



Click on a topic:

**Analyze Glaze**  
**Glaze Calculator**  
**Glaze calc - interpreting results**  
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**Calculation tips - order of ingredients**  
**Calculation tips - combining K2O & Na2O**  
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**Clays - a recipe database of clay bodies**  
**Materials Cards**  
**Materials - new materials**  
**Materials - entering the new analysis**  
**Viewing options for Materials**  
**Printing**  
**Printing Marked Cards**

Print Entire Help Stack

Use this HyperGlaze Help stack as a tutorial or to find specific help information.

Windows-specific information is in **[brackets]** in blue text.

Please note that this stack will float above other windows, so you can leave it open while you tryout features in the various parts of HyperGlaze.

Click 'Find' again to repeat a search

Find

Close

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**take some time** to browse through the menus and look at the glazes, clays and materials that come with HyperGlaze. Don't be afraid to try features of HyperGlaze and see what they do!

**more...**

There are many things which you can do with HyperGlaze which are quite intuitive. Most of these are available as either menu choices or buttons which you can click, like the arrows at the upper right of this card.

Point mouse here!

More complex features such as creating your own custom glaze limits, finding recipes using complex searches to narrow down choices, and short cuts may require a bit more study of HyperGlaze Help.

**TIP:** Many items of have tool tips - point to an item and a small window pops up with a description of its use. Try it!

Note: You can turn **tool tips** on or off in the *General* section of *Preferences*.

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## Installing HyperGlaze from the CD-ROM

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It's easy to install **HyperGlaze** on most computers - just insert the *HyperGlaze* CD-ROM and open the **HyperGlaze X** folder.

Next, drag the folder containing the proper version of HyperGlaze to your computer's hard disk. Pick the folder which is labeled with your operating system: **MacOSX** or **Windows**. *HyperGlaze* must be installed to be able to save changes.

If you're using a **Macintosh** computer, drag the *HyperGlaze* application to the Applications folder on your computer.

If you're using a **Windows PC**, drag the *HyperGlaze Windows* folder on the CD to the *Programs* folder.

**YOU MUST ALSO copy the HyperGlaze folder (with Glazes, Clays, Materials, Preferences, etc.) to your computer's Documents folder!**

(more on next page)

[more...](#)

**Handy TIP:** Make an alias [[shortcut](#)] for *HyperGlaze* and put it on your desktop, dock, or toolbar.

## HyperGlaze Installation, continued

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You may also have to unlock the files in the **HyperGlaze** folder after copying them from the CD-ROM. Sometimes files are left in the **Read Only** state when copied from a CD.

To unlock files so you can save changes to **HyperGlaze**:

Select your **HyperGlaze** folder on your computer's hard disk (not on the CD). Click on the folder **ONCE** to select it, then choose "**Properties**" from the **File** menu. At the bottom of the menu you should see a check box next to the words "Read Only." Uncheck the box and choose to apply that change to all files in the folder. Close the Properties window. You can also do this for each file in the **HyperGlaze** folder, one at a time, if you don't unlock the files all at once.

**Properties tip:** Click on the **HyperGlaze** folder, choose **Properties**, uncheck "Read Only" and unlock all the files in **HyperGlaze** at once!

## What's new in HyperGlaze X?

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While most of **HyperGlaze X** will look familiar to users of original versions, a few new features are:

- resize **HyperGlaze** windows using Screen Scaling
- an improved look in OSX, with color in all platforms
- stacks open in multiple windows (see **Navigation**)
- simplified navigation
- easy copy and paste of the text of an entire recipe to word processor or email
- easier to move glazes between recipe, **Glaze Calculator** and **Glaze Limits**
- install your own thermal expansion coefficients or use the default coefficients.
- **marked cards & Glaze Lists** instead of Utilities List
- more powerful **Complex Search**
- **Help** stack floats above window - leave it open!
- improved **Compare Glazes, Clays, Materials** stacks
- more popup menus and improved help

## Important note - Saving changes

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**HyperGlaze** users who are familiar with the original versions of **HyperGlaze** should be aware of a very important change in how **HyperGlaze** saves changes. In the original versions, changes were saved automatically. In **HyperGlaze X**, the current version, you must save changes as you make them. If your computer crashes before you've saved, all changes and new glaze entries will be lost!

Choose **Save** from the *File* menu to save your changes.

Another important aspect: You cannot run **HyperGlaze** directly from the CD-ROM or other locked media. The **HyperGlaze app** must be able to find the **HyperGlaze** folder in your Documents folder on your computer. You must copy the **HyperGlaze** DIRECTLY into the Documents folder on your computer.

## Macintosh & Windows differences

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*A few things to note:*

*HyperGlaze* was entirely constructed on a Macintosh computer. Certain aspects may look somewhat different for Windows users, although both are similar.

In Windows, menus appear within each window instead of in the main menu bar. Buttons have a different shape in Windows. Fonts and printing may look different, too, due to the way Windows works!

Instructions which are specific to Windows users are labeled in blue like this in this help stack:

*type Command [Control]-N to make a new card*

Typically these will be issues such as Macintosh using the command key and option key, while Windows uses the control and ALT keys for the same operations.

### **Cross Platform TIP:**

*HyperGlaze* uses Arial font. Make sure it's installed for better viewing and printing.

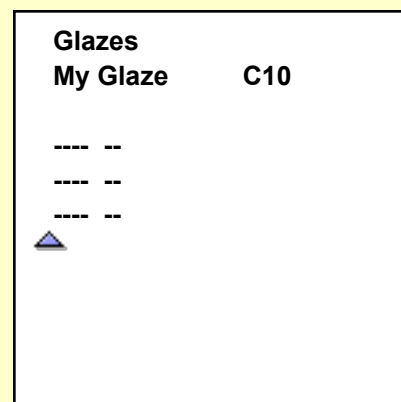
## Stack window sizes

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To make the screen less cluttered and to allow printing more compact recipe cards, you can enlarge or reduce the size of many *HyperGlaze* windows. Look for the small up or down arrow at the bottom left of a stack, for example in the *Glazes* stack window. Try the tiny version to the right to see how this works.

When the window is scrolled up, anything in the hidden section will not be printed when you choose **Print Card** unless you're printing formatted. If you want to have the comments for a glaze recipe printed, for example, be sure to enlarge the *Glazes* stack window before printing.

In the *Glaze Limits* stack, buttons and popup menus at the bottom are hidden so it will print with less clutter. In the *Glaze Calculator* stack, the two scrolling click-on lists of possible ingredients are hidden or shown.



**Windows TIP:** Windows doesn't always resize its windows easily - use *HyperGlaze's* resize buttons to enlarge windows to full size.



## Arranging Your HyperGlaze Windows

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You can arrange your **HyperGlaze** windows however you like on your screen.

If you'd **HyperGlaze** to remember the current arrangement, open the **Preferences** window and check **Save Window Locations** (uncheck it first if already checked). Be sure to click **Save** to close the **Preferences** stack and save your changes. The next time you open **HyperGlaze** the windows will be arranged just as you like them.

Clicking on the window name in the **HyperGlaze Index** will first bring the window to the front, then if you click again, it will hide that portion of **HyperGlaze**. You can also minimize windows anytime you want.

**Smaller Screen Tip:** stack windows in staggered layers to quickly see what's open. Then use the **Index** stack to move between windows.

## Making back-up copies of HyperGlaze

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Once you've added your own glaze recipes, clay bodies, and materials analyses to **HyperGlaze**, you'll want to keep a regular back-up copy of **HyperGlaze** in another location besides your computer's hard disk.

*To make a back-up copy:*

First save and quit **HyperGlaze**.

- for Macintosh OSX or Windows drag the entire **HyperGlaze** folder to the back-up disk (you need to copy **Glazes.livecode**, **Clays.livecode**, and **Materials.livecode** especially as these hold your data and recipes).

Also backup the **HyperGlaze** application in the Applications [**Programs**] folder.

This will protect your investment of time working with **HyperGlaze** in case your hard disk fails (crashes) or you're hit with a severe computer virus.



HyperGlaze

**Back-up tip:** rename the backed up folder **HyperGlaze BU** and put the back-up disk in a safe location away from your computer!

## Navigating HyperGlaze

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**The HyperGlaze Index** stack (one of the first windows you see when you start HyperGlaze) contains a list of links to most of the parts of HyperGlaze. You can click on each item to show or hide it. Keep the **Index** window in a handy place on your computer screen for quick navigation. When a window is selected (the bar at the top is highlighted), you can do things in it.

[more...](#)

Hiding windows (stacks) using the **Index** allows you to keep your screen less cluttered when you don't need a particular tool. Clicking on a name in the **Index** will show that window and bring it to the front, and also hide a window if it's already the top window.

You can also use the **Go** menu to choose which part of *HyperGlaze* to view, including the Index. Try it! Choose **Go Back** in the **Go** menu to retrace your path.

Find

Close

## Moving from Card to Card

Index



Besides using the arrow buttons, you can use the **arrow keys** of your keyboard to navigate, too. The left and right arrows will go from card to card, just like the arrow buttons on each card.

[more...](#)

The up and down arrows will take you back and forward, following whatever path you've taken while browsing. Try it!

**NOTE:** If the cursor is in a text field (where you can type or select text, such as the name of a glaze) the left and right arrow keys will move the cursor from character to character, and the up and down arrows move from line to line. Click outside a text field (in a blank area of the window) to change the arrow keys back to navigation.

**Navigation TIP:** Use **Go Back** in the **Go** menu to retrace your steps. It follows your path backwards one card at a time.

Find

Close

## Indexes - browse the recipes

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The three indexes, **Glaze Index**, **Clay Index**, and **Materials Index**, are one of the easiest ways to browse for a recipe or material. Scroll up and down the list of recipe or material names, and when you see one you want to look at, just point to it with the mouse and click the name. The appropriate stack will open and you'll instantly see the full recipe.

[more...](#)

For instance if you click on a glaze name in the Glaze Index, you'll see the Glazes stack open to the glaze you've chosen.

Try the tip at the right for quicker browsing. If you don't see a name selected in the index, then there is no recipe which starts with that letter. Make sure the Glaze Index is selected, so you're not typing in a recipe!

**Handy Tip:** Press any letter key (or + or \* ) and you'll see the list scroll to the first name in the index with that letter. Press enter to see the recipe.

## Indexes - Marking Cards

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One of the most useful features of HyperGlaze is the ability to view and use only a few selected recipes from the hundreds you're likely to have in the database.

**Marked Cards** are temporarily labeled with a 'mark' which is invisible. In the **Glaze Index**, hold down the Option key [[the ALT key if you're using Windows](#)] and click a glaze name. You'll see the glaze name change from black to red, and a + sign will appear before the name. This shows you that the glaze is now marked.

You can view just these marked cards by choosing **View ONLY Marked Cards** from the Find menu of the **Glazes** stack. See the View Marked button (under the arrow buttons) turn red?

**QUICK TIP:** Click the View Marked button, too, to turn viewing of marked cards on and off. Try it!

## *Lists - Glaze Lists and Clay Lists*

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The **Glaze Lists** and **Clay Lists** stacks offer a powerful way to keep groups of recipes easy to use. You can quickly build personal or shop lists of recipes by marking cards individually or using **Complex Search** to find groups.

The number of lists is practically unlimited There are five lists per page (card). Choose **New Card** from the **Edit** menu to make new pages (cards) as needed. Name each list in the text field at the top of each window, then mark recipe cards to add and click **Update This List** to put the marked cards on that list.

Results of multiple searches can be saved in the **Glaze** or **Clay Lists** stack, and easily marked again later for printing , viewing or export. These lists work like the **Indexes**, click on a recipe name to see it.

**Lists Tip:** Use Complex Search to find and mark recipes to build your lists quickly.

## *HyperGlaze Basics*

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Think of HyperGlaze as being like a set of cards, with one recipe or material analysis on each card.

Cards are organized into stacks, much like the pages of a book. By clicking on the next and previous card buttons you can page from card to card. The arrow buttons in stacks with more than one card take you from card to card.

There are three databases in Hyperglaze: **Glazes** for keeping your glaze recipes, **Clays** for storing recipes for claybodies, and **Materials** for storing the material analyses which are used in calculating glazes and clays. There is an separate index for each of these three databases.



In addition to the Glazes, Clays, and Materials stacks (the recipe and analysis databases) and their indexes, there are many other tools in HyperGlaze, such as the **Glaze Calculator**, **Glaze Limits**, **QuadBlender** and **Complex Search**. There are separate sections of this Help stack which will help you to use each of these tools more effectively.

One thing you'll need to know is how to find recipes, calculate them and print them. You can use the **Find** menu to do basic searches for one thing, or **Complex Search** to find recipes with a number of different characteristics.

More help with finding is on the next page.

**Find TIP:** Use the simple **Find** menu to look everywhere on a card. Press the command [control]-F key to find.

Find

Close

## Finding Recipes & Searching



In the **Glazes** and **Clays** stacks you can find recipes by looking in particular places for what you want. For instance, in the **Find** menu you can choose **Find by Color** to look for a glaze with a particular color name written in the **color** field (the text field at the top of the Glazes stack just to the right of the word *color*).

**more...**

NOTE: HyperGlaze looks **ONLY** in the color field in this search, so colors in the glaze's name won't be found! There are other menu choices for finding by **surface** (or **use** in Clays), **firing**, and **cone**.

If you find something, you can find the same thing again by choosing **Find Again** from the **Find** menu.

Use **Mark Duplicate Glazes** to find and mark recipes with the same name and exact recipe so you can delete them or change them.

**Find Again TIP:** Press the Command [Control] and "G" keys to quickly browse all found cards with "Find Again."

Find

Close

## Finding & Marking Cards

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**Complex Search** will help you to find the recipes you want, and then make use of them!

*more...*



**Find and Mark Cards**



**Find in the Found Set (Marked Cards)**



**Calculate Custom Limits from Found Set**

In **Glazes** and **Clays** you can search for one or several aspects of a glaze, and if the search finds recipes, *HyperGlaze* marks the cards it finds. You can use **View Only Marked Cards** to look at only the cards you've found. Click the right and left arrow buttons in the **Glazes** stack to go through the list of found glazes.

In **Complex Search** you can choose both where to look for glazes and what to do when you find them. For now, click on "Find and Mark Cards" before you do a complex search. More about the other choices later. Choose **Unmark ALL Cards** in the **Glazes** or **Clays** menu to clear previous searches before you search. Hold down the mouse button to cancel searches.

**Search TIP:** Do several different **Complex Searches** without unmarking cards to build a bigger list of recipes!

Find

Close

## Things to do with Marked Cards

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Once you've marked glaze, clay or materials cards you can do a number of things using only the marked cards:

- View just the marked cards
- Print the marked cards
- Export the marked recipes or materials
- Print glaze recipes with the limit graph for each
- Print glazes as labels (Print Special)
- Delete the marked cards from the database
- Add a line of text to all the comments of the marked cards (your shop glazes, for example)
- Calculate the marked glaze or clay cards
- Set the batch size for the marked glaze or clay cards

**Marking tip:** After getting a set of marked glazes you will use again, add a unique comment that allows you to find and mark them again quickly.

Find

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## Keyboard Shortcuts

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If you'd prefer to use the keyboard as much as possible, here are a few keyboard shortcuts:

*more...*

Cmd = Command (Apple)= **Control** on Windows

Opt = Option Key works like ALT key

Cmd [**Control**] - **S**.....Save

Cmd [**Control**] - **P**.....Print

Cmd [**Control**] - **O**.....Open

Cmd [**Control**] - **W**.....Close

Cmd [**Control**] - **Z**.....Undo

Cmd [**Control**] - **X**.....Cut

Cmd [**Control**] - **C**.....Copy

Cmd [**Control**] - **V**.....Paste

Cmd [**Control**] - [**]**.....Go Back

Cmd [**Control**] - [**]**.....Go Forward

Cmd [**Control**] - **Q**.....Quit

Print Shortcuts Now

**Shortcut TIP:** print this card and the next one and keep them handy when working with *HyperGlaze!*

Find

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## More Keyboard Shortcuts

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Cmd [**Control**] - **H**.....Index (home)

Keyboard shortcuts in the Glazes, Clays, and Materials stacks:

Cmd [**Control**] - **N**.....New Card

Cmd [**Control**] - **D**.....Duplicate Card

Cmd [**Control**] - **E**.....Delete Card - no undo!

Cmd [**Control**] - **F**.....Find

Cmd [**Control**] - **G**.....Find Again

Cmd [**Control**] - **K**.....Mark Card

Cmd [**Control**] - **J**.....Unmark Card

Arrow keys.....Move from card to card  
or move text selection if cursor is in a text field

In addition, there are letters designated for many keys using the ALT key in Windows which do many of the same things.

**TIP:** All of these shortcuts are also represented by menu choices if you'd rather use the mouse.

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## Updating from an older version

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If you've been using *HyperGlaze* for a while and have your own recipes and material analyses entered in ***HyperGlaze IIx*** (the older version) you'll want to move those over to this version of HyperGlaze.

Do this by first exporting your glaze and clay recipes and materials analyses as HyperGlaze files. Don't export them as text. You can export an entire list of recipes at once using the Utilities List function of HyperGlaze IIx. Then archive your old version. (see printed instructions, included, or your manual)

These HyperGlaze files can then be imported by this new version of HyperGlaze. The import process may be somewhat time consuming if you have many hundreds or recipes or materials. Start each import and go work in the studio.

**TIP:** before importing, you can delete all original recipes and analyses in *HyperGlaze X* using the **Delete ALL...** menu choices in each section.

## New Recipes - Making a New Card

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Choose **New Card** from the **Edit** menu to make a new recipe card in the *Glazes*, *Clays*, or *Materials* databases.

New cards cannot be made in most of the other parts of *HyperGlaze*. An exception is the **Bibliography** stack, where you can add your own books and source materials.

See the following cards for more help with entering the new clay or glaze recipe and calculating it.

New materials analyses can be easily added in the Materials stack, too. See the **Materials** stack help pages.

**New Card TIP:** Press the command [control]-N to quickly make new cards.

## Entering a New Glaze Recipe

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Before making a new card for a recipe in the *Glazes* database, take a look at one of the recipes already entered in **HyperGlaze**. You may even want to print one of these recipe cards so you can use it for reference when entering your first new glaze.

Click underneath the words *GLAZE RECIPE* at the upper right of your new glaze card. You'll see a blue line surround the field which holds the **name** of this glaze. Type the name of your new glaze.

Enter the rest of the glaze recipe in a similar fashion, clicking in each field (cone,color, surface, ingredient and amount, and comments, if any) and then typing the appropriate information. Enter any batch size and HyperGlaze converts it to a percentage recipe.

**Entry Tip:** After typing each bit of information, press the TAB key to move the cursor automatically to the next field!

## Calculating Your New Glaze

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Choose **Calculate** from the **Glazes** menu. HyperGlaze does all the calculations at once: percentage recipe, batch recipe, unity molecular formula (UMF), percentage analysis, estimated thermal expansion silica/alumina ratio, and the batch cost (if you've entered current prices for your materials in the Materials stack).

If you've entered a batch recipe initially, it will be converted to a percentage recipe, and the original batch size is displayed to the right of the amounts.

To change the batch size, click in the batch total field and enter a new number, then press the Enter key or choose **New Batch** from the Glazes menu. Click **Lb**, **Gm**, or **Lb/oz** to change between measurements.

### **Calculating TIP:**

Press the command [**control**]- = (equal) keys to quickly calculate a glaze.

## Making a copy of a recipe card

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In the *Glazes*, *Clays*, and *Materials* stacks you can quickly make a copy of the current recipe by choosing **Duplicate Card** from the **Edit** menu.

Once you've got a copy of your original card, change the name (add "revised," a new color, or something similar), and make whatever changes you like to the recipe. While *HyperGlaze* allows duplicate names for glazes, you may find it confusing to have a lot of recipes with the same name.

**Duplicating Cards TIP:** Press the Command [control] -D keys as a shortcut to quickly make a duplicate.

## New Clay Recipes

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Clay recipes are entered just like new glazes, but in the Clays stack.

All of the same calculations are done, with the exception of estimated thermal expansion. Calculations for thermal expansion are not accurate for crystalline materials like clays (or mat glazes).

You can enter a variety of other information about a particular clay body on each clay recipe card, including drying, firing, and overall shrinkage.

## New Materials Analyses

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Go to the **Materials** stack and choose **New Card**.

For most simple materials, you can enter a unity molecular formula based on the number of molecules of the particular oxide supplied. For example for silica you would enter 1 in the SiO<sub>2</sub> field.

For more complex materials such as clays, feldspars, and frits, a percentage analysis (by weight) is usually what you'll have from the manufacturer. Enter the percentage analysis for each oxide in the appropriate field for that oxide. Then choose **Convert to Unity** from the **Materials** menu.

### **Molecular Weight TIP:**

HyperGlaze will calculate the molecular weight for you! Just click the **Mol Wt.** button.

## Index - Glaze, Clay, & Material

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The three index stacks, **Glaze Index**, **Clay Index**, and **Materials Index**, all work in very similar ways.

**more...**

The **Glaze** and **Clay Index** stacks have three different lists of recipe names: Lowfire (cone 022 to cone 1), Midrange (cone 2 to 7), and Highfire (above cone 7). Click on those names at the top of the index window to view each of the lists.

The **Materials Index** stack has two different lists: Materials (which lists all of the materials including clays), and Clays (which lists materials labeled as clays on their analysis card).

Mark cards for browsing or printing by holding down the Option [ALT] key and clicking a name in the index.

**Index TIP:** After using Complex Search, click the **Update Marked** button to see the marked recipe names!

## Browsing, Updating, and Marking

Index



If you use **Complex Search** on a *Glazes*, *Clays*, or *Materials* card to find a group of cards which match your search, the found cards are marked. However, to save a little speed, *HyperGlaze* doesn't update the indexes by highlighting the marked cards in red.

**more...**

Click the **Update Marked** button to have the marked cards from a Complex Search show in the appropriate index. Edit the marked cards from the index as you review each card.

Arrange the indexes at one side of your screen, and the databases on the other for easy browsing. Click on the recipe you want in the index, and you'll see it in the *Glazes*, *Clay*, or *Materials* stack window instantly!

**Browsing TIP:** Mark the cards you find interesting in the index as you go - Option [ALT] click the name you want.

Find

Close

## Indexing New Cards

Index



New recipe cards are added to the appropriate index menu as soon as you leave the new card.

Newly added names in the index will be at the top of the list and preceded by an asterisk (\*).

If you leave the new card and realize you've made a spelling mistake in the name, simply fix the mistake on the *Glazes* or *Clays* recipe or *Materials* analysis card, then go the appropriate index and click the Update Index button.

Note that updating the index will remove the + and red color of marked cards in that index list, but the actual marking of each card will remain. Choose Update Marked to restore these labels.

**Index TIP:** Type a letter or \* or + and the index will scroll to the first instance. Keep pressing that key to browse.

Find

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## Glazes - the glaze recipe database

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**Glazes** is the area in *HyperGlaze* where you can store glaze recipes with all the information about the glaze you need.

[more...](#)

The recipe is shown on the screen in a familiar format, and you can type in the original recipe in either percentage or as a batch. Either way, *HyperGlaze* converts what you enter to a percentage recipe with the base glaze (everything but colorants and additives) adding up to 100%. Colorants and other additives like bentonite and flocculants are added in the lower part of the recipe as a percentage addition.

When you choose **Calculate Glaze**, percentage conversion, batch, UMF (unity molecular formula), thermal expansion, and cost are calculated.

**Glazes TIP:** Put parentheses around an ingredient or note in the recipe and it won't be calculated.

## Entering a new glaze

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Entering a new glaze is easy. *HyperGlaze* is set up in the format of a typical glaze recipe. First make a new card using **New Card** in the *Edit* menu. Type the name of the glaze at the upper left (under "GLAZE RECIPE"). then press the tab key and the cursor will move to the field where you type the cone number of the glaze.

[more...](#)

Surface and color fields are next, and each has a popup menu of standard color and surface descriptions. Click on these to choose descriptions which match your glaze, or type in your own short description of the color and surface..

Firing and testing also have pop-up menus, but here you'll have to use the menu to enter standard terms. Next we'll enter the glaze recipe.

**Glaze Entry TIP:**

Pressing the tab key after each entry will move the cursor to the next field.

## The glaze recipe & calculations

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The ingredients and amounts for each glaze are typed into the fields under those headings. If the dotted lines which show the location of each ingredient aren't visible, click the button **Show Lines** to make them visible. These lines are hidden whenever you print a card.

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Open the **Materials Index**, and use the list of ingredients for reference. Shift-click a material to add it to the recipe without typing. See the tip below, too.



.....Cornwall Stone

**NOTE:** You must enter an ingredient and amount on the very first line of the recipe (above the top dotted line) and not skip lines when entering ingredients. *HyperGlaze* stops calculating at the first empty line! Do the same in the colorants area, **Also Add**.

**Ingredient TIP:** Use the popup menus ( + ) at the left of each ingredient and colorant field to enter common ingredients.

## Glazes - Thermal Expansion Calculations

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**HyperGlaze** calculates the estimated thermal expansion of each recipe when you choose *Calculate*. You can also click the *Thermal Expansion* button to instantly recalculate this quantity.

[more...](#)

Please remember that thermal expansion calculations are not always accurate and at best represent only an approximation of the real world glaze expansion.

**HyperGlaze** has some built in warnings about when the estimated thermal expansion is most likely to be inaccurate. In any event, you can use the thermal expansion numbers to get an idea if changes you make to the glaze will likely result in a better glaze fit or not. Higher expansion numbers are more likely to craze, lower more likely to fit (between 6.5 and 7.0 for most clays), and if too low shivering may occur!

**Thermal Expansion Tip:** click the yellow triangle with the exclamation point when you see it to find out more about your glaze's properties.



## Percentage Analysis & Mole Ratio

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The **Percentage Analysis/Mole Ratio** field shows these calculations of the oxide content of the glaze. Click the title bar at the top of the menu to switch between these two views.

The percentage analysis is by weight. The mole ratio is similar to mole percentage analysis (multiply each number by 100 to get the mole percentage analysis). These are recalculated by clicking the title bar to switch between the views or by choosing **Calculate** from the **Glazes** menu.

## The Glazes menu

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The **Glazes** menu includes not only the **Calculate**, **New Batch**, and **Mark/Unmark Card** menu choices, but also these useful items:

**Compare Glazes** Puts this recipe in a new window.

**Compare UMFs** Use to compare unity formulas.

**Sort by...** Sorts the recipe stack by the aspects listed (note that sorting does not affect the the *Glaze Index*)

**Send to Blender** Sends this glaze recipe to the *QuadBlender*. Pick one of the four glazes in the *QuadBlender* stack: *Recipe A*, *B*, *C*, or *D*.

**Send to Calculator** Sends this glaze to the *Glaze Calculator* stack where you can substitute materials or alter the molecular formula and recalculate.

**Send to Limits** Sends this glaze to the *Glaze Limits* stack where you can compare the UMF to typical glaze analyses for different cones, and adjust the firing temperature of the glaze.

**TIP:** Sort the recipe stack before browsing.

## Compare Glazes

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The **Compare Glazes** menu choice brings up a small window with a glaze recipe. You can change this to the current glaze recipe shown in the **Glazes** stack by clicking the **Get Current Glaze** button. This recipe will stay in the **Compare Glazes** window while you navigate to other glaze recipes in the **Glazes** stack, allowing you to compare both the batch recipe and the molecular formulas for the glazes.

Close **Compare Glazes** by clicking the close box at the top of the window or the Close button at the bottom right of the window.

## Compare UMFs

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The **Compare UMFs** menu choice in the **Glazes** menu shows the **Compare Unity Formulas** window. You can click the **Get Current Glaze** button at the bottom to add the currently shown glaze in the **Glazes** stack to the list of unity molecular formulas. By clicking back and forth between the **Glazes** and **Compare Unity** windows you can find and add the glazes you want.

A faster way to add a number of glaze unity formulas to the **Compare Unity** window is to first mark the glaze recipes you want to add. You can mark them by hand or by using **Complex Search** to find and mark the glaze recipes you want. Then hold down the Option [\[ALT\]](#) key and click the **Get Current Glaze** button to add all the marked glaze recipes.

## Other Glaze card tips and features

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If you add a comma after the name of an ingredient in the recipe, any words after that will be ignored in doing the glaze calculation. Use this for things like mesh size that may not affect the chemical content of the glaze (although mesh size *does* often affect glaze melt!).

Use the pop-up menus for color and surface to enter standard terms for a recipe. This makes searching for these aspects of a glaze easier and more accurate later on - the *Complex Search* form has the same pop-up menus!

Put the main color name of the glaze first in the color field, followed by modifiers. That way when you sort by glaze color, the colors will be grouped together.

## Picture button

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You can take a digital JPEG picture of your favorite glazes to save with the glaze recipe.

See the **Glaze Picture** help page for how to add pictures of your glaze that will be displayed each time you go to a recipe that has an associated image. The **Glaze Picture** window must be open to see the image.

If no image appears even after you've selected the image using the **Picture** button, go to the **Preferences** and click on the **Glazes** tab. Click the **Set Folder** button and select the **Glaze Images** folder.

Click **Glaze Picture** in the **Index** window to show or hide the **Glaze Picture** window.

**TIP:** A flat-bed scanner can be used to scan images of flat tiles, but be careful not to scratch the glass on the scanner!

## Importing and Exporting Recipes

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You can import and export glaze and clay recipes, and material analyses in several formats. Use the **File** menu choice **Export**.

**HyperGlaze** format for glazes and clay recipes makes a file that can be re-imported back into **HyperGlaze**.

**Text** format will save a file that can be used with word processors, or imported into some other glaze programs. This is also the format use for the GlazeBase database on the web: [art.sdsu.edu/ceramicsweb/](http://art.sdsu.edu/ceramicsweb/)

**Insight** format will create a file which you should be able to import into Insight glaze software.

**HyperGlaze** will also import these same file formats, creating a new recipe card for each in **HyperGlaze**.

**Import Tip:** Get a lot of new glaze recipes to try from the GlazeBase database on the CeramicsWeb online:  
[art.sdsu.edu/ceramicsweb/](http://art.sdsu.edu/ceramicsweb/)

## Duplicate Recipes - how to find them

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You can quickly find and mark duplicate recipes which have the same name and exact recipe by using **Mark Duplicate Recipes** in the **Find** menu. Update the **Glaze Index** before using this utility, as **HyperGlaze** first looks for duplicate names in the **Glaze Index** and then checks to see if the recipes are exactly the same. When **HyperGlaze** finds a pair of recipes with the same name, ingredients and amounts it will mark both of them. You can then quickly review these duplicates using **View ONLY Marked Cards** to decide if you want to delete one of the recipes or just change it.

NOTE: **Mark Duplicate Recipes** will unmark all previously marked recipes, so be sure you don't need to do something with the recipes you've already marked before using this utility.

**Marking Tip:** Make a Glaze List of the marked duplicates to review them later.

## Glaze Lists

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The **Glaze Lists** and **Clay Lists** stacks offer a powerful way to keep groups of recipes easy to use. You can quickly build personal or shop lists of recipes by marking cards individually or using **Complex Search** to find groups.

The number of lists is practically unlimited There are five lists per page (card). Choose **New Card** from the **Edit** menu to make new pages (cards) as needed. Name each list in the text field at the top of each window, then mark recipe cards to add and click **Update This List** to put the marked cards on that list.

Results of multiple searches can be saved in the **Glaze** or **Clay Lists** stack, and easily marked again later for printing , viewing or export. These lists work like the **Indexes**, click on a recipe name to see it.

**Lists Tip:** Use Complex Search to find and mark recipes to build your lists quickly.

## Glaze Picture

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Here's how to add a picture of a glaze that will be displayed in the **Glaze Picture** window:

Take a digital picture of the glaze. Size and crop it in your favorite photo editor so that it's about 300x300 pixels at 72dpi. Try to take the photo so that the image is about life size at 72dpi resolution. A flat-bed scanner can be used to scan images of flat tiles, but be careful not to scratch the glass on the scanner!

SAVE the image or copy it to the "Glaze Images" folder that is inside your **HyperGlaze** folder.

Click on the **Picture** button below the **Unity Molecular Formula** in the **Glazes** window. Choose the JPEG (.jpg) file of the glaze and choose **Open**.

**TIP:** Holding down the Option [ALT] key when clicking the Picture button allows you to choose a new picture to display.

Click on **Glaze Limits** to show that stack, then click the **Limits for Current Glaze** button to see the analysis of the current glaze superimposed as light blue bars over limits for glazes of the same cone. The limit initially shown will be for generic glazes - either glossy or matte. Click the **Surface:** field to change between these two choices.

[more...](#)

**Choose a Custom Limit** from the pop-up menu for specific type type of glaze and cone (for example c10 Shino) to see the glaze limits for a much narrower range of glazes.

Click in the light blue bars which represent each oxide and drag them up and down to adjust molecular amounts for that oxide for later calculation (next card). Percentage by weight amounts are also shown.

**New Glaze TIP:** Make a new glaze by adjusting the oxides in Glaze Limits and then calculating a new recipe!

## Altering a Glaze Using Glaze Limits

**Glaze Limits** is only a workspace: glaze recipes aren't stored here permanently.

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Click and drag the light blue bars of each oxide in the *Glaze Limits* stack to adjust that oxide amount. Notice that if you move any of the flux amounts (RO), the other flux oxides adjust to keep the formula in unity. You can drag the oxide bars within the limit amounts if you like.

You may also see the *Estimated Thermal Expansion* change as you move the oxides up and down. If it's empty or doesn't change, click the **Thermal Expansion** field to update it. You'll likely also see a note explaining why *HyperGlaze* isn't calculating the estimated thermal expansion. See the next card for calculating new recipes after adjusting glaze limits.

**Limits TIP:** Check the **Link Ratio** box to keep the alumina and silica in the same ratio when adjusting those oxides.

## Adjusting the Cone in Glaze Limits

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You can use the *Glaze Limits* card to automatically adjust the firing temperature of a glaze formula. Click the small up and down arrows to the left of the **Limit Cone** number. Each time you click, you'll be asked if you want to change the firing cone of the glaze by one cone number.

**IMPORTANT Note:** Merely typing in a new cone number does NOT change the molecular formula, but only changes the limit bars behind the light blue oxide bars. You can then adjust the firing temperature of the glaze manually.

After adjusting the formula, choose **Send to Glaze Calculator** to calculate a batch recipe from actual ingredients. (see **Glaze Calculator** for more info)

**Adjusting TIP:** Changing a recipe by more than two or three cones may alter it so that it no longer looks the same.

## Custom Limit Formulas

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You can make and install custom limit formulas based on information found in texts or calculated from a group of glazes in *HyperGlaze*.

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Go to the *Glaze Limits* stack, and then choose **Install Custom Limits** from the *Glaze Limits* menu. You'll see the custom limit editing card which looks a lot like the *Glaze Limits* card, but without colored bars. You can click and drag the top and bottom of these **limit bars** up and down to set all the oxide limits, then add your custom limit name and cone at the top. You can also import custom limits that you have calculated using the **Complex Search** feature of *HyperGlaze*. After you have the custom limit set up, you'll need to install it.

More on installing your own custom limit formulas on the next **Help** card.

**Custom Limits TIP:** Drag oxide bars (top and bottom) to zero if that oxide is not included in the type of glaze you're using.



## Importing and Installing Custom Limits

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1. Once you have a custom limit file created, again go to the **Glaze Limits** stack, and then choose **Install Custom Limits** from the **Glaze Limits** menu.
2. Next start the import process by clicking the **Import Limit File** button at the lower right of the **Limit Formula Editor**.
3. You'll be prompted to locate the custom limit file you have created (with file extension '.LMT') and open it.

**Note:** You may get a warning "Do you want to install (save) the current limit formula before replacing it?" when you click the "Import Limit File" button and IF the limit formula shown has not yet been installed. If you choose "Install" the limit formula which is already shown in the **Limit Formula Editor** will be added to the custom limits. If you choose "No" the old custom limit will be replaced by the one you are about to open.

**Custom Limits TIP:** Name limits by glaze type and include a surface description - but use short names and standardized terms

## Installing Custom Limits, cont'd

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4. Make any changes you feel are needed in the new custom limit formula you just opened, changing the name, cone, or surface appropriately, and if necessary adjusting the limit bars.
5. When you are satisfied that your new limit formula is what you want, click the "Install Custom Limit" button.
6. Check that your new custom limit is indeed in the list of installed custom limits in the **Custom Limit Editor**. These are automatically sorted by cone number first, with a sub-sort alphabetically by name within each cone number.
7. Your new limit should now also appear on the **Glaze Limits** card popup menu of custom limits. Click the arrow at the bottom left of the **Custom Limit Editor** card to return to the **Glaze Limits** card.
8. Choose "Save" from the **File** menu of **HyperGlaze** to save your new limit formula for use later.

**Custom Limits TIP:** Use the **Complex Search** feature of **HyperGlaze** to make. See the next card.

## Calculating your own Custom Limits

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You can use the **Complex Search** stack to find a set of glazes and then analyse the results by averaging and finding the standard deviation for each oxide amount in the glazes you have selected.

1. First do searches using **Complex Search** to find a group of closely related glazes, for example cone 10 Shino glazes, cone 10 matte glazes containing spodumene, or more generally, cone 6 glossy glazes.
2. Once you have a group of recipes found and marked, review them in the glaze stack using **View Marked** to make sure that the marked glazes are indeed related and fit your criteria for a limit formula.
3. Use **Complex Search** again to create the limits by selecting the **Calculate Custom Limits...** button. This creates both a text file of the average oxide amounts, and a custom limit file with the file extension '.LMT' that can be imported into the **Custom Limit Editor**.

### Search TIP:

Hold down the mouse button to cancel long searches. You will get only partial search results if you cancel.

## Analyze Glaze

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Choose **Analyze Glaze** from the **Glaze Limits** menu to see a short interpretation of how your glaze compares to the typical glaze of this temperature.

This analysis of the recipe is very general in nature, but may be useful in understanding how oxides affect the glaze recipe. Click the **Done** button to hide the analysis. To update the analysis after making changes, choose **Analyze Glaze** from the menu again.

## Glaze Calculator

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The **Glaze Calculator** is where you can reformulate a glaze using new ingredients, or modify the UMF (unity molecular formula) and recalculate the recipe from the same ingredients.

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Click the button **Use Current Glaze** to put the UMF for the currently visible glaze recipe into the **Glaze Calculator**. It will also enter the glaze name, cone, and ingredient list.

Change ingredients in the list to different ones, for instance changing to a different feldspar, or using wollastonite instead of whiting and silica. Then click the **Calculate** button or choose **Calculate** from the **Glaze Calculator** menu and see the new recipe.

Save your new glaze using **Send Recipe to Glazes**.

**TIP:** the **Glaze Calculator** is only a workspace. Choose **Send Recipe to Glazes** to save it as a glaze card.

## Glaze calc - interpreting results

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Take a look at the UMF after you've calculated the glaze in the **Glaze Calculator**. You'll probably see a few numbers still in the UMF, and a few which were there have disappeared. **HyperGlaze** deducts the amount of each oxide after it adds each ingredient.

[more...](#)

Negative numbers in the UMF ( the numbers turn red with a minus sign in front, as in the picture at right) represent oxides where too much of an oxide has been added in the calculation, Usually these amounts will be small, and if less than 0.005 can often be ignored. If larger, you may need to try different ingredients or re-arrange the order of the list with the most complex ingredients at the top.

Positive numbers still in the UMF after calculating represent oxides still needed. Add an ingredient that supplies this oxide to the list, and click **Calculate**.

1.000	R <sub>2</sub> O	Total	R <sub>2</sub> O <sub>3</sub>
0.007	K <sub>2</sub> O		Al <sub>2</sub> O <sub>3</sub>
	Na <sub>2</sub> O		B <sub>2</sub> O <sub>3</sub>
	CaO	-0.002	Fe <sub>2</sub> O <sub>3</sub>
0.002	MgO	-0.001	P <sub>2</sub> O <sub>5</sub>
	Li <sub>2</sub> O		Sb <sub>2</sub> O <sub>3</sub>
	BaO		Cr <sub>2</sub> O <sub>3</sub>
	PbO		Y <sub>2</sub> O <sub>5</sub>

**Ingredient entry TIP:** Click on the chemical symbol for each oxide and the ingredient list scrolls to that oxide & material.

## Glaze calc - recalculating

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If you're lucky, the calculation you just did was perfect - all the oxides needed were supplied perfectly by the ingredients you chose. In that case, click **% Batch** and save the glaze recipe by choosing **Send Recipe to Glazes** from the **Glaze Calculator** menu.

If not, you'll need to recalculate.

Click the **Clear Amt's** button to start calculating the recipe again. This only deletes the batch amounts that were calculated - the ingredient list and UMF are still there. You'll see the original UMF appear.

Change the ingredient list, adding new ingredients or rearranging the order of ingredients and try again. You can do calculations repeatedly in seconds!

[more...](#)

Ferro frit 3110	136.546
Nepheline syenite	123.888
Strontium carbonate	25.392
EPK	
Whiting	
Flint	

**Calc TIP:** putting an empty line between items in the ingredient list stops the calculations at that ingredient. Calculate one item at a time!

## Calculation tips - order of ingredients

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Glaze calculation is quick and easy in *HyperGlaze*, but there are a few things that will make it go faster.

Put ingredients in the order of how many oxides they supply. Put the ingredients with the most oxides at the top of the list, and the simpler ingredients at the end.

**EXAMPLES:** **Feldspars** contain sodium, potassium, alumina, and silica as major ingredients, along with smaller amounts of calcium and perhaps other oxides.

**Frits**, **gerstley borate** and **spodumene** also supply several oxides. Put them at the top of the ingredient list.

**Clays & kaolins** are fairly complex - add them next.

**Talc**, **dolomite**, and **wollastonite** all have two oxides each - put them in the middle of the ingredient list.

**Silica**, **whiting**, and **lithium carbonate**, all contain just one ceramic oxide - put them at the end of the list.

[more...](#)

	Amount:
Frit 3110	.....
Spodumene	.....
Feldspar	.....
Kaolin	.....
Dolomite	.....
Whiting	.....
Silica	.....

**Calc TIP:** Click the **Sort Ingrid List** button to have HyperGlaze suggest the best order of ingredients.

## Calculation tips - combining $K_2O$ & $Na_2O$

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Most glazes and feldspars contain both potassium oxide ( $K_2O$ ) and sodium oxide ( $Na_2O$ ). Both of these alkaline oxides work in similar ways in glazes. Often it's safe and *much* easier to calculate glazes using a combined amount of these two oxides. For convenience, this combination is often referred to as ***KNaO***.

*more...*

*HyperGlaze* lets you combine sodium and potassium oxides in the ***Glaze Calculator*** and ***Glaze Limits***.

Choose ***Combine K and Na*** in the *Glaze Calculator* menu to combine these oxides before calculating.

1.000 <b>RO</b> Total	<b>R<sub>2</sub>O<sub>3</sub></b>
0.288 <b>KNaO</b>	0.549 <b>Al<sub>2</sub>O<sub>3</sub></b>
	0.051 <b>B<sub>2</sub>O<sub>3</sub></b>
0.283 <b>CaO</b>	<b>Fe<sub>2</sub>O<sub>3</sub></b>
0.257 <b>MgO</b>	<b>P<sub>2</sub>O<sub>5</sub></b>
0.172 <b>Li<sub>2</sub>O</b>	<b>Sb<sub>2</sub>O<sub>3</sub></b>
<b>BaO</b>	<b>Cr<sub>2</sub>O<sub>3</sub></b>

### ***KNaO TIP:***

Option [ALT] - click the chemical symbol  $K_2O$  in the UMF to change to ***KNaO***



## Calculation tips - trace amounts

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If your UMF (unity formula) has tiny amounts (below 0.005 moles) of oxides like titanium dioxide ( $TiO_2$ ), iron oxide ( $Fe_2O_3$ ) or phosphorus pentoxide ( $P_2O_5$ ), it's often safe to delete these from the UMF before calculating, as they will be supplied anyway as trace ingredients of clays and other materials in the glaze. Deleting these trace amounts will make calculation go much easier, with the calculator focusing on the major oxides needed.

There are exceptions to ignoring trace amounts of oxides, for instance if you're trying to make a blue celadon with iron oxide, where keeping the amount of titanium dioxide to a minimum is critical to keep the glaze from going to more of a green color.

<b>R<sub>2</sub>O<sub>3</sub></b>	<b>RO<sub>2</sub></b>
0.549 <b>Al<sub>2</sub>O<sub>3</sub></b>	4.502 <b>SiO<sub>2</sub></b>
0.051 <b>B<sub>2</sub>O<sub>3</sub></b>	0.004 <b>TiO<sub>2</sub></b>
<b>Fe<sub>2</sub>O<sub>3</sub></b>	<b>ZrO<sub>2</sub></b>
<b>P<sub>2</sub>O<sub>5</sub></b>	<b>SnO<sub>2</sub></b>
<b>Sb<sub>2</sub>O<sub>3</sub></b>	<b>MnO<sub>2</sub></b>
<b>Cr<sub>2</sub>O<sub>3</sub></b>	<b>F</b>
<b>Y<sub>2</sub>O<sub>3</sub></b>	<b>8.2 : 1 Si:Al</b>
Thermal Expan: 9.04 X10 <sup>-6</sup> /C	
<b>Simplify UMF</b>	<b>Graph UMF</b>
<b>Percentage Analysis</b>	
69.56 % SiO <sub>2</sub>	

***Trace Amounts TIP:*** Click the ***Simplify UMF*** button to highlight it and have *HyperGlaze* ignore trace amounts automatically.

## Calculation tips - tricks and hints

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Sometimes *HyperGlaze* is fooled by trace amounts in an ingredient, typically in clays like kaolins or ball clay. Not as of the ingredient will be added as you think should be added.

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Try putting the same material twice in the ingredient list, then click **Calculate**. If this works the way you want, when calculations are done, click % **Batch** and *HyperGlaze* adds the two lines of the same material together in the recipe.

If you want to use multiple different clays, frits, or feldspars in the glaze recipe, see the **USE Column** help page.

## The USE Column - multiple frits and spars

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The **USE** column allows you to limit the amount of an individual material added in calculating a glaze in the **Glaze Calculator**. The **USE** column is to the right of each ingredient and amount. Enter **USE** amounts on the same line as ingredients you want to limit.

You can enter any amount in the **USE** column between and 1. Enter these as a decimal. For example, entering 0.7 to the right of *Soda feldspar* will limit the amount of *Soda feldspar* added during the calculation to 70% (0.7) of the amount needed in the UMF. This allows adding another feldspar to fulfill the UMF.

Leaving the **USE** column amounts empty is the same as entering a one (1) - the full amount of that ingredient is added during calculation.

st:	Amount:	USE:
Soda feldspar	135.954	.7
Potash spar	56.739	
Kaolin	27.582	.6
Ball Clay	25.486	
Flint	120.840	
Whiting	65.300	

**Calc TIP:** the USE column often helps in glazes which need specific amounts of boron, soda and potash.

## Clays - a recipe database of clay bodies

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**Clay** recipe cards work very much like the *Glaze* recipe cards. All of the same calculations are done, with the exception of thermal expansion which cannot be accurately calculated for largely crystalline materials like clay bodies. The popup materials buttons [+] for ingredients have a slightly different list of materials on *Clay* cards, especially in the *Also Add* section.

The **Graph UMF** bar graph has been adjusted slightly to allow the display of the relatively larger amounts of silica and alumina in clays, compared to glazes.

There are also places to store a few descriptive words about the relative plasticity of the claybody, and also to record drying, firing and overall shrinkage. Enter any other pertinent information in the **Comments** field.

**Clay TIP:** Estimated thermal expansion calculations are not accurate for clays, so that item is not on clay cards

## Materials Cards

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**Materials cards** are a bit different than the *Glaze* and *Clay* cards. The *Materials* stack stores all of the analyses needed for glaze and clay calculation. It's important to keep this stack accurate.

[more...](#)

You'll probably need to add a few new materials to calculate glazes and clays made with your local materials. Get the analyses of your locally-available materials from your supplier or possibly from the manufacturer. Check for internet websites for suppliers and manufacturers, as these are often the fastest way to find the analyses of ceramic materials.

Typical materials analyses from suppliers are in the form of a percentage analysis. You can type this into **HyperGlaze** and convert it to a UMF (unity formula) by choosing **Convert to Unity** in the **Materials** menu.

**Material TIP:** be sure to set the *Material Type* for each new material to make sorting and browsing easier.  
Try it above!



## Materials - new materials

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You can easily add new materials to **HyperGlaze**, or make materials cards which use your own abbreviations or names for materials. Use **New Card** or **Duplicate Card** to enter new materials or variations on materials.

*more...*

In the interest of sharing recipes with others, it's always best to use the most accurate name for a material. For example, using 'Custer potash feldspar' is better than just 'feldspar,' even though 'feldspar' may use the same analysis. If you print out this recipe and give it away, 'feldspar' in another locale may mean a different brand - and result in a different glaze! Unique names speed up glaze calculation, too, by finding analyses faster!

**Materials TIP:** use **Duplicate Card** to make multiple **Materials** cards for variations on names for ingredients.

On the next card, we'll enter a new analysis and convert it.

## Materials - entering the new analysis

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Once you have made a new **Materials** card, you can enter either a molecular formula (UMF) or more typically the percentage analysis by weight which you obtained from a supplier or manufacturer. Either way, type the amounts for each oxide in the material into the fields directly below the chemical symbol for that oxide.

If you have entered a percentage analysis, choose **Convert to Unity** from the **Materials** menu. The percentage analysis will appear in that field. It may differ slightly from the manufacturer's analysis, especially if the supplier's analysis doesn't add to 100!

Simple ingredients like silica are entered by putting a 1 (one) under **SiO<sub>2</sub>** and entering the molecular weight in the **Mol. Wt.** field. Hold down the option [**ALT**] key and click **Mol Wt.** to calculate simpler materials.

**Entry TIP:** *HyperGlaze* will calculate the molecular weight for you! Or use Potter's Friend if you have the material's chemical formula.

## Viewing options for Materials

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In the **Materials** database, there are several other options for viewing the materials analyses. You can pick the options by clicking on them in the list (just like that at the right) on the bottom right side of any **Materials** card. When one of these buttons is chosen it changes the way the arrow buttons on the Materials cards work. The current glaze or clay is the recipe shown in the Glazes or Clays window, even if that window is not currently visible.

The options include:

**View All** - goes to all cards

**Current Glaze** - shows only materials in current glaze review what's in your glaze recipe

**Current Claybody** - only materials in current clay

**View Marked** - shows only marked materials

**View Inventory** - shows only materials marked as being in your inventory (checked box)

- ☒ **View All**
- ☐ **Current Glaze**
- ☐ **Current Claybody**
- ☐ **View Marked**
- ☐ **View Inventory**

**Materials tip:** Use the choices above on any **Materials** card to view only the materials that you want to see.

## Printing

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Printing is easy and flexible - you can print one card or recipe at a time by choosing **Print Card**, or many using **Print Marked Cards**. These will print the recipe or analysis as it appears on the screen. Comments which are longer than the visible Comments field won't be printed. Use a different printing format for recipes with lots of information in the comments.

There are several printing options for different formats of recipes and analyses, including long comments, comparison lists, cards, and labels. Try them out.

There are three more options that can be set in **Preferences** (click the **Glazes** tab) for formatting the printing of a glaze recipe: **Print Window**, **Print Formatted**, or **Print Formatted with Picture**. **Print Formatted (with or without Picture)** is highly recommended for Windows users.

**more...**

**Printing TIP:** Press the command **[control]-P** keys to quickly print one recipe card.

## Printing Marked Cards

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Once you've marked a few cards containing your favorite recipes, you'll probably want to print them. Choose **Print Marked Cards** from the File menu, and HyperGlaze will print only the cards you've marked.

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You'll probably want to choose **Page Setup** the first time you print, to make sure you're print settings are satisfactory.

Make sure these are the recipes you want. If not, choose **Unmark Card** in the *Glazes* or *Clays* menu to deselect it.

You'll probably want to make sure the **batch sizes** are correct, too. (See **Glaze Index-Set Batch Size**)

**Printing TIP:** Review the marked recipes first. Click **View Marked** and go to each card with the arrow buttons.

## Print Special - Limit Graphs & Labels

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In the *Glaze* database of **HyperGlaze** you can print each recipe with its *Glaze Limits* graph. Choose **Print Special** in the *File* menu and then the submenu for either a single glaze with graph or all the marked cards. The recipe and graph should print with both on one page.

[more...](#)

Printing labels for glaze containers is another option under Print Special in the File Menu. The format is set up for Avery 8254 3-1/3 x 4 inch shipping labels or the equivalent. The choice to print only the recipe, *Marked Glazes as Labels 3.3x4*, will print 6 recipe labels per sheet from the currently marked recipes. If you want to have both recipes and hazard warnings and the percentage analysis, choose *Marked Glazes as Labels with Hazards*.

**Glaze Book Tip:** Make a quick glaze book or handout or recipes by using the label printing format on plain paper.

## Printing Material Analyses

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You can print materials analyses as a table by choosing **Print Special - Marked Cards as Analyses** in the File menu of the Materials stack. Be sure to mark the cards you want to print first!

At this time this printing option works best for clays, frits, and feldspar which don't contain trace or unusual oxides not listed on the print out.

## Utility Stacks - helpful resources

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**Complex Search** is a utility which makes finding and marking cards you want to view or print easier. It works with the *Glazes*, *Clays*, and *Materials* stacks.

There are four more stacks included in HyperGlaze which contain useful resources and tools for ceramists: ***Bibliography***, ***Unity Explained***, ***QuadBlender***, and ***Potter's Friend***.

Use these for everything from keeping track of books on ceramics, understanding more about glaze chemistry, doing glaze tests, to estimating and mixing plaster batches.

## Complex Search

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**Complex Search** helps to find cards in the *Glazes*, *Clays*, and *Materials* stacks using more complicated searches than are possible using the Find menu choices. In addition, it will find and mark many cards at once while you do something else.

[more...](#)

Finding things using multiple keys can be frustrating if you are asking for *HyperGlaze* to find a recipe with too many specific qualities. If you don't find any recipes, try a simpler search. (more on this on the next card)

Some of the **Complex Searches** may take time, especially if you have a lot of recipes to search in *HyperGlaze*. You can cancel a search by holding down the mouse button. If any cards have been marked before you cancel the search, you'll see that in the search results right above the *Search* button.

## Complex Searches for glaze recipes

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When looking for glaze recipes using **Complex Search**, you *must* specify a cone number. If you don't add any other search qualifications (or *keys*), then you'll find all of the recipes in the *Glazes* stack which have that cone number in the *Cone* field.

To find a smaller and more selective group of glazes at the same cone, you can add other search keys: aspects that the glaze does or does NOT have (use the NOT search fields). Keep these search keys short and simple to find more glazes.

Use a repeat search after choosing "Find in the Found Set..." to further refine the set of recipes found. *HyperGlaze* will look only in the previously marked cards, and unmark any recipes which don't fit your search criteria.

## ***Unity Explained - a tutorial about the UMF***

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The ***Unity Explained*** stack offers a discussion of various topics related to glazes, their oxide makeup, the UMF, and other aspects of glaze calculation and formulation.

If you're unfamiliar with all of the chemical oxides that make up glazes, take some time to read through this stack. It's full of helpful information about how each of these oxides affects the final glaze.

## ***Bibliography Stack***

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The ***Bibliography*** stack offers a list of ceramics books, mostly on glaze topics, which you can review. You can add your own book listings, too.

Clicking on a name or title in the list of books and authors on the index card will take you to that book's information.



The **QuadBlender** stack helps with the math and logic of doing quadraxial and line blends of glazes or colorants. You can enter four separate glaze recipes in the *QuadBlender*, or just four materials or colorants.

Clicking on any of the buttons on the numbered grid will give you the recipe for that test batch and tile. If you have entered four different glaze recipes, the *QuadBlender* will give you the final batch recipe of that test tile.

Choosing **Blend Recipe Grid** from the *QuadBlender* menu will show a printable grid of volumetric recipes for making the actual tests from the four recipes: A, B, C, & D.

See also the **Help** menu of the **QuadBlender**.

**Testing TIP:** Use volumetric blending for quick tests - teaspoon or tablespoonfuls to measure the glaze.

**Find****Close**

The **Potter's Friend** stack includes a number of useful tools, from simple weight and measure translations, time calculations for those long jobs, plaster working calculations, postage and material cost calculation, to calculating molecular weights from the chemical formula of ceramic materials.

Take a look and see if there's something there for you!

**Find****Close**

## Preferences

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Use *Preferences* to adjust settings to your personal needs including:

Turn *Tool Tips* on and off - in *General* preferences  
Save window locations - in *General* preferences

Set printing format in the *Glazes* preferences  
- determines how the recipe page prints

Enter your own thermal expansion coefficients - in  
*Thermal Expansion* preferences

Please note that you must click the Save button (which also closes preferences) to make your changes permanent. Clicking on the close box in the bar at the top of the window will not save your preferences.

**Find****Close**

## Licensing Agreement

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If you want to view the licensing agreement again after the initial start-up of HyperGlaze, click on the copyright notice on the Index window. You can view the software license for HyperGlaze and print a copy if needed.

Remember that a single user license for HyperGlaze allows you to install the software on two computers that you use: a desktop computer at work and either another desktop computer at home or portable computer. It does not allow installation of multiple copies of HyperGlaze in a computer lab or classroom or the copying of HyperGlaze for student computers.

If you'd like to use HyperGlaze in a lab situation, please purchase the site license which allows use on up to 25 lab computers plus an instructor copy for a very low price.

**Find****Close**





*HyperGlaze* is designed to be easy to use, but if you do have problems, here are some possible solutions.

If the software has an error, it will automatically generate an email message. Please send these if you see them pop up, as they contain information critical to making *HyperGlaze* work better for you. You can write to this same address if you have a problem using *HyperGlaze*: HGEerrors@sbcglobal.net

Enjoy *HyperGlaze*!

## Problem: can't save changes



One likely problem is if *HyperGlaze* is run directly from the *HyperGlaze* CD-ROM. CD-ROMs are read-only, meaning that *HyperGlaze* cannot save changes to the CD-ROM. Be sure to copy the appropriate *HyperGlaze* folder (Macintosh OS X or Windows) to your hard disk. Do this by dragging the entire folder to your computer's hard disk or desktop.

Windows users will also have to **uncheck** the 'Read Only' setting for the *HyperGlaze* files. Do this by opening the *HyperGlaze* folder on your computer's hard disk so that you see all of the parts of *HyperGlaze*. Click on each file and look at its **Properties** (in the File menu). If 'Read Only' is checked, then uncheck it. You should only have to do this once after installing *HyperGlaze* from the CD-ROM.

**Lab TIP:** *HyperGlaze* runs in memory, so you can leave Materials stack set to 'Read Only' in a lab to lock it from changes.

## Problem: can't open stack

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*HyperGlaze* expects to have all of its files in the same folder. Please don't rename files in the *HyperGlaze* folder as *HyperGlaze* looks for the original file names when opening stacks.

It is possible for any computer file to become corrupted and unreadable. While this unfortunate event is unlikely, it is a wise idea to keep regular backups of *HyperGlaze* (and all of your files!) to another type of storage. Do this by either copying the *HyperGlaze* folder to your backup disk, or by using commercially- available backup software. If your files should be corrupted and unreadable, reinstall *HyperGlaze* from your backup or the original CD-ROM.

**Backup TIP:** make a HyperGlaze backup file immediately after entering new glazes into HyperGlaze!

Make backups regularly! You don't want to lose all of your hard work entering your favorite glaze recipes!

## Arrow buttons don't go to all cards

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All of the database stacks in *HyperGlaze* have the option to view only the marked cards in that particular database when you click on the forward or backward arrow buttons. Make sure **View Marked** (just below the arrow buttons) is not highlighted in red when viewing all recipes. If it is, click on it to turn **View Marked** off.

In the **Materials** database, there are several other options for viewing. You can pick the options by clicking on them in the list (just like that at the right) on the bottom right side of any **Materials** card.

The options include:

**View All** - goes to all cards

**Current Glaze** - shows only materials in current glaze

**Current Claybody** - only materials in current clay

**View Marked** - shows only marked materials

**View Inventory** - shows only materials in inventory

- ☒ **View All**
- ☐ **Current Glaze**
- ☐ **Current Claybody**
- ☐ **View Marked**
- ☐ **View Inventory**

## Problem: Glaze Calc adds too much

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If you are trying to calculate a glaze batch from the molecular formula using the **Glaze Calculator**, and you continually get the message that the calculation has added too much of an oxide, you need to consider one or both of these things:

- Try rearranging the order of the ingredients in the ingredient list. Remember that more complex ingredients which contain several oxides should appear at the very top of the list. If your glaze needs something like boron or lithium, try adding an ingredient which supplies that first! The Sort Ingreds button does this automatically, and usually works.
- Check the analysis of ingredients in the Materials stack to make sure ingredients you're trying to use don't add an oxide which isn't needed.

**Calc TIP:** click on chemical symbols for oxides and see the list of ingredients which supply those oxides.

## Problem: searches end too quickly

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You know there are recipes that satisfy your search but you keep getting "Search canceled after..." messages when using **Complex Search**.

It's likely that you're holding down the mouse button or clicking the mouse after the search begins. Searches are canceled by holding down the mouse button.

If you find that you inadvertantly start a new search with your cancelling click, then move the mouse cursor off of the **Search** button before clicking.

## Importing PC .GLZ files on a Macintosh

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If you have glaze recipes in a **HyperGlaze** file (.GLZ) which were saved on a Windows PC and you want to import them to your Macintosh version of **HyperGlaze**, do the following:

1. Hold down the Option key and choose Import from the File menu.
2. You'll see all of the files available, including many which are not **HyperGlaze** files. Pick the correct file ending in .GLZ to start the import of recipes.

**HyperGlaze** can import recipes it exports (.HGZ, .TXT and .RCP) from Insight. **HyperGlaze** also import .RCX files from Insight, but does not export these files.

**Cross-platform tip:** If you have moved files from a PC to a Mac, the icons may not appear correct, just make sure the file extension is correct.

## Importing Files on a Windows PC

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You must first start **HyperGlaze**, then choose **Import** from the **File** menu while in the proper database (**Glazes**, **Clays**, or **Materials**) to import a **HyperGlaze** recipe or material file. Find the file you want to import in the open file dialogue box and choose **Open**.

**HyperGlaze** can import recipes it exports (.HGZ and .TXT) and .RCP and .RCX formatted files from Insight.

Don't double-click the files - **HyperGlaze** doesn't open them that way. Sorry.