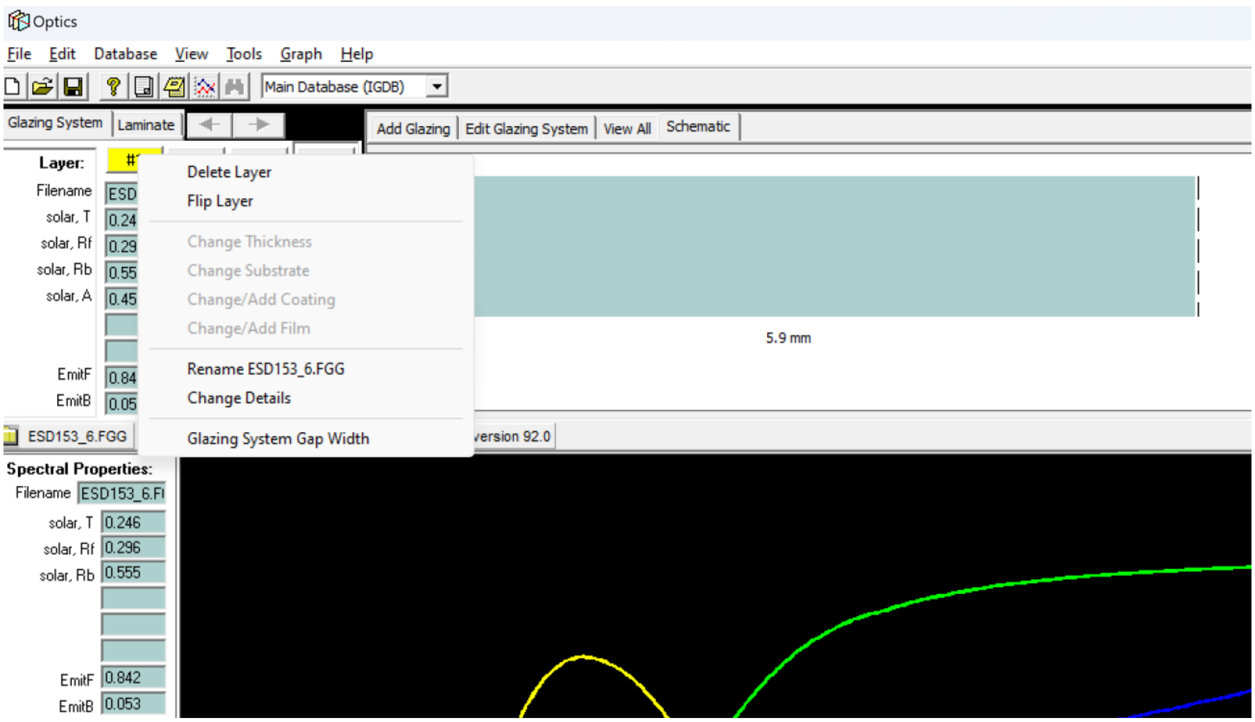
Workaround for when e.g. a coated or laminate product cannot be used in Optics to build/modify glass layers

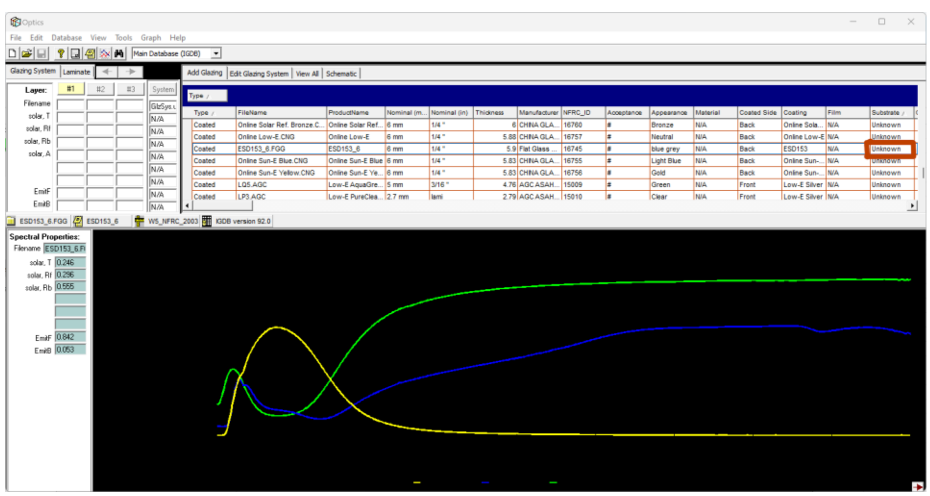
Problem

Only a subset of all products in the IGDB show up when constructing a laminate or modifying a layer in Optics, and the one product you want to use is not in that subset. Example in the screenshot below where it is not possible to change Substrate or thickness for the layer.



Reason

When a coated product is submitted to IGDB certain information is optional, and if the substrate name is not specified (or the substrate referenced has been deleted from the IGDB) it is not possible for Optics to use for building/modifying glass layers.



Solution

The “correct” solution is to ask the manufacturer to resubmit the data to the IGDB with the substrate filename specified. If the use case is for NFRC simulation this is what is needed.

Alternative small solutions

One solution that sometimes can be close enough is to find a different product in the IGDB with very similar properties that the one that is not working and use that instead.

If it is a laminate product that is not cooperating you might be able to construct it from scratch in Optics and then do the modification that is needed.

Alternative larger solution

This is an alternative that has proven useful to users who only need the information and are not worried about NFRC approval. Simply create your own user record of the product and guess a monolithic record in the IGDB to use as substrate filename. High-level overview:

1. Export the record lacking substrate information
2. Identify reasonable substrate
3. Modify the exported data file with reference to the substrate filename
4. Import the modified product into your Optics user database
5. Build/modify your layer using the user database entry

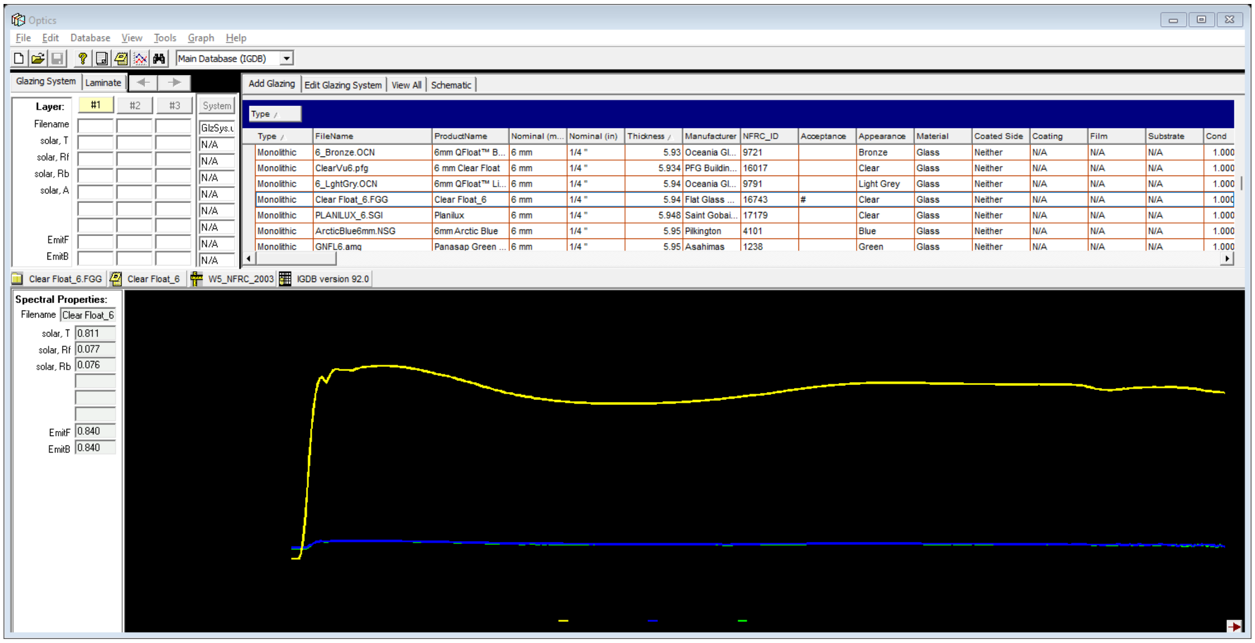
In this example I randomly selected record NFRC ID 16745 with filename ESD153_6.FGG. Sorting the IGDB on substrate and looking for records with Unknown gives a good view of the field.

1. Exporting the record

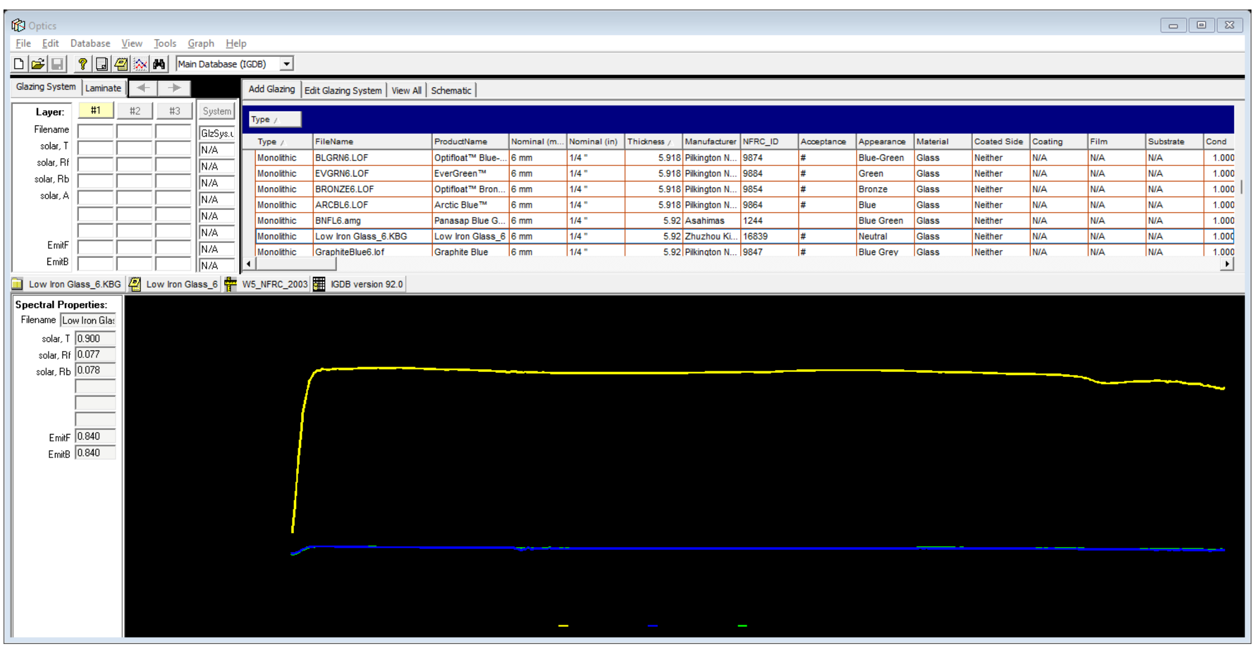
With the record selected in the list to the right, pressing Ctrl+E or selecting Export Text File… under the File menu (as shown below) gives a dialog to save the text file where you want it.

2. Guessing a substrate

In this example, it is reasonable to guess that they are using their own substrate. FGG has exactly one monolithic record and it is close to the 5.9 mm thickness reported for the ESD153_6.FGG file.



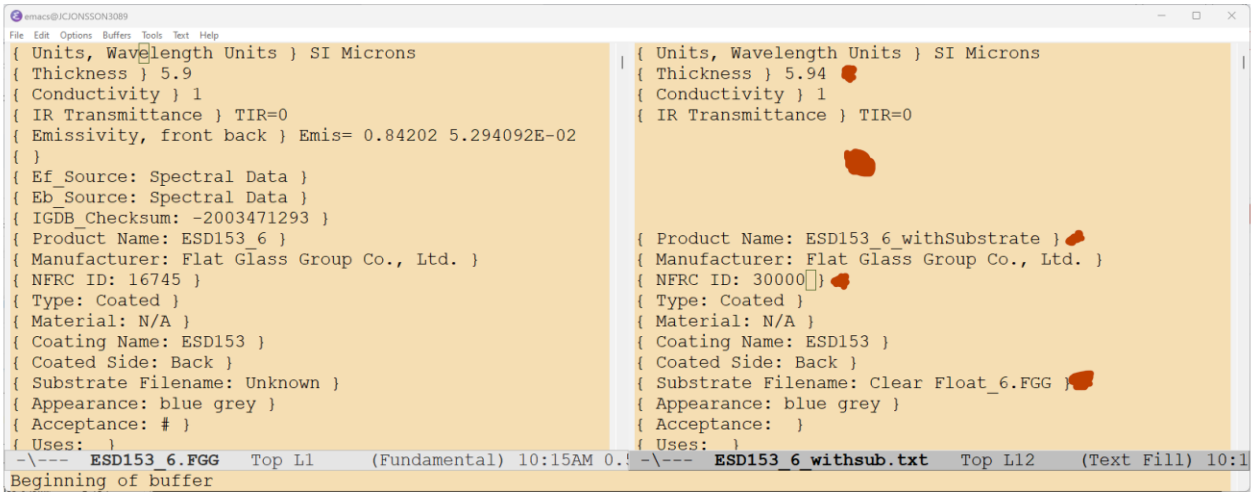
But it can be useful experiment and use a low-iron substrate with similar thickness as well in case such a product was used as it would have quite an impact on the solar absorption:



Other records have a clue in the filename and/or product name, e.g. energynonclearlite_5.gvb with product name iplus Energy N on Clearlite 5mm probably was using the clearlite_5.gvb substrate.

3. Creating your own text file(s)

Making a copy of the original file is a good idea, here renamed to ESD153_6_withsub.txt. It is not mandatory to use the .txt suffix but it might make it easier for your editor/OS to recognize it as a text file. 5 modifications were highlighted.



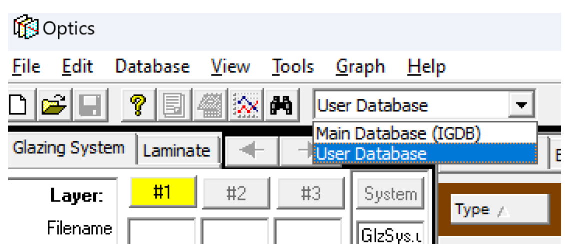
First I modified the Thickness to match the value of Clear Float_6.FGG.
Secondly I removed precalculated Emissivity data as well as the source of those and the checksum.
Renamed the product name to highlight this is not the original product.
NFRC ID was updated to the user range.
And finally the most important step, updating the Substrate filename to the correct value.
Not highlighted was a removal of the Acceptance #-sign.

Same process was done a file named ESD153_6_withlowiron.txt where highlight changes were:

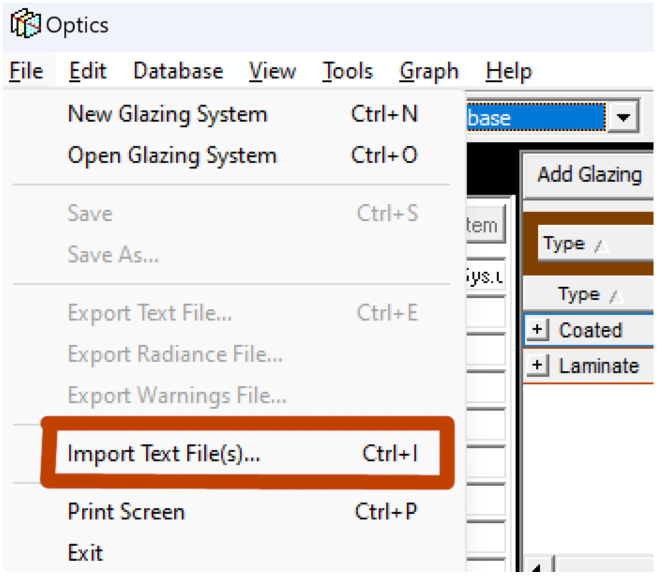
{ Product Name: ESD153_6_withlowiron }
{ NFRC ID: 30001 }
{ Substrate Filename: Low Iron Glass_6.KBG }

4. Import the modified product(s) into your Optics user database

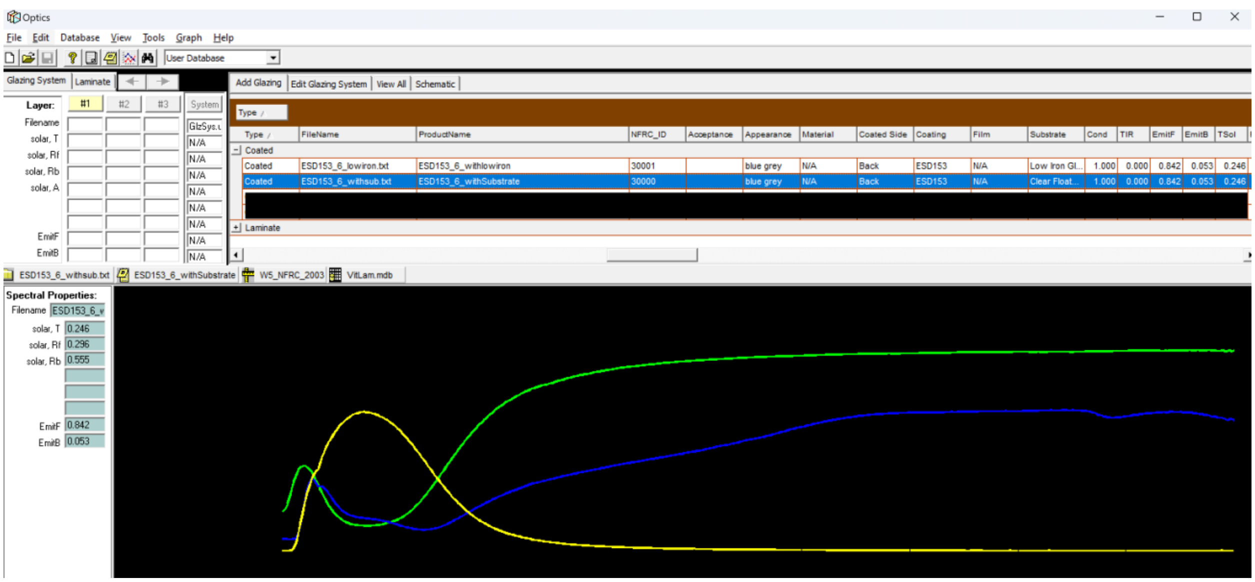
First switch to the user database as shown in the screenshot to the right.



Then press Ctrl+I or look under the file menu where Import Text Files is available. :

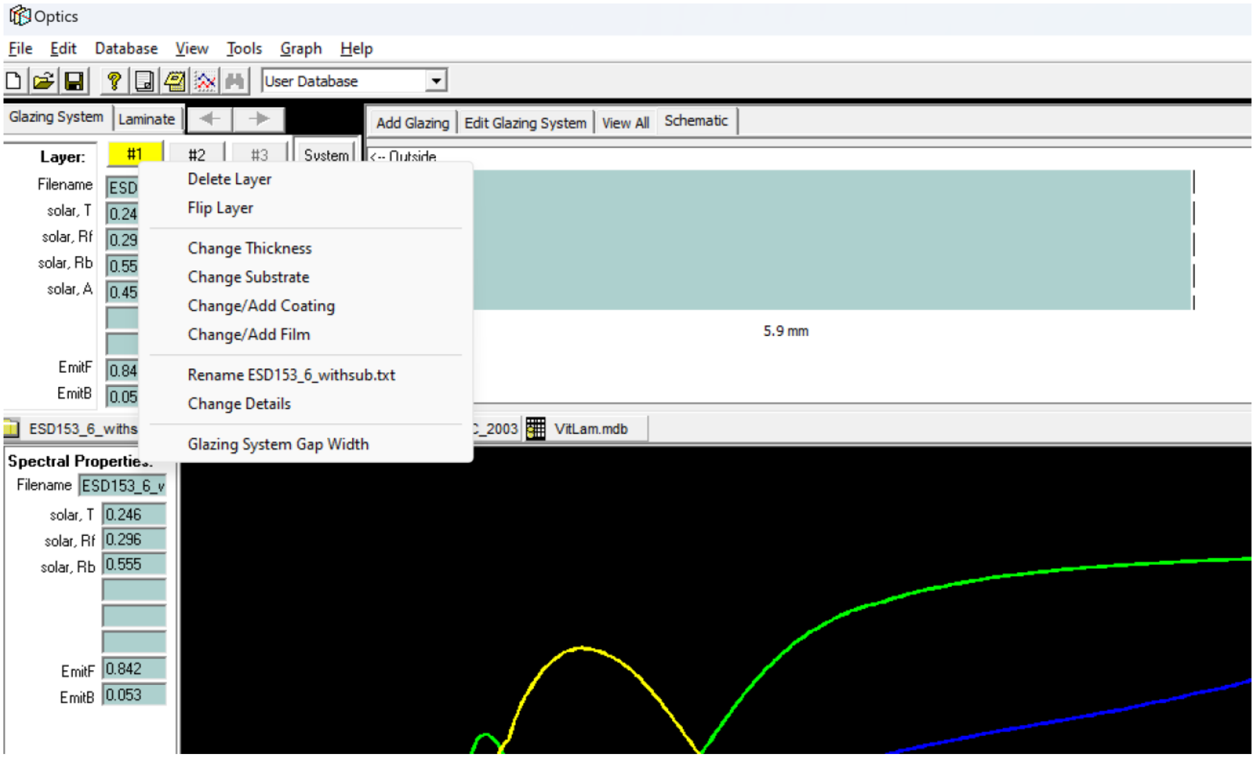


And once successfully import the files created show up in the user database



5. Build/modify your layer using the user database entry

Now if the record is used as a layer the options to change substrate is available. Similarly the user record can be used in a laminate construction.



Questions/comments? If you struggle with a step or something does not make sense please contact Jacob C. Jonsson, jcjonsson@lbl.gov or IGDB@lbl.gov