Temple
Step 5	Assay Description:	14C High Flash Point quench set used

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The screen will then look like this:

Assay Definition -

Assay Parameters | Count Conditions | Count Corrections | Report Definition | Report Output | Special Files | Worklist

Assay Type: Quench Standards

Password: Lock Assay

Author: Simon Temple

Assay Description: 14C quench standard set

Date Created: 11/05/2011 15:29:20

Date Modified: 11/05/2011 15:29:20

OK Apply Undo Save As... Help

Step 6

Click on the folder at the top **Count Conditions**

(note: if you click on the Count Conditions folder without adding an author or assay description you will not be able to return to the Assay Parameters folder until you save the assay)

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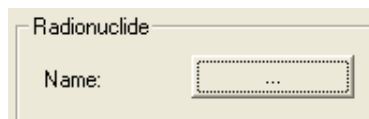
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The folder **Count Conditions** will be displayed

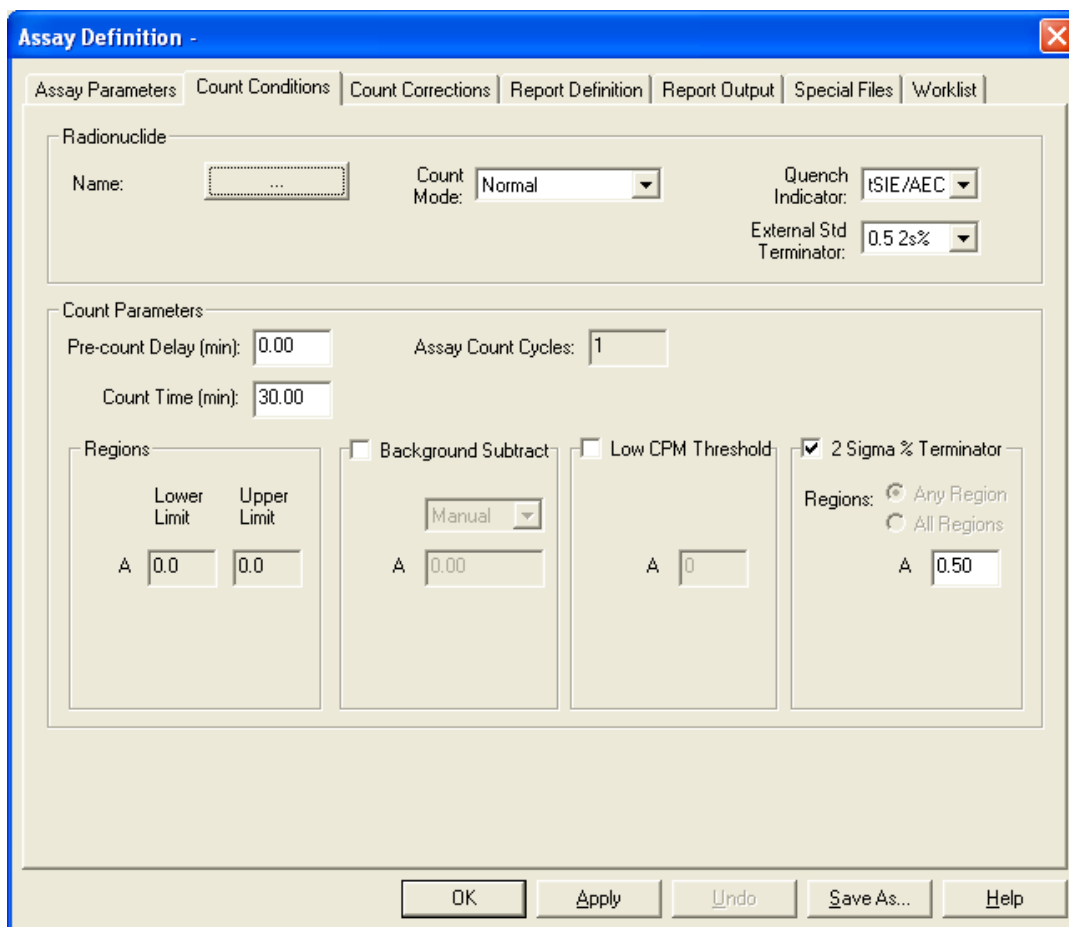
The next step is to install the **Name** in the Radionuclide in use

Because this is the Quench Standards assay clicking the button will take you to the library of quench standards shown on the next screen shot

Step 7 Click on the Button next to **Name**



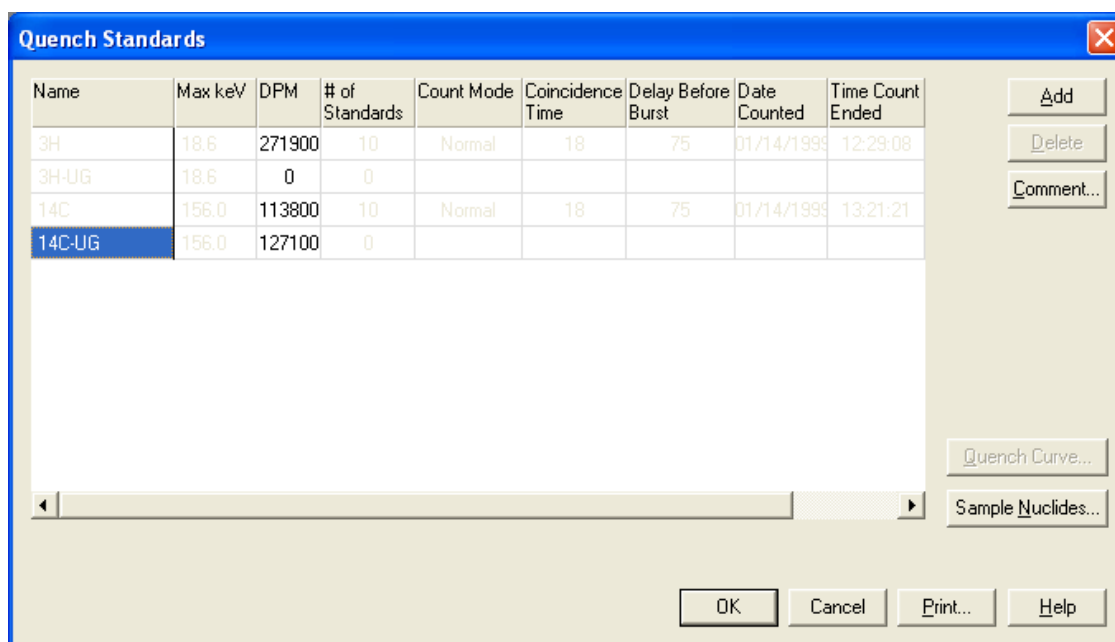
This is the button

A screenshot of the 'Assay Definition' dialog box. The 'Count Conditions' tab is selected. The 'Radionuclide' section has a 'Name' field with an ellipsis button, 'Count Mode' set to 'Normal', 'Quench Indicator' set to 'tSIE/AEC', and 'External Std Terminator' set to '0.5 2s%'. The 'Count Parameters' section has 'Pre-count Delay (min)' at 0.00, 'Assay Count Cycles' at 1, and 'Count Time (min)' at 30.00. The 'Regions' section has a table with 'Lower Limit' and 'Upper Limit' columns, and a row 'A' with values 0.0 and 0.0. There are checkboxes for 'Background Subtract' (unchecked), 'Low CPM Threshold' (unchecked), and '2 Sigma % Terminator' (checked). The '2 Sigma % Terminator' section has a 'Regions' dropdown set to 'Any Region' and a value of 0.50. At the bottom are buttons for 'OK', 'Apply', 'Undo', 'Save As...', and 'Help'.

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This screen will now be displayed - This is the Quench Standards page



Step 8

As we are installing 14C quench standards you must click on **14C UG**. Enter the value of the DPM (in this case 127100). The DPM value is usually shown on the side of the box containing quench standard set. If the set has been purchased from Perkin Elmer the DPM value will also be on the top of each standard vial.

Remember to correct for half life in the case of Tritium (3H) when entering the DPM value, the number of standards counted is not shown until the standards have been counted so sometimes it will be blank. If you are overwriting a quench correction curve that is no longer valid the software will do this for you. There is no need to delete the quench set before overwriting it.

Quench standards that are in grey cannot be deleted but may be overwritten.

Step 9

Click **OK**

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The screen will now look like this:

Assay Definition -

Assay Parameters | Count Conditions | Count Corrections | Report Definition | Report Output | Special Files | Worklist

Radionuclide

Name: Count Mode: Quench Indicator:
External Std Terminator:

Count Parameters

Pre-count Delay (min): Assay Count Cycles:
Count Time (min):

Regions

	Lower Limit	Upper Limit
A	<input type="text" value="0.0"/>	<input type="text" value="156.0"/>

Background Subtract Low CPM Threshold 2 Sigma % Terminator

Regions: Any Region All Regions

A	<input type="text" value="0.50"/>
---	-----------------------------------

OK Apply Undo Save As... Help

Leave everything as is set above.

(If you want to use the quench curve on the same day you may shorten the count time to 20 minutes but other than that no changes should be made.)

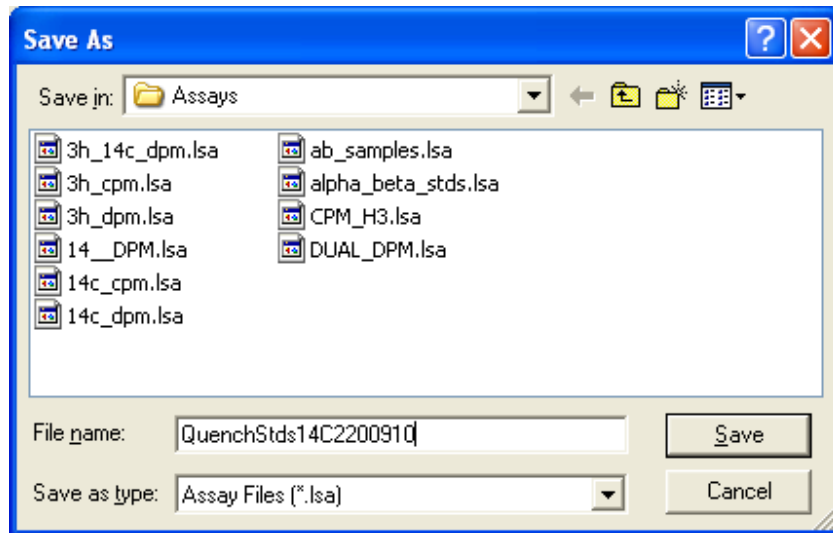
There are no other folders to change – everything else should be as default.

Step 10 Click **OK**

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When you click **OK** you will go to the **Save As** page shown here



Step 11 In **File name**: enter a name for the Assay
(Here the name used is QuenchStds14C2200910)

Step 12 Click **Save**

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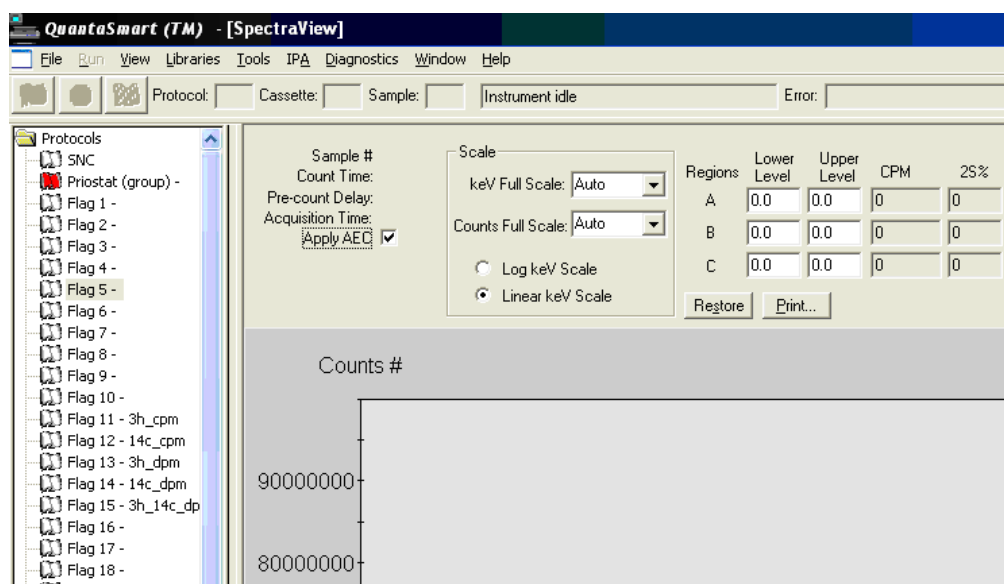
Using QuantaSmart™ software to install quench correction curves

The Assay to count the Quench Standard set has now been made.

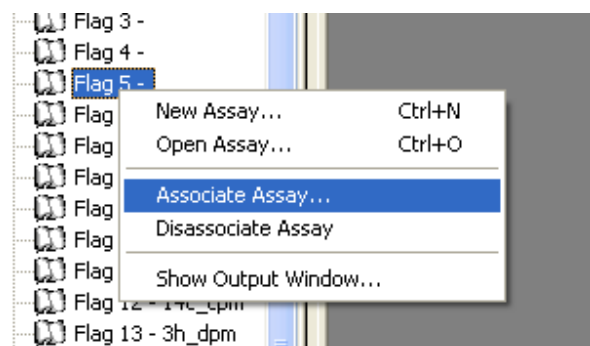
This Assay must now be associated with a protocol flag so that the counter will know which assay to use when it encounters the standards/

The screen will go to the QuantaSmart™ desktop. Only a portion of the screens are shown here for clarity

Step 13 Select a flag – say Flag 5



Step 14 Right mouse click on **Flag 5**



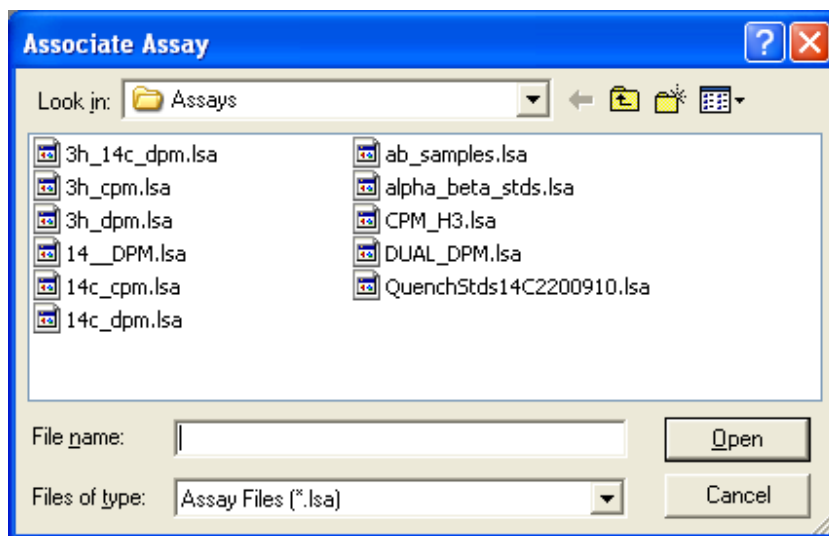
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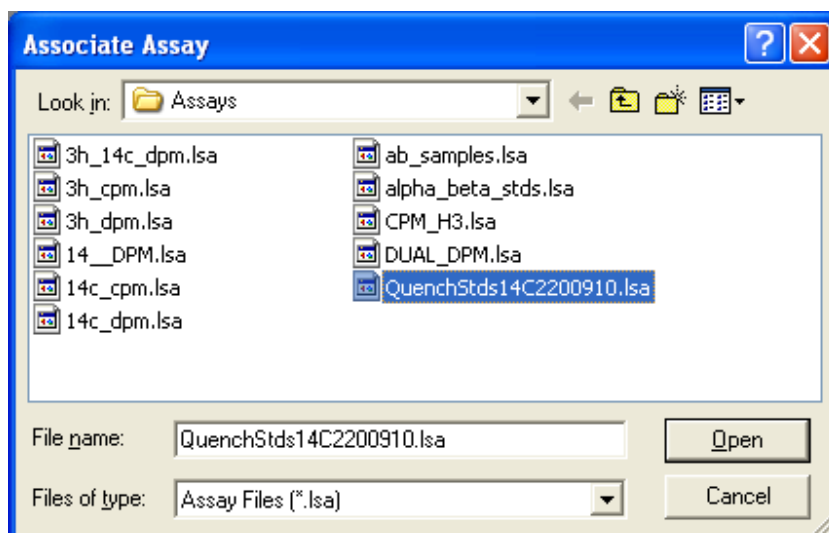
Step 15 Click **Associate Assay**

This screen will now be shown

Step 16 Select the Assay you have just made. In this case it would be QuenchStds14C220910



The screen will now look like this.

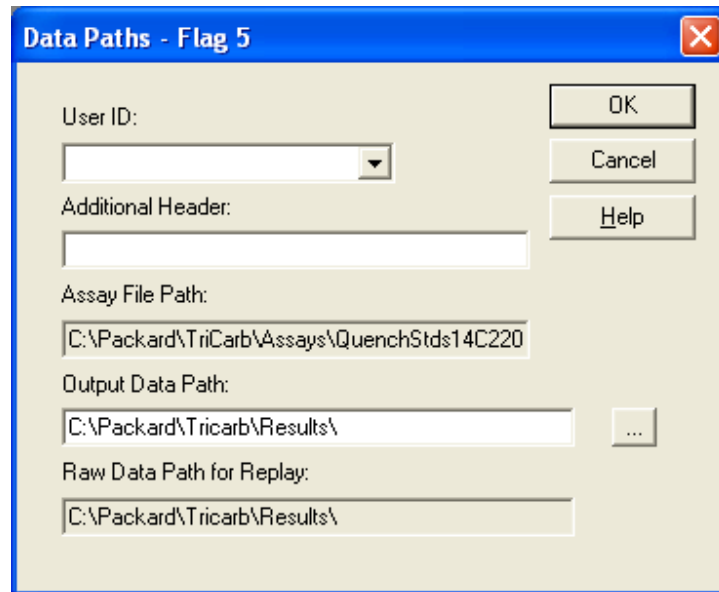


Step 17 Click **Open**

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The screen will go to this one:



Data Paths - Flag 5

User ID:

Additional Header:

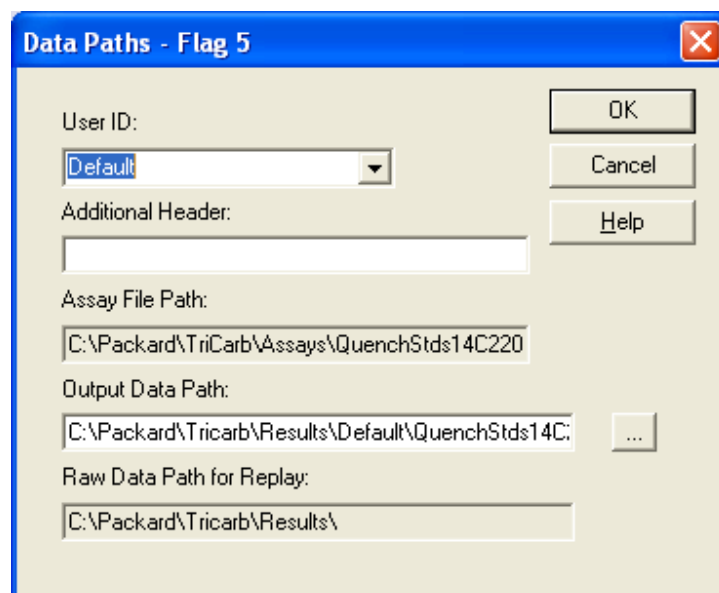
Assay File Path:

Output Data Path:

Raw Data Path for Replay:

Step 18 Click on the arrow at the side of the box marked User ID: Chose **Default** as the User. (If you have a different User ID that you prefer to use then click on the drop arrow and select the one you want)

Step 19 Click **OK**.



Data Paths - Flag 5

User ID:

Additional Header:

Assay File Path:

Output Data Path:

Raw Data Path for Replay:

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Using QuantaSmart™ software to install quench correction curves

The interaction with the software is now finished. What remains is to put the standards into the cassette (rack) and then start the scintillation counter.

Physical Actions:

- Take a cassette (rack) and load the vials from the Quench Standard set. Take care to load them with no gaps. The order of the standards is not important as the software sorts them out after counting. However, to ensure you have the correct number it is best to put them in number order (or letter order with older sets) starting with 1 and loading up to 10. If the quench standard set is not a factory manufactured one then load as they are marked on the vial cap.
- Install the chosen Flag (5 in this case)
- Load in the counter on the right hand side of the deck.
- On the QuantaSmart desktop click the Green Button

The counter will start and the quench standards will be counted. This may take some time depending on the time of counting and the DPM of the standards you are using. The quench curve will be automatically installed.