




What's New in Datacolor Match Pigment V1.2

www.datacolor.com

datacolor 
MATCH PIGMENT™
Version 1.2.0

| | |
|-------------|----------|
| FLEX YELLOW | 47.5989 |
| FLEX GREEN | 65.5321 |
| FLEX BLUE | 66.7192 |
| FLEX CLEAR | 62.1499 |
| TOTAL BATCH | 100.0000 |

1.2

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SPECTRUM™
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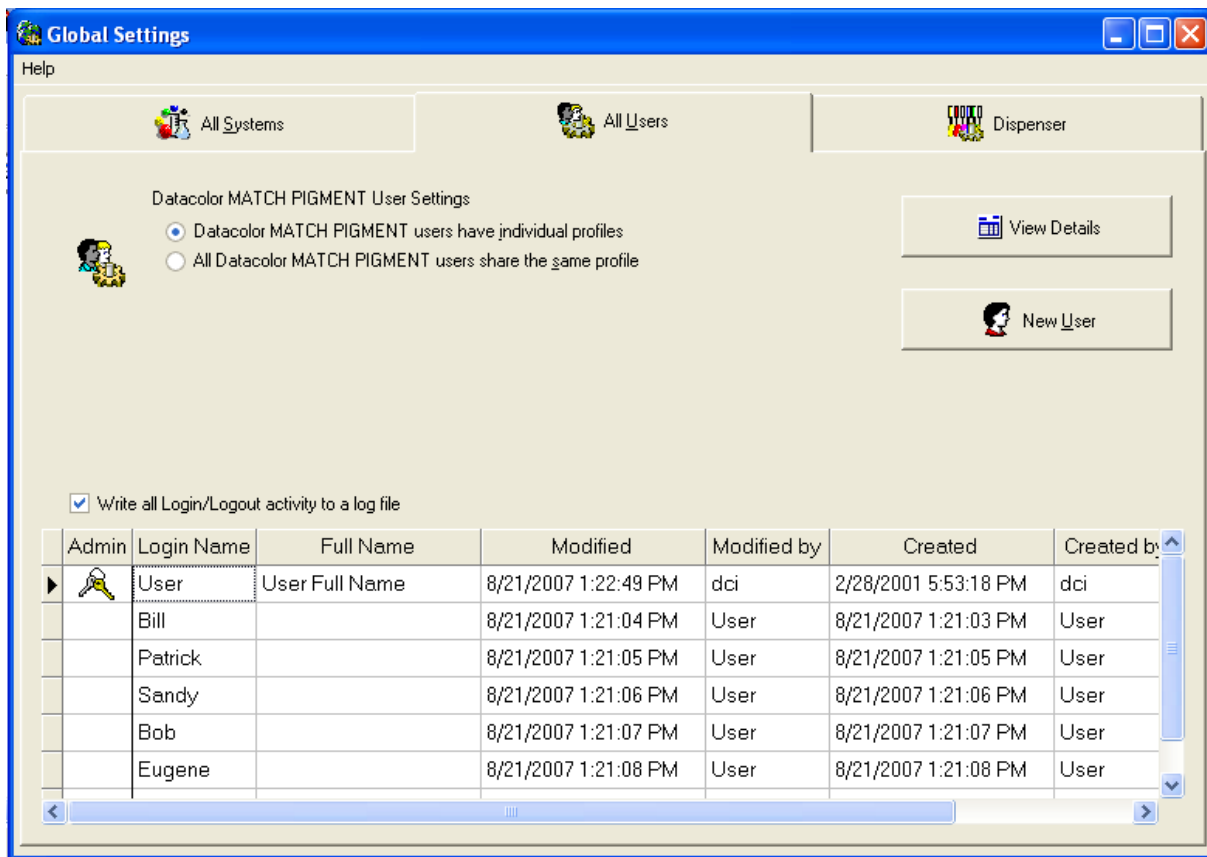
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Data Security

Introduction

Data Security is a new feature that has been added to Datacolor Match PIGMENT (DMP) that will allow DMP administrators to control access to DMP data objects (standards, batches, formulas, jobs, etc.) and also provide a level of security for access to database folders. DMP users can now be added to user groups and individual groups can be given permission to create, modify or delete specific data object types. In addition, a group can be set to have view, create, modify or delete rights for a particular folder.

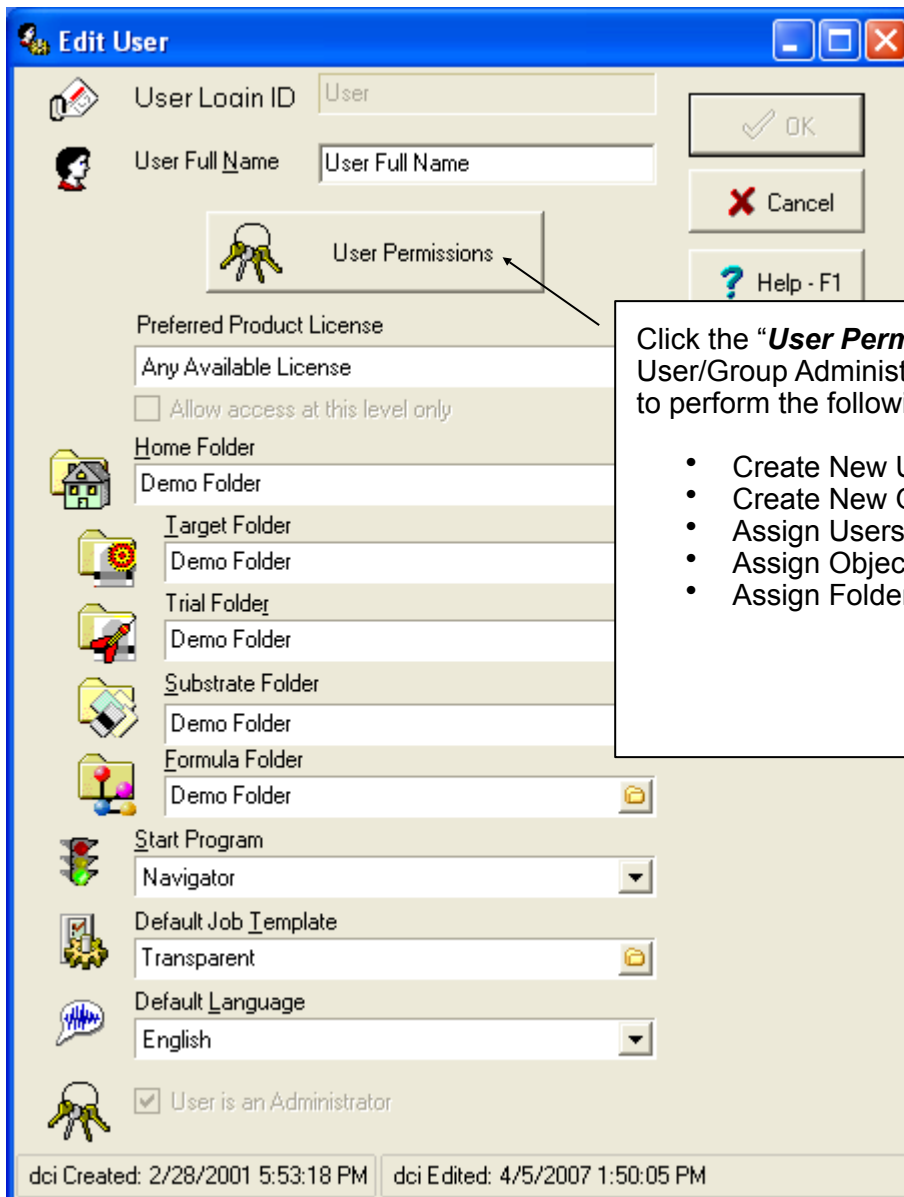
This new Data Security component has been integrated into the existing DMP User Maintenance option in the Admin program. The new component will be used to create users, groups, and assign permissions. To access the Data Security component, start the Admin program and select the All Users tab.



Select a user and then click the View Details button. The Edit User screen will display for the selected user.

Accessing the User/Group Administration Screen

There is a new button on the Edit User screen named "User Permissions". This button will open the User/Group Administration screen.



The screenshot shows the 'Edit User' dialog box with the following fields and options:

- User Login ID: User
- User Full Name: User Full Name
- User Permissions button (highlighted with a callout box)
- Preferred Product License: Any Available License
- Allow access at this level only
- Home Folder: Demo Folder
- Target Folder: Demo Folder
- Trial Folder: Demo Folder
- Substrate Folder: Demo Folder
- Formula Folder: Demo Folder
- Start Program: Navigator
- Default Job Template: Transparent
- Default Language: English
- User is an Administrator

Buttons: OK, Cancel, Help - F1

Footer: dci Created: 2/28/2001 5:53:18 PM | dci Edited: 4/5/2007 1:50:05 PM

Click the "**User Permissions**" button to access the User/Group Administration screen. You will be able to perform the following tasks:

- Create New Users
- Create New Groups
- Assign Users to Groups
- Assign Object Type Permissions to Groups
- Assign Folder Permissions to Groups

Users are no longer created from this *Edit User* screen.

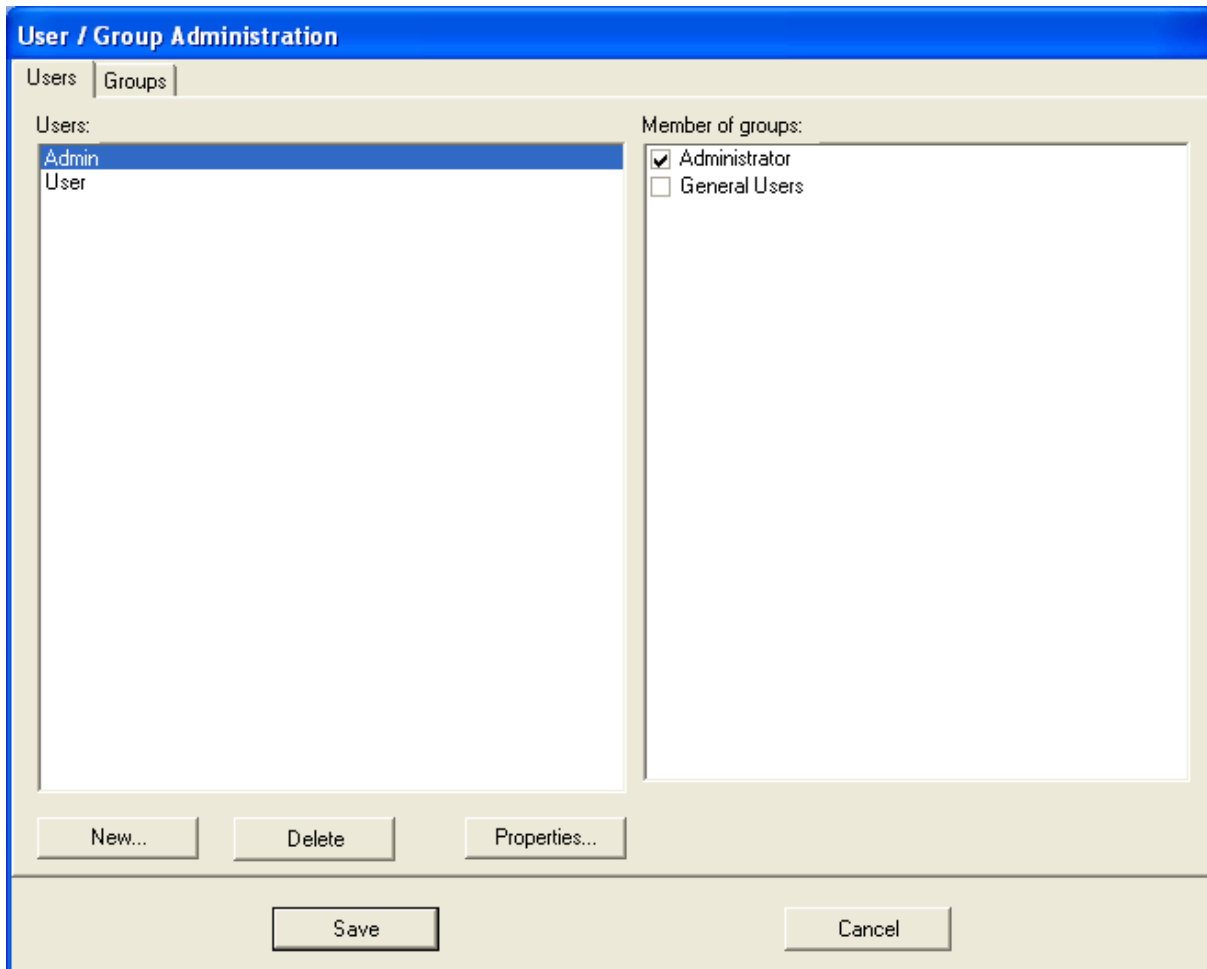
Users are created from the User/Group Administration screen.

After users are created in the User/Group Administration and you save and leave, the *Edit User* screen will display for each user created allowing you to set any license, start folder, defaults, etc. for the new users.

The following section will guide you through the User/Group Administration screen.

Users Tab of the User/Group Administration Screen

Shown below is Users Tab of the User/Group Administration screen for a new installation:



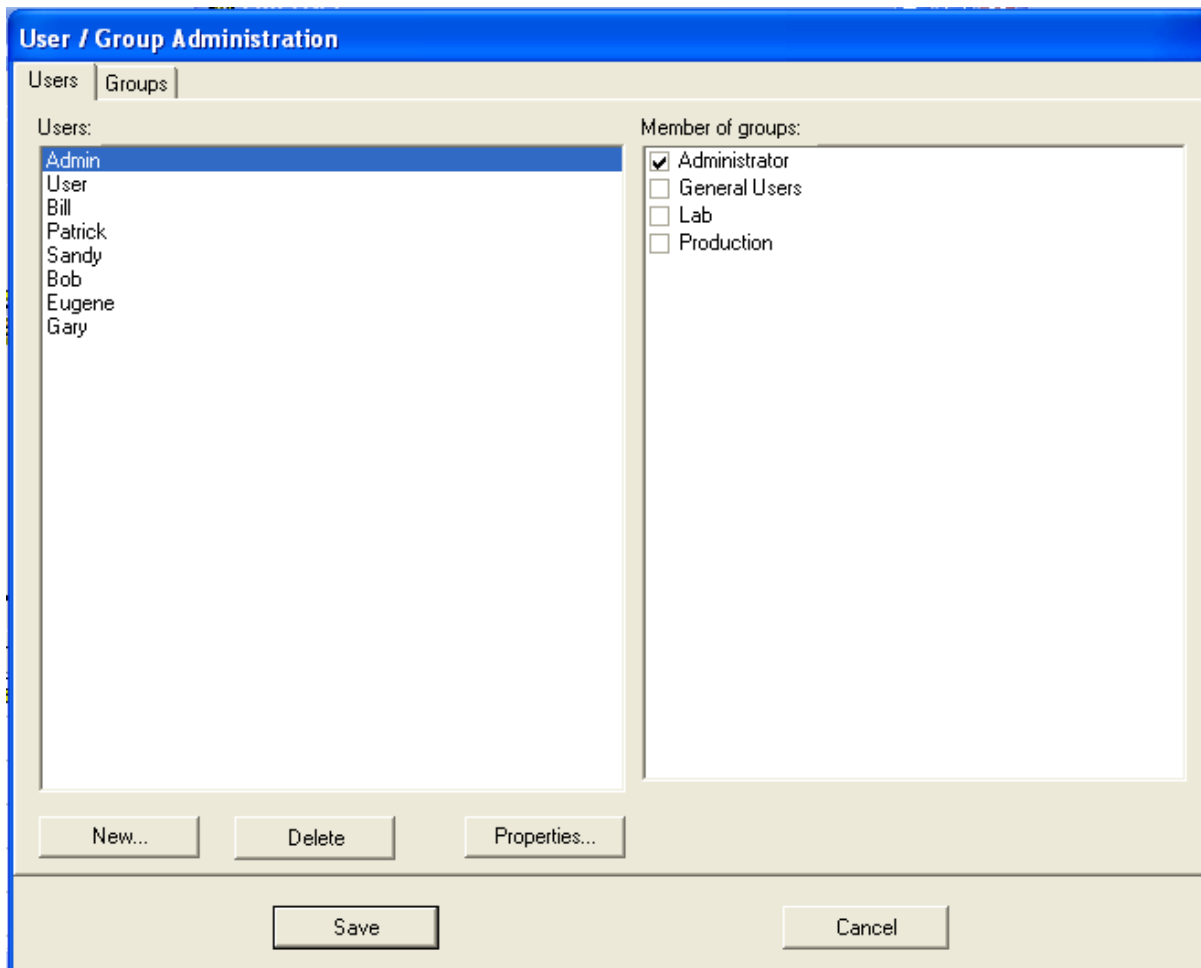
For a new installation, there will be 2 default users (Admin and User) who will be members of the Administrator group. In addition to the Administrator group, there will be the General Users group. Members of the Administrator group have full rights in the DMP database and are not constrained by any permission set for data types or by any folder permission.

Data security permissions only apply to non-Admin users.

The user "Admin" is a special user that cannot be deleted or removed. You can log into DMP with "Admin" but it does not appear in the list of DMP users. It also does not have a password set. You should add a valid password for this user.

For an upgrade installation with an existing database, all existing Admin users will automatically be made members of the Administrator group and all non-Admin users will be made members of the General Users group.

Shown below is an example of a setup with more users and groups.

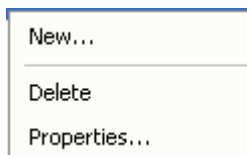


On the **Users Tab**, the DMP users are displayed in the **Users** window on the left and the groups that a user is a member of is displayed in the **Member of Groups** window on the right.

Highlight a user in the **Users** list to see the groups to which the user is a member (indicated by a check mark in the box next to the group name in the **Member of Groups** section).

To add a user to a group, click on the check box next to the group in the **Member of Groups** list. To remove a user from a group, remove the check in the check box next to the group name in the **Member of Groups** section.

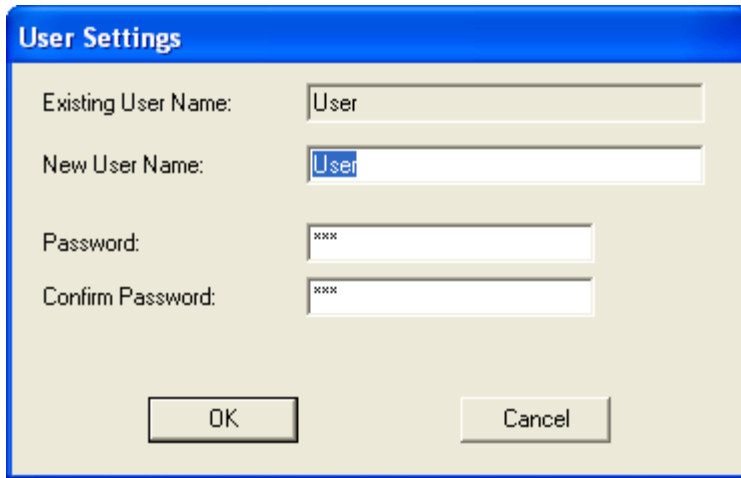
At the bottom of the Users tab there are 3 buttons: **New**, **Delete** and **Properties**. These options are explained in the following pages. Right clicking on a user will also bring up a menu offering options for **New**, **Delete**, and **Properties**.



Properties Option

This option will allow you to rename an existing user name and also change an existing user password.

After highlighting a user, click on the **Properties** button to launch the **User Settings** screen shown below. Double clicking on a user will also launch this window.



The image shows a dialog box titled "User Settings" with a blue header. It contains four text input fields: "Existing User Name" with the value "User", "New User Name" with the value "User" and a blue selection highlight, "Password" with "xxx", and "Confirm Password" with "xxx". At the bottom, there are two buttons: "OK" and "Cancel".

The **Existing User Name** field will list the current user name. The **New User Name** field will also list the current user name. To edit the user name, input a new user name into the **New User Name** field.

The **Password** and **Confirm Password** fields will be filled with the user's original password and can be changed. To change the user's password, enter the new password into **Password** field and also enter the new password into the **Confirm Password** field.

Click the **OK** button and the program will verify that the **New User Name** is okay (does not already exist and does not use any reserved characters) and that the **Password** and **Confirm Password** entries match and do not use any reserved characters. If they do not match or the **New User Name** is invalid, a message box will prompt the user. **Cancel** will exit the screen without saving any changes.

Important!

Any changes made in User/Group Administration including adding or editing users, setting permissions, etc. are not saved to the database until you click on the **Save** button on the bottom of the screen:

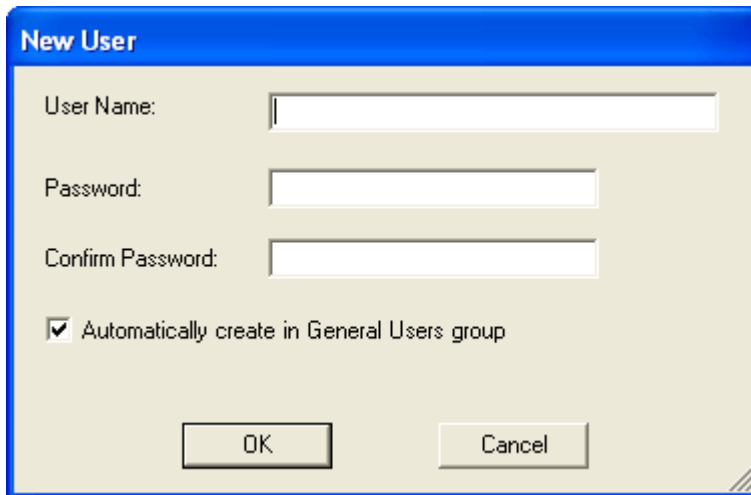


The image shows a horizontal bar containing two buttons: "Save" and "Cancel".

If you click on Cancel all of your edits and changes will be lost!

New User Option

This option will create a new user. After highlighting a user, click on the **New User** button to launch the **New User** screen shown below.



The screenshot shows a dialog box titled "New User". It contains three text input fields for "User Name:", "Password:", and "Confirm Password:". Below these fields is a checked checkbox labeled "Automatically create in General Users group". At the bottom of the dialog are two buttons: "OK" and "Cancel".

The **User Name**, **Password**, and **Confirm Password** fields will be blank. Fill them in appropriately and click **OK**.

If **OK** is clicked without all information entered, with an illegal **User Name** or non-matched or illegal passwords, the user will be prompted. Otherwise, the information will be saved and the screen will exit.

When the **Automatically Create in General Users Group** check box is checked, new users added will be automatically added to the General Users group. If the check box is not checked, they will not automatically be added to any group.

Cancel will exit the screen without saving the new information.

Delete User Option

On the **User / Group Administration** screen, highlighting a user and clicking the **Delete** button will prompt via a message box: "Are you sure you want to delete user xxxxxx?" Answering **Yes** will delete the user, **No** will not.

A DMP user cannot actually be deleted from the database because in DMP database objects have a creation user and modification user in the object record. When you delete a user, it will not be available for login and it will not be shown in the user permission screens. Objects will still show this user as either the creation user or modification user.

If a user leaves the company, you could edit the user name to some generic name which would then show in the user fields.

Save Option

On the **User / Group Administration** screen, clicking the **Save** button will check to verify that all users are members of at least 1 group. If a user exists which is not a member of any group, the program will prompt: "User xxxxx is not a member of any group."

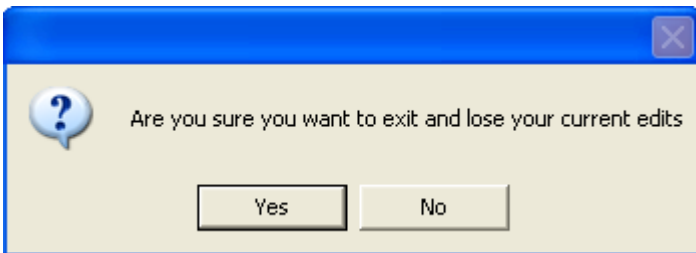


All users must be a member of at least one group before you can continue. Clicking **OK** will return to the **User / Group Administration** screen. If all users are a member of a group, then the data will be saved to the database and the program will exit.

It is not until the **Save** button on this screen is clicked that anything is committed to the database (in other words, modified user names, added users, changed groups, etc. are not saved until the **Save** button on the **User / Group Administration** screen is clicked.)

Cancel Option

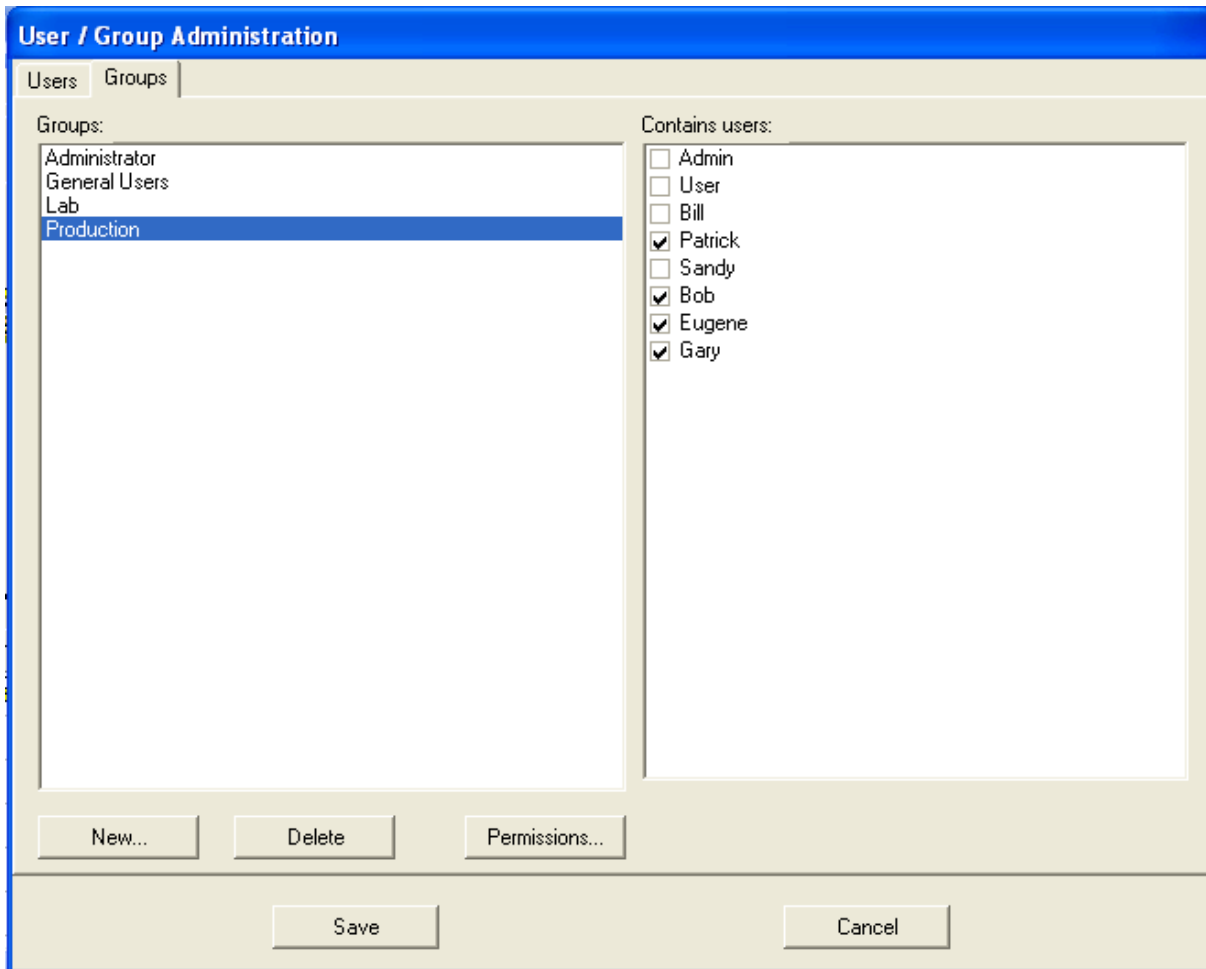
On the **User / Group Administration** screen, clicking **Cancel** will prompt: "Are you sure you want to exit and lose your current edits?"



Answering **Yes** will exit User/Group Administration without saving.

Groups Tab of the User/Group Administration Screen

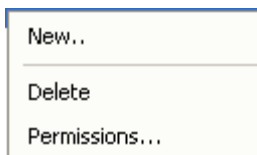
Shown below is an example of the Groups Tab:



On the **Groups Tab**, the DMP groups are displayed in the **Groups** window on the left and the users that a group contains are displayed in the **Contains Users** window on the right. Highlight a group in the **Groups** window to see the users that are members of that group (indicated by a check mark in the box next to the user name in the **Contains Users** section).

Click on the check boxes next to the users in **Contains Users** list to add or remove a user from a group by placing or removing a check mark from the box.

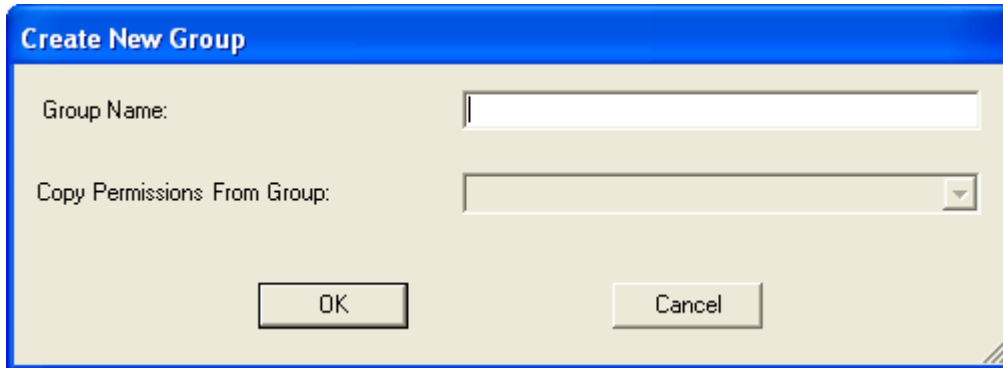
Right clicking on a group will bring up a context sensitive help menu offering options for **New**, **Delete**, and **Permissions**.



Double clicking on a group will behave the same as clicking the **Permissions** button.

New Group Option

Click on the **New** button to launch the **Create New Group** window.



Input a name for the new group into the Group Name field.

The **Copy Permissions from Group** drop down will allow you to copy the permissions from another group to use as a starting point for this new group. By default, a new group will have all permissions set to allow all operations. This option is available as a convenience so a new group will use the same permissions as another group that you have already set up.

Click the **OK** button to create the new group and return to the **Group** tab with the new group added to the **Groups** list in memory (remember that nothing is committed to the database until **Save** is clicked on the main window).

Clicking **Cancel** will exit the window without saving anything.

Delete Group Option

On the **User / Group Administration** screen **Groups** tab, highlighting a group and clicking **Delete** will prompt: "Are you sure you want to delete group xxxxxx?" Answering **Yes** will remove the group, **No** will not remove it.

Save Option

On the **User / Group Administration** screen **Groups** tab, clicking **Save** will check to verify that all users are members of at least 1 group. If a user exists which is not a member of any groups, the user will be prompted. "User xxxxx is not a member of any group. All users must be a member of at least one group before you can continue." Clicking **OK** will return the user to the screen. If all users are a member of a group, then the data will be saved to the database and the component will exit.

Note that although users cannot exist without being a member of at least one group, groups can exist without having any users (yet) assigned to them.

Important! - It is not until the **Save** button on this screen is pushed that anything is committed to the database (in other words, added groups, changed members, permissions, etc. are not saved until the **Save** button is clicked.)

Group Permissions

You can access the group permissions screen by selecting a group and either use the **Permissions** button or use the right-click menu item **Permissions**.

The **Group Permissions** screen has 2 tabs: **Data Type Permission** and **Folder Permission**. The Data Type Permission screen is shown below.

Data Type Permission

The screenshot shows a dialog box titled "Group Permissions" with a blue header. Below the header, there is a "Group Name:" label and a text box containing "General Users". Below this, there are two tabs: "Data Type Permission" (which is selected) and "Folder Permission". The main area of the dialog is a table with the following structure:

| Object | Modify | Create | Delete |
|--------------|-------------------------------------|-------------------------------------|-------------------------------------|
| Folder | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Sample | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Standard | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Batch | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Substrate | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Formula | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Recycle | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Job | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Job Template | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

At the bottom of the dialog, there are two buttons: "OK" and "Cancel".

The objects listed are the current DMP object types that can have permissions assigned. By default, all permissions are granted. Object types always have view permission.

Permissions are granted on data objects as a universal setting. This allows the administrator to restrict the user to only be able to do the things he needs to be able to do to complete his job. For example, if a junior level worker's only task is to match existing standards which are already in the database, the administrator could restrict this user's create, modify, and delete rights on standards. Thus throughout the entire program, the user could view and use standards, but not create new ones or modify or delete existing ones.

The Security settings that can be placed on data types are:

- **Modify** – The data type can be modified (subject to other rights).
- **Create** – New items of this data type can be created by the user (subject to other rights).
- **Delete** – The user may delete items of this data type (subject to other rights).

Create rights on an object are required for Copy and Paste functions to work.

Create and delete rights on an object are required for Cut and Paste / Move functions to work.

Folder Permission

Permissions are granted on folders to either allow or disallow users certain access rights to some parts of the database. You can consider the application-viewable structure of the database to be similar to Windows Explorer. A folder tree exists with a root folder for the database and subfolders forming a tree. Each of these folders including the root folder can then contain one or more data objects as well as subfolders forming further branches on the tree. With this picture in mind, some of the folders in the view can have some restrictions assigned to some users such that parts or all of some branches of a folder become restricted to a user.

To view the Folder Permission screen, select the Folder Permission tab. In example below, we see how permissions can be assigned to different folders for the “General Users” group.

The screenshot shows a dialog box titled "Group Permissions" for the "General Users" group. The "Folder Permission" tab is selected. The dialog contains a table with columns for "Folder", "Inherit", "View", "Modify", "Create", and "Delete". The "Inherit" column contains checkboxes, and the other columns contain checkboxes with green checkmarks indicating active permissions.

| Folder | Inherit | View | Modify | Create | Delete |
|-------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| <Root> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Admin View | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Ingredient System | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Demo Folder | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Peon1 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| STD DEMO WHITE | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| STD GOLD PL | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| STD GREEN PL | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| STD ORANGE PL | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Translucent Data | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Trash Can | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

The “Inherit” setting will have the folder inherit or use the permissions of its parent folder. In this case, the permissions for the folder are grayed out and do not apply. If the “Inherit” setting is unchecked, then the folder will use the settings (View, Modify, Create, and Delete) which are now active.

The rights that can be set on folders and their meaning:

- **Inherit** – The folder inherits all of its rights from its parent folder.
- **View** – The folder and objects within the folder can be viewed (subject to other rights). Denying folder view rights to a parent folder implies denied rights for all sub-branches of that folder.
- **Modify** – Data within the folder can be modified.
- **Create** – The user may create objects / subfolders within / move objects to the folder (subject to other rights).
- **Delete** – The user may delete objects within the folder or move objects from the folder (subject to other rights).

Note that Modify and Delete rights refer to the contents of the folder, NOT the folder itself. To have rights to modify or delete a folder, the rights must be set on the parent folder (as well as on the folder data object type).

In order to be able to copy and paste an item, **View** rights must exist on the “from” folder and **Create** rights must exist on the paste folder.

In order to be able to cut and paste / move an item, **Delete** rights must exist on the “from” folder and **Create** rights must exist on the paste folder.

In Datacolor Match Pigment, users are allowed to delete a folder and its contents in one step. In this case the delete operation will delete everything it can. If an item cannot be deleted due to permission settings or other reasons, then it and its container (recursively) will not be deleted. Everything else that can be deleted, however, will be.

General Rules for Determining Proper Permission

Permissions can be set on both data types and on the folder tree. To determine the permissions for a group, it is required that the group has permission both to the data type AND to the folder in question.

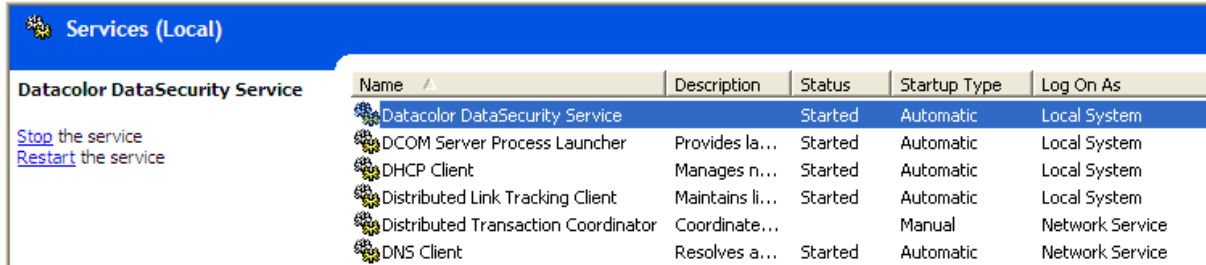
Users can be members of multiple groups. To determine the permission in this scenario, the user only needs to be granted permission in one group to have the permission. This can be thought of as an OR permission.

The permission component will return the viewable folder structure to the application. Thus, at any time, the application will only show those folders that are visible.

Denied View rights on a folder imply denied view rights on all subfolders of the folder.

Installation and Operational Issues

The Data Security component operates in a client/server mode. On a standalone system, Data Security is automatically installed and configured during the DMP installation. A Windows service called “Datacolor DataSecurity Service” is created and automatically starts the Data Security server component.



There isn't any user intervention needed but this service must be running for the component to work.

Local Area Network

If DMP is running on multiple client computers on a LAN with a shared database, the Data Security component should be installed on the same server as the database server. For a LAN installation, install the Data Security component on the database server. To install the Data Security Service on the server, use the Sybase CD and select the menu option “Install Spectrum Services”. This will install the Data Security component and create the Windows service automatically.

After the Data Security Service is installed, each client PC will need a special text file that will contain the name of the server where the Data Security Service is installed. The text file “DataSecurityServer.Txt” must be created in the [Drive]:\Program Files\Datacolor\Spectrum folder of the client PC. The file may contain 2 lines. On line 1 is the computer name of the server and on line 2 is the port of that computer (default port is 51000). For example, if the server name is “Saturn” and the default port is 51000, then the text file would contain a single line with the text “Saturn”.

Terminal Server / Citrix

In a terminal server environment, the Data Security component is also automatically installed and configured during the DMP installation. A Windows service called “Datacolor DataSecurity Service” is created and automatically starts the Data Security server component. Each terminal server user will share the Data Security server component. There aren't any special requirements for terminal server use.

Recycles

Introduction

A recycle or waste is a material that is leftover from a production process. The recycle material can be blended with either virgin colorants or other recycles to match a target color in a new production run. In Datacolor Match Pigment, a recycle can be used as a batch or a colorant or both. When a recycle is created and saved in DMP, both a formula and a colorant are created by the software. A DMP recycle can be used in many different ways depending on the specific production process involved.

Recycles can be created in either Set Maintenance or Formula Central. In Set Maintenance, a colorant can be converted to a recycle so any methods of creating colorants can be used to create a recycle. In Formula Central, any sample (target or trial), any formula, or any combination of sample and formula can be used to create a recycle.

A recycle is created with a sample measurement. This allows Formula Central to search through your recycle inventory to find the best recycle to use in a particular matching situation. In addition, you can use recycles as regular colorants along with virgin colorants in matching or correction. Depending on your inventory, a match or correction can be made with all recycle material.

Activate Recycle Option

In order to use the recycle option, you must activate the option in the Admin program. Select the *View System Details* button and then select the *Industry* tab. Place a check in the *Use Recycle* option:



Using Recycles

There are many ways to utilize recycles in Datacolor Match Pigment. The method that you choose will depend on your production process and the method by which you currently handle recycle material. For example, some industries keep recycles in separate containers where each container represents a specific color that was used in a previous production run. They may find a recycle that is close to the intended target color and then use that recycle to start the batch. In other cases, recycle material is blended together to produce a larger volume of material that is sampled and then worked into new production material.

In order to use a recycle material in DMP, you will need either a measured sample or a formula of the recycle material. In most cases, using a measured sample is the most common method. For example, after a production run, you would need to obtain a sample of the recycle material that could be measured by the program. Creating a recycle in Formula Central is very easy. You would measure the recycle sample as a target and then select the option to save as a recycle. The recycle could then be used either as the starting point for a new match or used as a colorant to in a new match process or to adjust an existing batch. The different methods for storing recycles and using them in Formula Central are detailed in the following section.

Saving Recycles in Formula Central

In Formula Central, any sample (target or trial), any formula, or any combination of sample and formula can be used to create a recycle.

Save a Recycle with a Sample Measurement Only

If there is only either a target measurement or trial measurement in Formula Central, there are 2 possible options when saving a recycle:

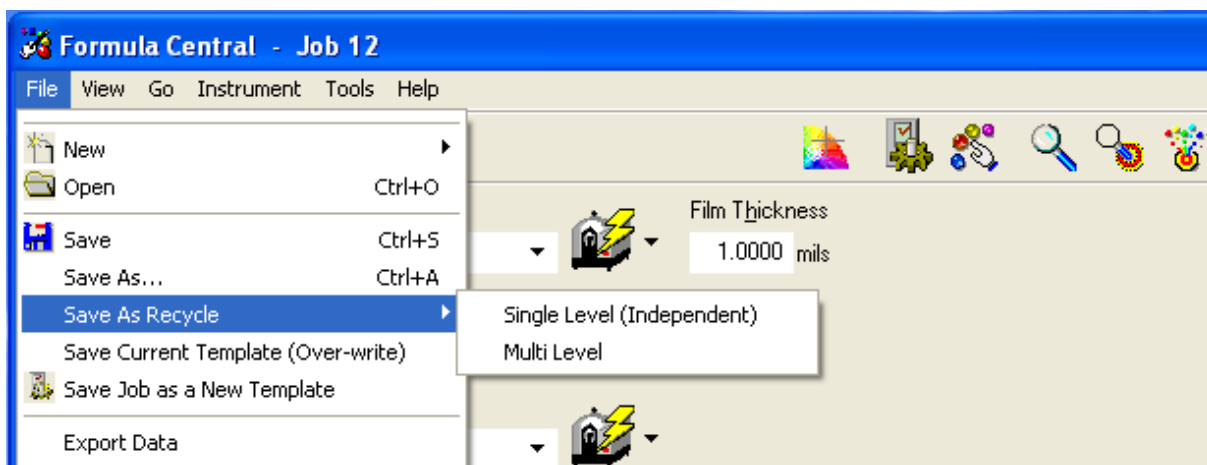
Single Level (Independent) – This will calibrate the recycle using only the sample %R data. This is basically the same as the independent calibration option in Set Maintenance. The K/S or K&S can be derived directly from the recycle sample data. This option is available for transparent and translucent colorant sets. For transparent sets, a single sample can be used to calculate the K/S of the recycle. For translucent sets, a single ROL/ROD sample can be used to calculate the K and S of the recycle. For opaque sets, this option is not available since 2 samples are required for an opaque K and S calculation.

Multi Level Calibration – The Multi-Level method requires a recycle formula and uses the colorants in the formula to create a multi-level recycle colorant. The optical constants of the formula's colorants are used to create the multiple calibration levels of the recycle. Since we only have a sample measurement, this will require the program to run a combo match to find the best formula to use for the recycle. The combo match is based on the current job template and current ingredient selection. Based on this formula, the program will generate 6 calibration levels of the recycle.

Note 1: Since the Multi-Level method in this case runs a combinatorial match to find the best recycle formula, this could take some time depending on the matching parameters set.

Note 2: The Single Level method creates a 100% formula of the recycle. The Multi-Level method creates a formula with the colorant set's ingredients. If the search filter "Current Ingredient Selection" is set on the Search tab of Job Preferences, a Single Level method recycle would not be found in a recycle search unless the recycle was selected as a colorant to use or the filter was unchecked.

The Save As Recycle option is selected from the Formula Central "File" menu:



Save a Recycle with Sample Measurement and Colorant Formula

In this case, you have a recycle sample measurement and also a colorant formula available. You can have a sample measurement and a colorant formula in Formula Central in the following job states:

Formulation Output State

You have performed a match and you have a formula in the Formula Central grid. The formula is the theoretical match to the target. If you save as recycle at this point, the match formula is used as the recycle formula and the target sample is used as the recycle sample. This would be similar to the previous case of saving a recycle with a sample measurement only and would rarely be used.

Correction Input State

You have just measured a trial sample and you have not yet performed a correction. If you save as recycle at this point, the trial formula is used as the recycle formula and the trial sample is used as the recycle sample. If the batch at this point is ready to be used, saving as a recycle here could eliminate re-measuring later. The assumption is that the batch will not be altered in production and this sample will still represent the recycle after the production run.

Correction Output State

You have completed a correction. If you save as recycle at this point, the trial formula is used as the recycle formula and the trial sample is used as the recycle sample. Same logic applies here as in the case above for Correction Input State.

Manual Formula Input

You have entered a formula manually into the Formula Central grid and measured the formula sample as the trial. If you save as recycle at this point, the input formula is used as the recycle formula and the trial sample is used as the recycle sample.

In cases where you have both the target sample and the trial sample available, the trial sample is always used as the recycle sample measurement.

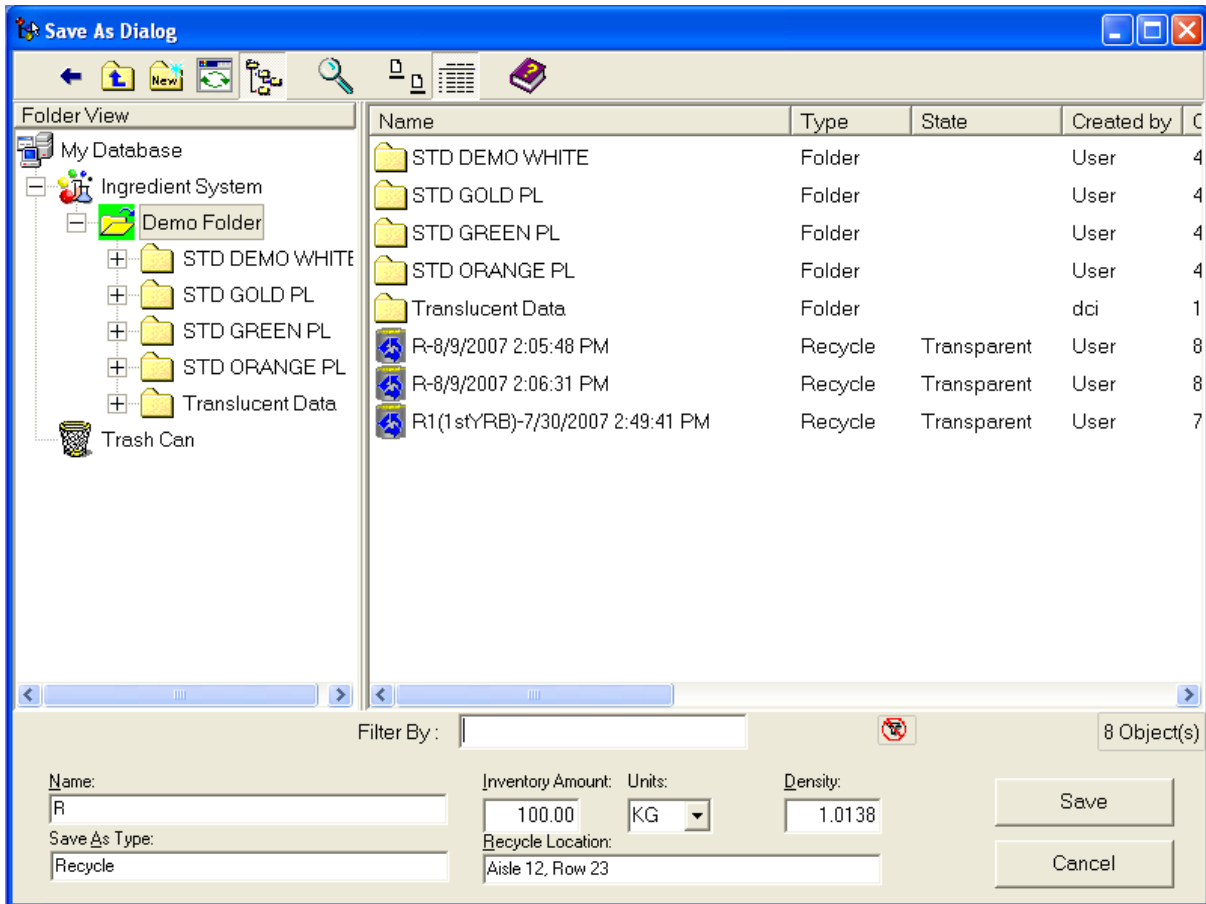
The Single Level recycle option is not available when a colorant formula is available. The Multi Level option is considered to be superior in cases where a valid formula is available.

Save a Recycle with a Colorant Formula Only

With only a colorant formula available, only the Multi Level Calibration can be used. In this case, the formula is used to produce a synthesized (theoretical) %R sample. This sample is saved as the recycle sample's measurement.




Formula Central – Save As Recycle Dialog

When you save a recycle, the Save As Dialog shown below is displayed:



Name

The default name of “R” is in the field. You can name overwrite the default with your own name. The current date-time string is appended to any name you input in this field. This is done to avoid naming conflicts because a recycle creates a formula, a colorant and an ingredient.

-  R-8/9/2007 2:05:48 PM
-  R-8/9/2007 2:06:31 PM
-  R-8/9/2007 2:11:13 PM

Inventory Amount and Unit

This is the amount of recycle material that you have available.

Recycle Location

This is a text string where you can put location information about the recycle.

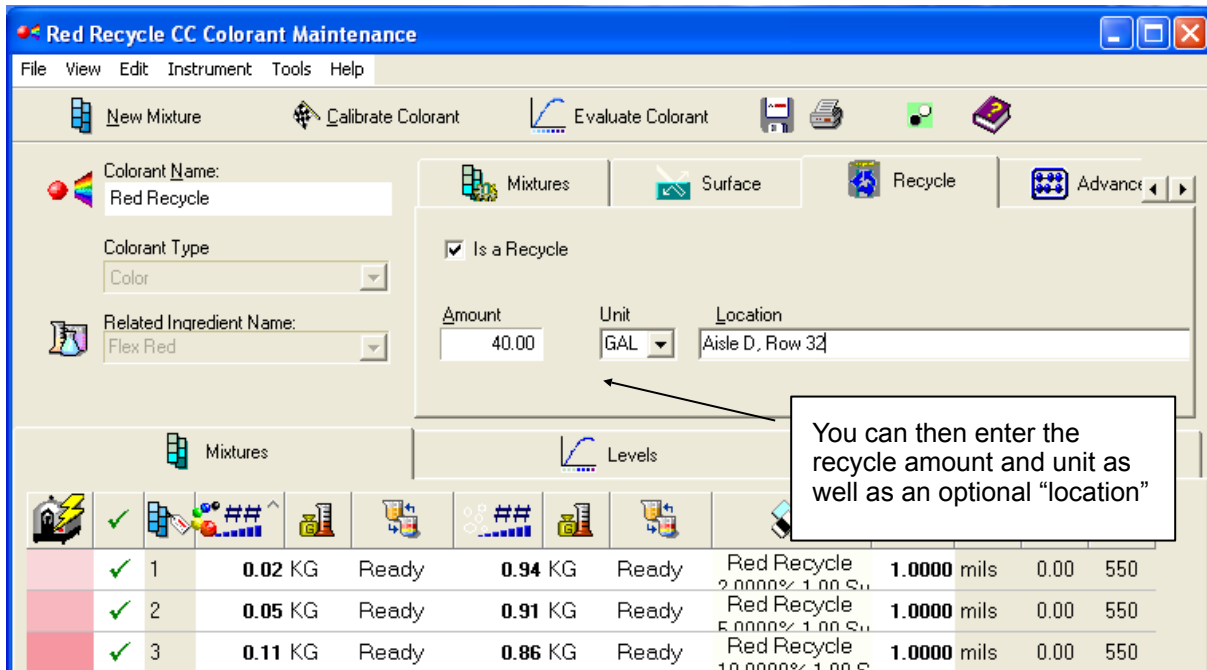
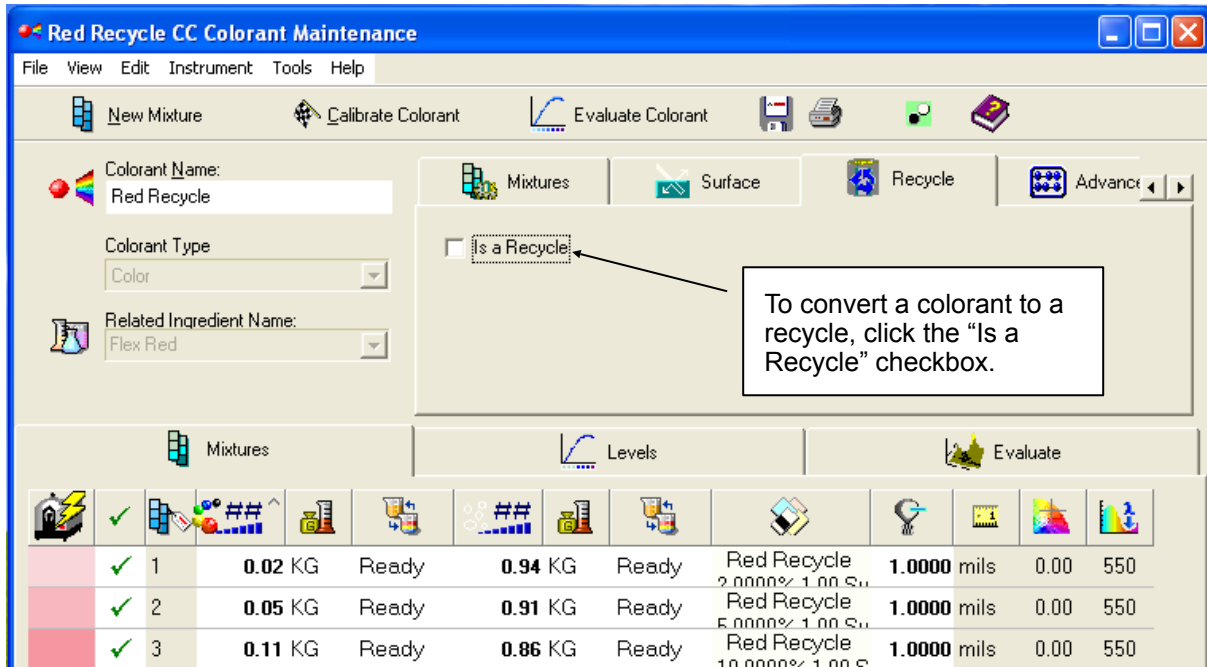
Density

The density displayed is the calculated density of the recycle formula. This can be overwritten with an exact density if required.

Saving Recycles in Set Maintenance

If Recycle Option is activated in Admin, there will be a new tab “Recycle” in Colorant Maintenance. You can calibrate a recycle with any of the normal colorant calibration options

and then make it a DMP recycle. To make a colorant a recycle, select the Recycle tab and place a check next to “Is a Recycle”.



Using Recycles in Formula Central

In the Select Ingredients dialog, you can check the Consider Recycles check box, which will activate the recycles option.

This option allows you to use recycles just like a colorant in a match or correction. When you check this, the recycles will appear in the colorant list. You

Consider Recycle

As Colorants

Search Folder(s)

Demo Folder

Include Sub-Folders

Use Entire Amounts Only

Use One Recycle per Formula

Maximum Recycle

100.0 % Wgt

Ready

This option allows you to find a single recycle to use as a batch in each match formula. The search is colorimetric and will find the closest recycle to the target color. If "As Colorants" is also checked, other recycles can be used as colorants in the same match.

Note: The Search DE limit for the recycle search is set at 25 DE.

Sort Formulas By

None

Contrast DE1

Contrast DE2

Contrast DE3

Contrast DE4

Contrast DE5

Contrast Curve Fit

Hiding Power - Transmission

Recycle

You can force the program to only use a recycle if the entire inventory amount can be used. You can also constrain the match to only use one recycle per

This option sets the maximum amount of recycle that can be used in a formula.

Formulas can be sorted by maximum amount of recycle used.

Example showing recycles "As Colorants":

Select Ingredients

View

Choose Ingredients From

Colorant Set

Transparent

Number of Ingredients (Colorants) in a Formula

Minimum: 1

Maximum: 4

Consider Recycle

As Colorants

Search Folder(s)

Use Entire Amounts Only

Use One Recycle per Formula

Maximum Recycle

100.0 % Wgt

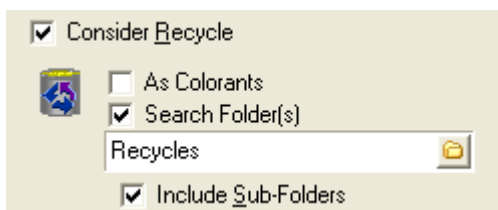
Ready

| Name | Ingredient Keywords | Color | Volume |
|---|---------------------|-------|--------|
| <input checked="" type="checkbox"/> R-YRBL2-12/10/2006 8:25:11 PM | 0 | 100 | Volume |
| <input checked="" type="checkbox"/> R-YRBL1-12/10/2006 8:23:28 PM | 0 | 100 | Volume |
| <input checked="" type="checkbox"/> R-YRB3-12/10/2006 8:21:29 PM | 0 | 100 | Volume |
| <input checked="" type="checkbox"/> R-YRB2-12/10/2006 8:19:40 PM | 0 | 100 | Volume |
| <input checked="" type="checkbox"/> R-YRB1-12/10/2006 8:17:57 PM | 0 | 100 | Volume |
| <input checked="" type="checkbox"/> R-SB1-12/10/2006 8:28:10 PM | 0 | 100 | Volume |
| <input checked="" type="checkbox"/> R-G1-12/10/2006 8:26:47 PM | 0 | 100 | Volume |
| <input checked="" type="checkbox"/> R-1SYRB-12/7/2006 4:05:07 PM | 0 | 100 | Volume |
| <input checked="" type="checkbox"/> Flex Yellow | 0 | 100 | Volume |
| <input checked="" type="checkbox"/> Flex Violet | 0 | 100 | Volume |
| <input checked="" type="checkbox"/> Flex Red | 0 | 100 | Volume |
| <input checked="" type="checkbox"/> Flex Green | 0 | 100 | Volume |
| <input checked="" type="checkbox"/> Flex Clear | 0 | 100 | Volume |
| <input checked="" type="checkbox"/> Flex Blue | 0 | 100 | Volume |
| <input checked="" type="checkbox"/> Flex Black | 0 | 100 | Volume |

Apply Keyword Query Help Cancel OK

Search for a Recycle

This option is used to search the existing recycle inventory and find the closest recycle to use in the match. In the Ingredient Selection screen, check the Search Folders option:



Measure the target color that you want to match and then click the Combinatorial Match button or the AutoFormulate button. If a recycle formula is found, you will get one or more formulas with the same recycle and new ingredients. If no recycle is found, you will get the following message:



Clicking the OK button will continue to a combinatorial match without a single recycle to use as a batch in each match.

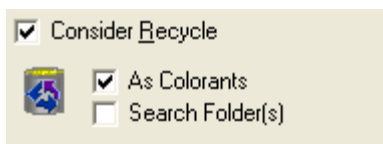
Note: The Search DE limit for the recycle search is set at 25 DE.

Recycles as Colorants

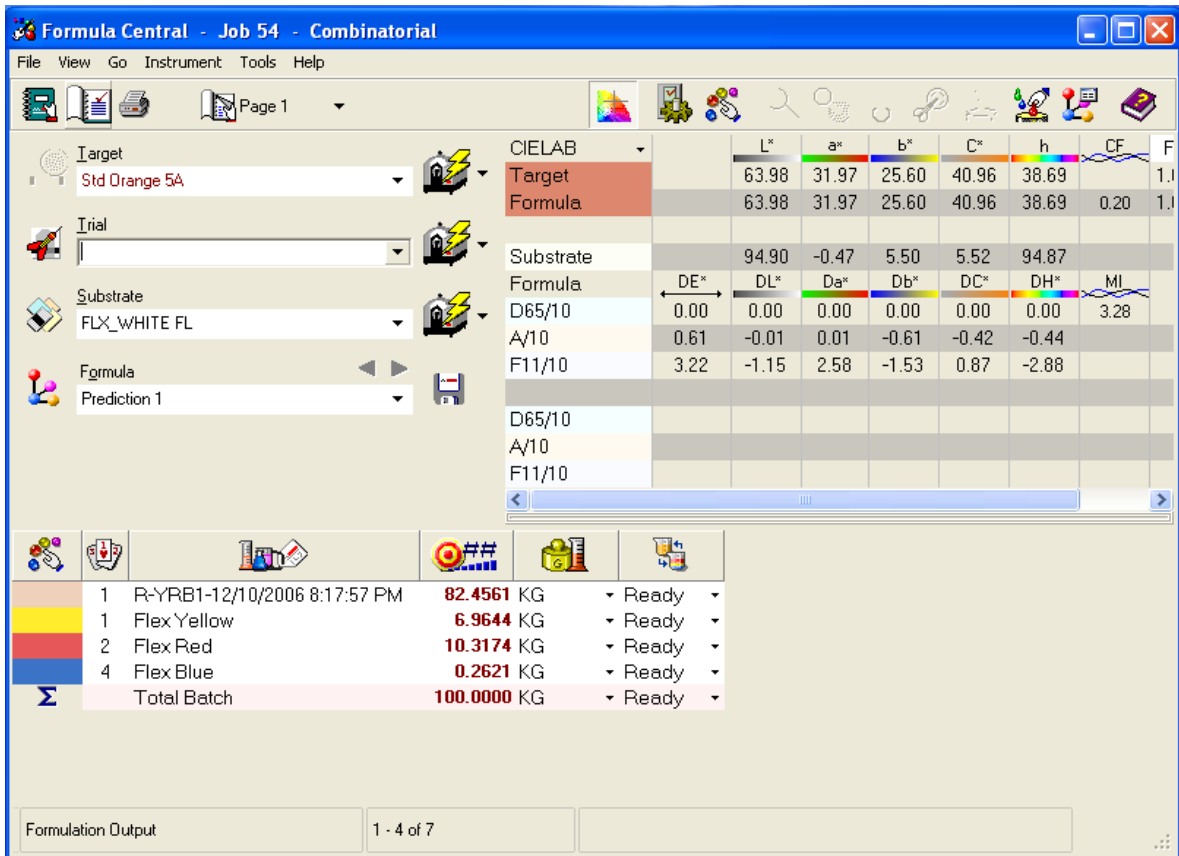
When you select this option, the recycles are added to the colorant list and they can be selected just like a regular colorant. This option can be run in conjunction with a recycle search with the settings shown below:



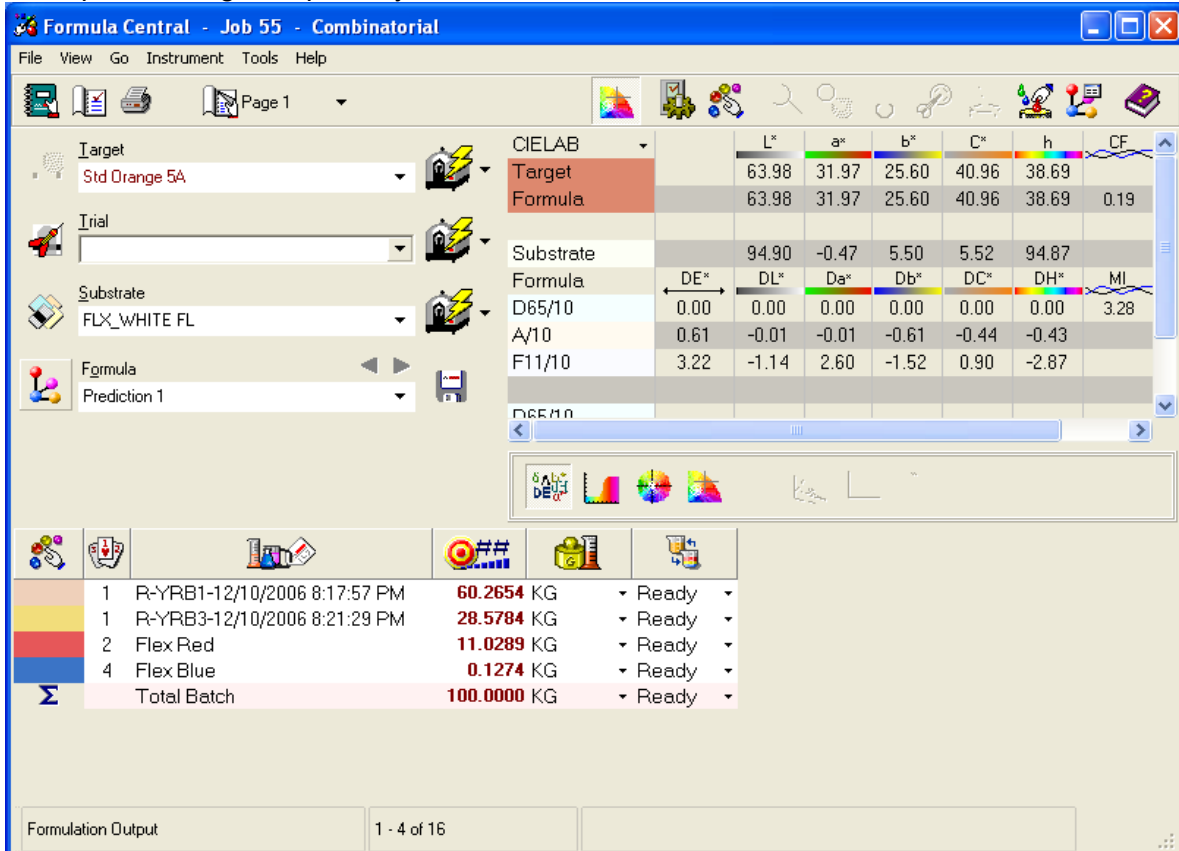
To only use recycles as colorants and not do a recycle search, use the settings shown below:



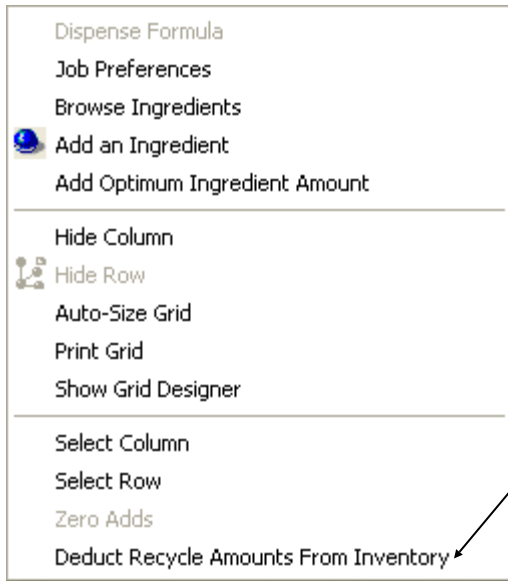
Example showing a single recycle used:



Example showing multiple recycles used:



Deduct Inventory Option



To deduct the recycle inventory, right-click on the formula grid and select the option.

Recycle Report

From the Formula Central “Tools” menu, select the option “Report”. From the list of reports, select the report “RecycleList.Rpt”.

Recycle List

1:49:16PM

6/18/2007



| <u>Name</u> | <u>Inventory Amount</u> | <u>Location</u> |
|-------------------------|-------------------------|------------------|
| R1-6/6/2007 11:37:54 AM | 250.000 KG | Aisle 12 Row 2 |
| R2-6/6/2007 11:40:29 AM | 100.000 KG | Aisle 3 Row 4 |
| R3-6/6/2007 11:42:30 AM | 50.000 KG | Aisle 3 Row 6 |
| R4-6/6/2007 12:14:06 PM | 25.000 GAL | Aisle 4 Row 3 |
| R5-6/18/2007 1:42:36 PM | 50.000 LB | Inkroom - Row 2 |
| R6-6/18/2007 1:43:24 PM | 10.000 GAL | Inkroom - Row 12 |

The report will show the recycle name, inventory amount and location.

Recycle Technical Overview

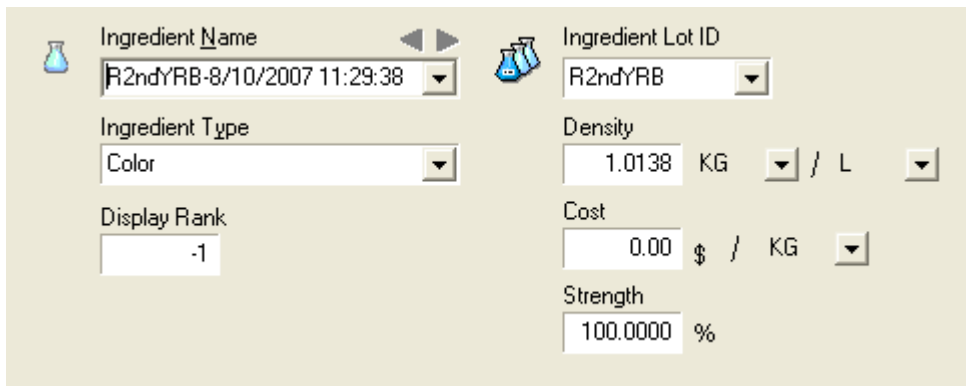
The following section will explain how recycles are stored in the database and describe the dependencies with other DMP objects.

Recycles are treated as a unique data type in DMP. Recycles are stored in folders and have their own icon as shown below:

| | | | |
|---|-------------------------------|---------|-------------|
|  | R2ndYRB-8/10/2007 11:29:36 AM | Recycle | Transparent |
|  | R1stYRB-8/10/2007 11:29:04 AM | Recycle | Transparent |

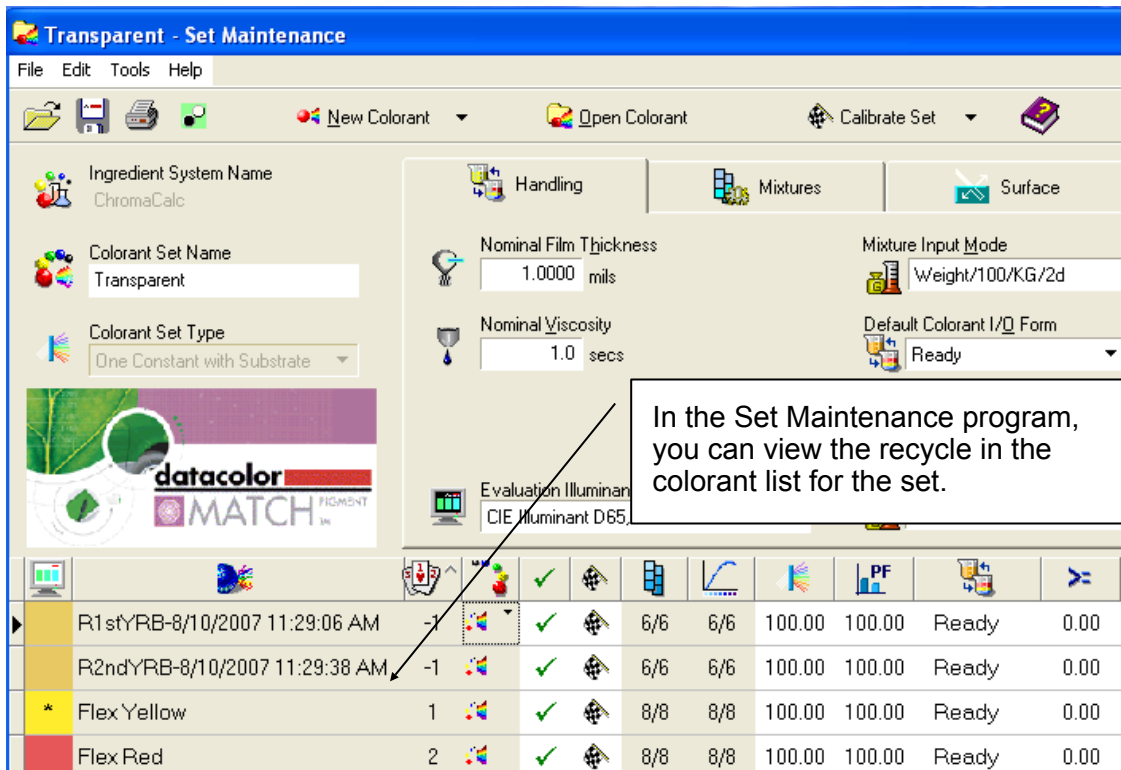
When a recycle is created, the program creates a formula record and also creates a colorant with an associated ingredient.

Here we are showing the recycle's ingredient record in the Ingredient Maintenance program:



| | | | |
|-----------------|----------------------------|-------------------|---------------|
| Ingredient Name | R2ndYRB-8/10/2007 11:29:38 | Ingredient Lot ID | R2ndYRB |
| Ingredient Type | Color | Density | 1.0138 KG / L |
| Display Rank | -1 | Cost | 0.00 \$ / KG |
| | | Strength | 100.0000 % |

Here we see the recycle's colorant record in the Set Maintenance program:



Transparent - Set Maintenance

File Edit Tools Help

New Colorant Open Colorant Calibrate Set

Ingredient System Name: ChromaCalc

Colorant Set Name: Transparent

Colorant Set Type: One Constant with Substrate

Handling: Nominal Film Thickness: 1.0000 mils, Nominal Viscosity: 1.0 secs

Mixtures: Mixture Input Mode: Weight/100/KG/2d

Surface: Default Colorant I/Q Form: Ready

Evaluation Illuminant: CIE Illuminant D65

| | | | | | | | | | | |
|---|-------------------------------|----|---|---|-----|-----|--------|--------|-------|------|
| | R1stYRB-8/10/2007 11:29:06 AM | -1 | ✓ | ⚙ | 6/6 | 6/6 | 100.00 | 100.00 | Ready | 0.00 |
| | R2ndYRB-8/10/2007 11:29:38 AM | -1 | ✓ | ⚙ | 6/6 | 6/6 | 100.00 | 100.00 | Ready | 0.00 |
| * | Flex Yellow | 1 | ✓ | ⚙ | 8/8 | 8/8 | 100.00 | 100.00 | Ready | 0.00 |
| | Flex Red | 2 | ✓ | ⚙ | 8/8 | 8/8 | 100.00 | 100.00 | Ready | 0.00 |

In the Set Maintenance program, you can view the recycle in the colorant list for the set.

If you open the recycle in Set Maintenance, you will see the mixture levels:

R2ndYRB-8/10/2007 11:29:38 AM CC Colorant Maintenance

File View Edit Instrument Tools Help

New Mixture Calibrate Colorant Evaluate Colorant

Colorant Name: R2ndYRB-8/10/2007 11:29:38 AM

Colorant Type: Color

Related Ingredient Name: R2ndYRB-8/10/2007 11:29:38

Is a Recycle:

Amount: 200.00 Unit: KG Location: Row 2

Mixtures Levels

| ✓ | 1 | 0.05 KG | 5.0000 | Ready | 0.95 KG | | | | | | | | |
|---|---|---------|----------|-------|---------|---------|-------|-------------------------------|--------|------|------|--|--|
| ✓ | 2 | 0.11 KG | 10.0000 | Ready | 0.89 KG | | | | | | | | |
| ✓ | 3 | 0.26 KG | 25.0000 | Ready | 0.74 KG | 75.0000 | Ready | R2ndYRB-8/10/2007 11:29:38 AM | 1.0000 | mils | | | |
| ✓ | 4 | 0.51 KG | 50.0000 | Ready | 0.49 KG | 50.0000 | Ready | R2ndYRB-8/10/2007 11:29:38 AM | 1.0000 | mils | | | |
| ✓ | 5 | 0.76 KG | 75.0000 | Ready | 0.24 KG | 25.0000 | Ready | R2ndYRB-8/10/2007 11:29:38 AM | 1.0000 | mils | | | |
| ✓ | 6 | 1.00 KG | 100.0000 | Ready | 0.00 KG | 0.0000 | Ready | R2ndYRB-8/10/2007 11:29:38 AM | 1.0000 | mils | 0.00 | | |

Mixtures: 6, Enabled: 6 Levels: 6, Enabled: 6 User Created: 8/10/2007 11:29:38 AM User Edited: 8/10/2007 11:29:38 AM

This recycle was saved with the "Multi-Level" option. There are 6 mixtures and 6 levels stored. The inventory amount and location can be updated here.

Deleting Recycles

Recycles can be deleted in the Data Navigator or in the Set Maintenance program. There may be dependencies with jobs and you may get a message that the recycle is used in a number of jobs. You would need to delete the jobs in order to delete the recycle.

DELDEP-1.TXT - WordPad

File Edit View Insert Format Help

The Following Item(s) could not be deleted because dependencies exist in other Objects

R2ndYRB-8/10/2007 11:29:36 AM has the following dependencies:

Used in the following Jobs:

- Job 3
- Job 8
- Job 18
- Job 20

Recycle Formulas and Color Library Formulas

We have said that when we create a recycle, we create a formula record. In DMP, we already have a formula type that we call a color library type formula. Color library formulas are usually verified formulas that are stored to be either a standard production formula or to be used in the Search&Correct option. In these cases, it is important that the formula is actually made up with the actual ingredients and that the sample that is stored with the formula is actually the sample that produced it.

For recycles, the formulas are usually not verified formulas in the sense they are theoretical matches and they usually contain numerous ingredients. Recycle formulas are usually transient while color library formulas are usually kept for long periods of time.

Recycle formulas should be saved in a different folder than color library formulas. This will allow both the traditional Search and Search&Correct options to be used with more options. For example, the folder for color library formulas could be called "Color Library" and then that folder could be used as the root folder for Search and Search&Correct:

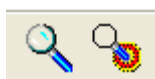


From the Search tab of Job Preferences Screen

The folder for recycles could be called "Recycles" and then that folder could be used as the root folder for Recycle Search:

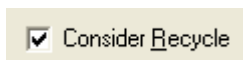


From the Ingredient Selection Screen

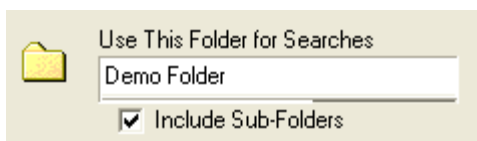


Include Recycle Formulas in Search and Search&Correct

The existing Search and Search&Correct option will use recycle formulas if the "Consider Recycle" flag is set in the Ingredient Selection screen and the "Use This Folder for Searches" folder is set to include the location of the recycle formulas.



You should have the main recycle option flag checked in the Ingredient Selection screen.



Make sure that this folder includes the location of the recycle formulas.

Legacy Combinatorial Correction

Introduction

A “Combinatorial Correction” is one for which the system tries every unique combination of colorants possible to correct a trial formula. The method is exactly analogous to a combinatorial formulation. In a sense, every correction is a combinatorial, although the typical correction is the trivial case with only one possible combination of ingredients. For the “typical” correction, the maximum number of colorants allowed in the formula is the same as the number of ingredients already present in the formula.

If the maximum number of ingredients allowed in a formula is more than the number of ingredients in a trial formula, then the number of possible combinations for correction is more than one. This is exactly the rule that Formula Central uses for automatic corrections. No special menu option or button is needed to specify a combinatorial correction.

To automatically calculate multiple correction predictions using different combinations of ingredients, simply increase the maximum number of ingredients allowed in a formula and select the ingredients to be considered. For example, if the trial formula contains three ingredients, increasing the maximum number of ingredients to 4 and selecting two additional ingredients for consideration will cause Formula Central to analyze 31 combinations of ingredients to correct the trial.

Of course, this assumes that the user KNOWS how many ingredients are in the trial formula. If that is not the case, the outcome is less predictable.

Datacolor Match Pigment Method

In DMP, the combinatorial correction works as follows for the different correction scenarios:

Ingredients and Amounts Are Known in the Trial Formula

By default, Formula Central sets the minimum and maximum number of ingredients to the same number that the trial formula contains. By changing the maximum number of ingredients, the user has complete control over the number of combinations the system will try in its attempt to correct the batch. Users may use either or both types of performance data (spectral or concentration).

Ingredients Are Known But Not the Amounts in the Trial Formula

Users may not use performance factors for ingredients with unknown amounts and spectral adjustments are not available. Formula Central still sets the min and max number of ingredients to equal the trial formula by default; the user still has complete control over the number of combinations the system will try for correction by changing the maximum number of ingredients. To “fill in” the missing amounts, Formula Central will internally run a formulation to the trial sample to determine the most likely ingredient amounts.

Ingredients and Amounts Are Not Known in the Trial Formula

In this case, the user provides only a minimum and maximum number of ingredients and selects potential ingredients for the batch and the correction.

Now the system has to “fill in” the ingredients as well as their amounts. Formula Central will internally run a formulation trying all possible combinations of selected ingredients to determine the single “most likely” set of ingredients and their amounts for the trial formula (a match-to-batch).

Since the user does not know before hand, how many ingredients the system will find in this “most likely” formula, the user has limited control over the number of combinations the system will try in its attempt to correct the batch. Of course, neither type of performance data is available.

If the most-likely trial formula (Match-to-batch) contained three ingredients and the user’s maximum was 4, then Formula Central will try multiple ingredient combinations attempting to correct the trial and will show more than one predicted correction. If, however, the match-to-batch formula contained four ingredients, then only one correction combination is possible and Formula Central will show a single prediction for the correction.

Summary

The DMP method differs from that used in previous packages in two ways:

1. The single “best” formula for the trial is used consistently for all combinations.

The best formula is determined by the following MTB goal:

50% DE1
50% Curve Fit

The combo formulas are then sorted by curve-fit and the least number of colorants in the combo.

2. The “Match-To-Batch” ingredients need not be the same as those in a “Match-To-Standard”.

ChromaCalc DOS and Datamatch PPI Method

ChromaCalc DOS and PPI did not select a single “most likely” formula for the trial; they created a different trial formula (match-to-batch) for every combination. That means that if there were 31 combinations to try for correcting a batch, ChromaCalc and PPI would use 31 different formulas for the same trial.

Those packages were restricted to trying ONLY colorant combinations that would simultaneously match the target and the trial samples. In Formula Central, the batch ingredients are independent of the match-to-standard. ChromaCalc DOS combinatorial correction logic was implemented in Formulation – Measured – Must Use Waste.

Setting Legacy Combinatorial Correction Method in DMP

To run the ChromaCalc DOS and Datamatch PPI method, check the option “Legacy Combinatorial Correction” on the Advanced tab of Job Preferences in Formula Central.

Legacy Combinatorial Correction

This method will only work for the correction case where the trial formula and amounts are not known.

1. Measure a target sample.
2. Measure a trial sample.
3. Min/Max Colorants Set to 1 and 4.
4. Click on the Auto Add button.

In the spreadsheet, you will see different adds based on a different match to batch formula for each combination:

| | | | | | | |
|--------------------|---------------|--------|--------|--------|--------|--------|
| Flex Yellow | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Flex Red | 1.2291 | 1.1355 | 1.3794 | 0.8964 | 1.0363 | 0.8565 |
| Flex Blue | 0.3300 | | | | | |
| Flex Clear | 1.6356 | 2.3116 | 1.6128 | 1.1642 | | |
| Flex Black | | 0.2561 | | | | |
| Flex Green | | | 0.6153 | | 0.1958 | |
| Flex Violet | | | | 0.6241 | 0.7301 | 0.8993 |

The first add was based on the match to batch and match to standard using Flex Yellow, Flex Red, Flex Blue and Flex Clear. The second add is based on the match to batch and match to standard using Flex Yellow, Flex Red, Flex Black and Flex Clear. The third add is based on the match to batch and match to standard using Flex Yellow, Flex Red, Flex Green and Flex Clear.

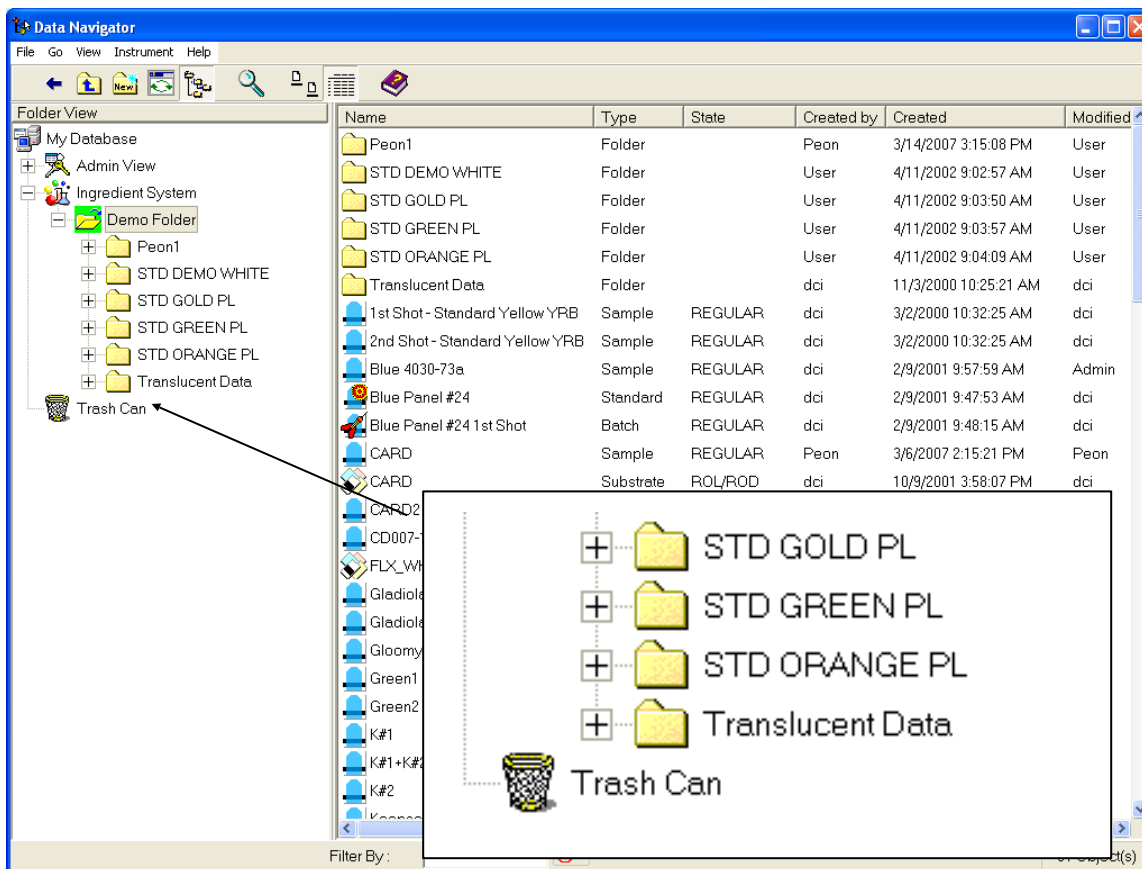
Running this same example with the DMP method, would result in a single formula:

|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
|  | 1 | Flex Yellow | 44.1378 | 44.1378 | 0.0000 | KG |
|  | 2 | Flex Red | 4.2886 | 5.4239 | 1.1353 | KG |
|  | 6 | Flex Black | 0.8192 | 1.0752 | 0.2561 | KG |
|  | 7 | Flex Clear | 50.7545 | 53.0692 | 2.3147 | KG |
|  | | Total Batch | 100.0000 | 103.7061 | 3.7061 | KG |

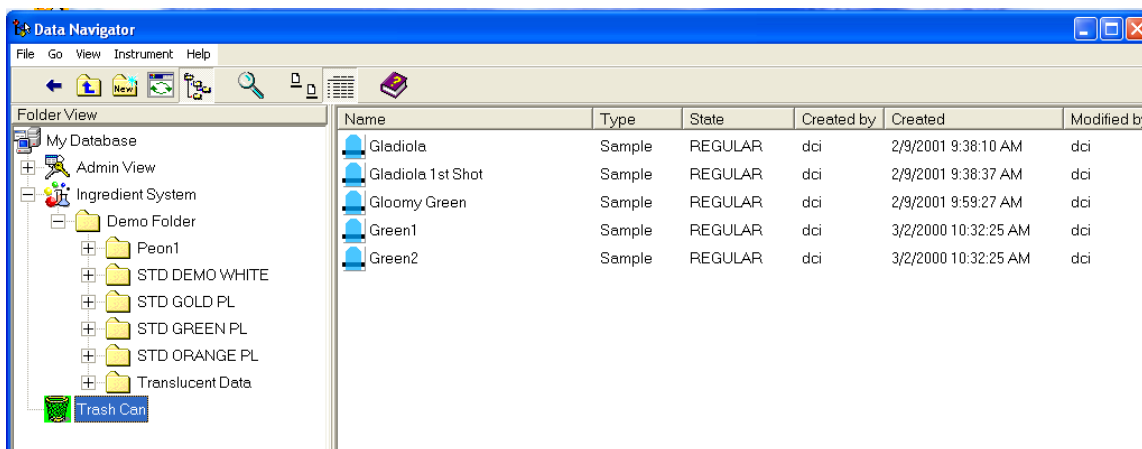
This formula was considered the best match to the batch and since it was a 4 colorant formula and the Min/Max Colorants was set to 1 and 4, only one add formula is displayed. If the Min/Max Colorants was set to 1 and 7, you would then see more add formulas using the extra combinations.

Trash Can Option

In DMP V1.2 any objects that are deleted can be placed in the Trash Can folder. This is similar to the Recycle folder in Windows. Any item in the Trash Can folder can be restored to its previous location. Only DMP administrators can empty or restore data in the Trash Can.



The example below shows 5 samples that were deleted and are now in the Trash Can folder:



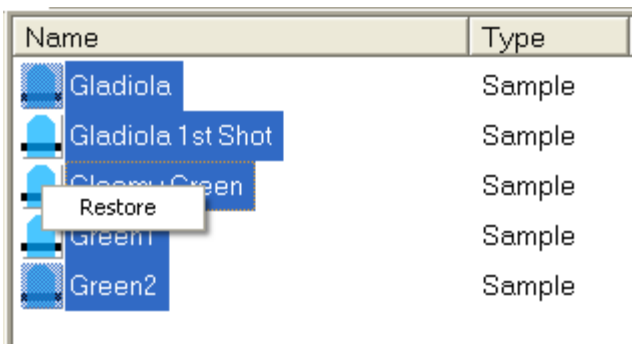
To permanently delete the data in the Trash Can folder, select the right-click menu on the Trash Can icon and select "Empty Trash".



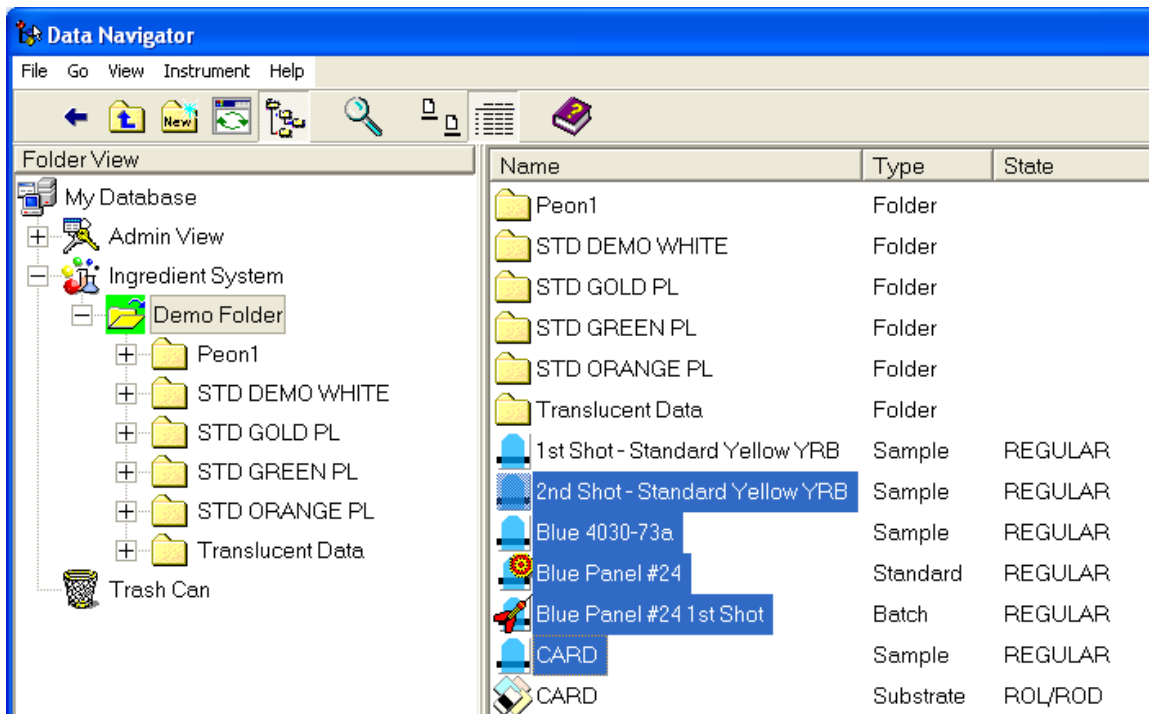
To restore a single object, select the object and from the right-click menu select "Restore".



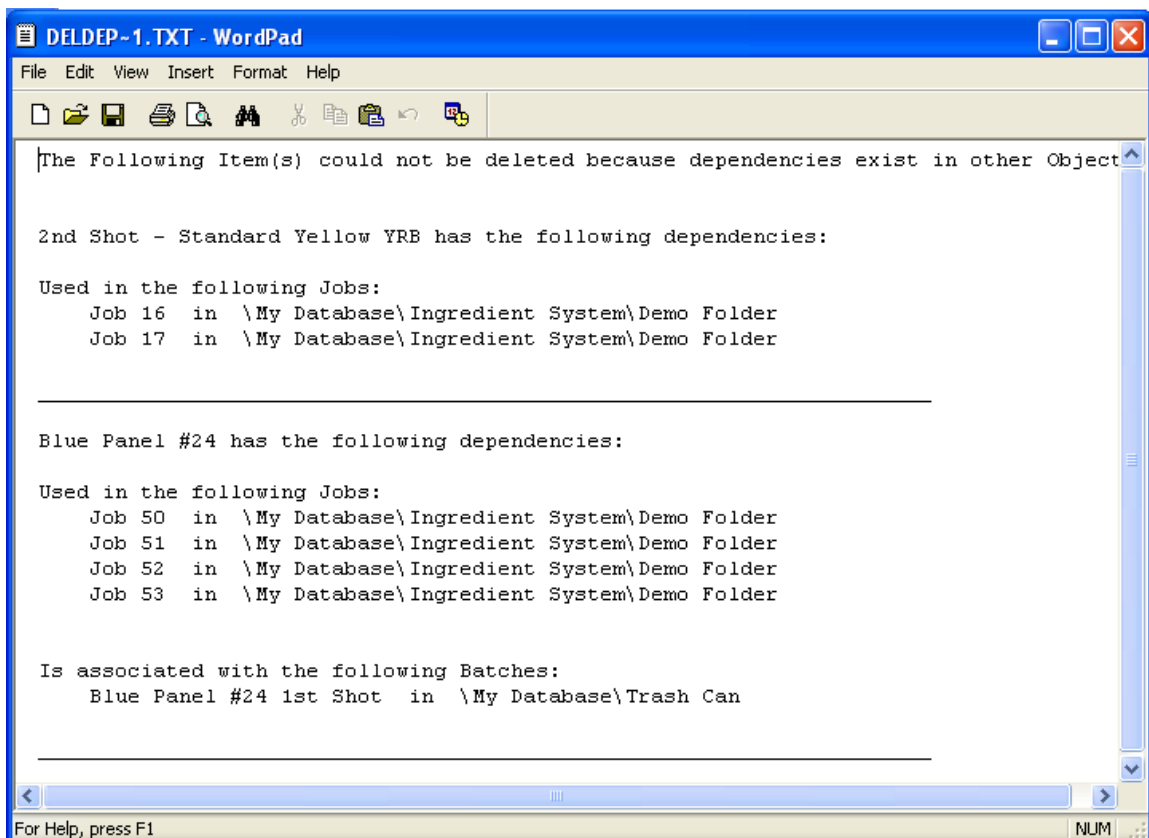
To restore a multiple objects, select the objects and from the right-click menu select "Restore".



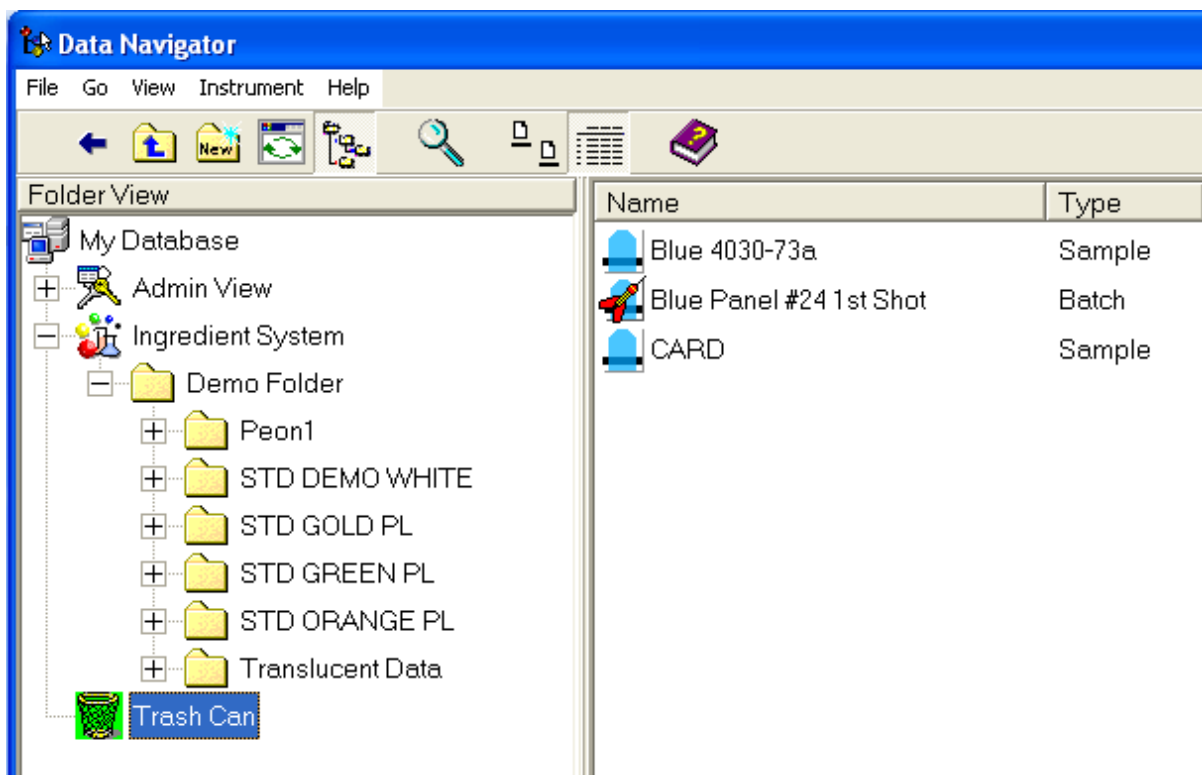
If you delete multiple objects, you will get a dependency message on any objects that could not be deleted. In this example, I want to delete the 5 highlighted objects:



2 objects could not be deleted and are shown in the dependency report:



The other 3 objects that could be deleted are now in the Trash Can folder:



Disabling Trash Can Option

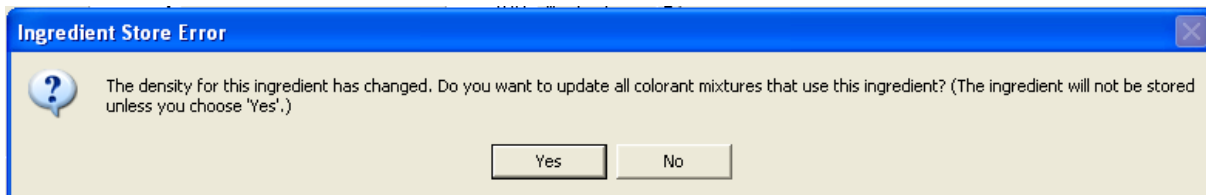
Trash Can option can be disabled for all users (including Admin) by a setting in the CC_Global.ini file. In a [DataNavigator] section add the line "UseTrashFolder= 0". With this setting, all data will be permanently deleted and will not go into the Trash Can.

Ingredient Maintenance – Edit Density

In previous versions of Datacolor Match Pigment, it was difficult to edit the density of an ingredient that had already been used to store mixture data for a colorant. Since all formulas are stored internally in volume, if you wanted to change the density of an ingredient, you would need to re-enter the mixture formulas after the density change. This problem usually occurred because someone forgot to enter valid densities or they made a mistake in the entry. For situations where the density of a material actually changes, we have the option to add an ingredient lot or ingredient history record. To make it easier to change the density of an existing ingredient that is used in a colorant, we have added a new option.

The new option will allow a density change and will automatically update all mixture formulas with the new data. This will essentially calculate new volume concentrations for the affected mixture formulas. However, any colorants associated with this ingredient will be uncalibrated and will need to be recalibrated.

When you attempt to edit an ingredient density in the Ingredient Maintenance program, you will receive the following message:



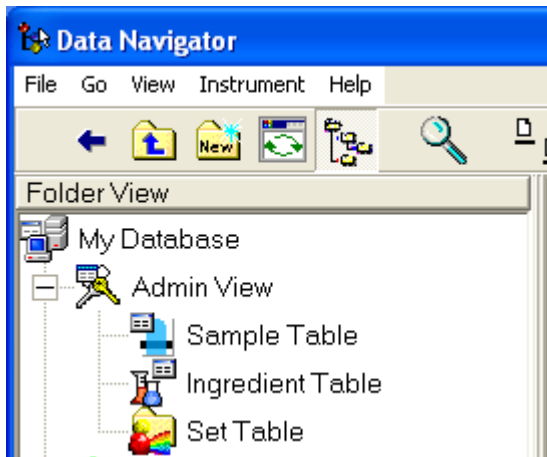
If you answer “Yes”, the program will update all colorant mixtures that use this ingredient. If you answer “No”, the density will not be changed. You can only edit the density, if you allow the update of the mixture data.

Note: Any colorant mixtures that have been updated will uncalibrate the affected colorant. You will have to go to Set Maintenance and recalibrate the affected colorant sets.

Data Navigator – Admin Views

A DMP administrator can now view data in specific database tables directly through an admin view. The data is presented in a table and it is possible to drill down through the related database tables. There are currently 3 different views:

- Sample Table
- Ingredient Table
- Set Table



Sample Table

The Sample Table view allows you to view all samples in the database table "Sample". This will include not only samples that are visible in folders but also all hidden samples used by colorants, jobs, formulas, etc. The following data is displayed: Name, Modification User, Modification Date, Creation User, Creation Date, Type, Role, and Location. For an individual sample you can select the measurement data from the "Measurement" table. For an individual measurement, you can select the spectral data from the "Spectrum" table. You can edit the sample "Name" as well as the spectral data.

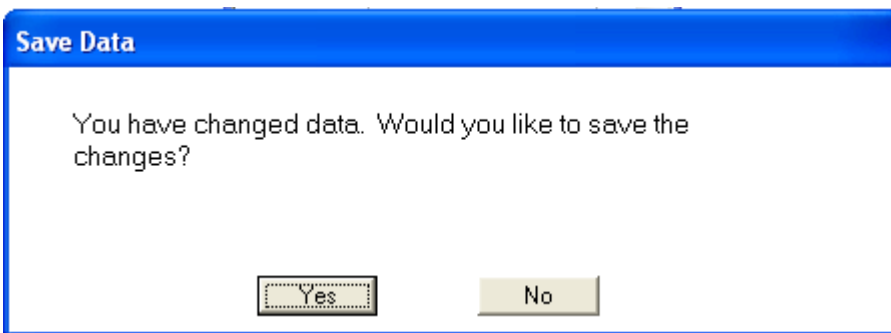
| Sample Table | | | | | | | |
|-------------------|-------------------|-----------------------|---------------|----------------------|---------|--------|--|
| Name | Modification User | Modification Date | Creation User | Creation Date | Type | Role | Location |
| Keepsake | dci | 2/9/2001 9:36:18 AM | dci | 3/3/2002 11:23:49 AM | REGULAR | Sample | \\My Database\Ingredient System\Demo Folder |
| Keepsake 1st Corr | dci | 2/9/2001 9:37:14 AM | dci | 3/3/2002 11:23:49 AM | REGULAR | Sample | \\My Database\Ingredient System\Demo Folder |
| Keepsake 1st Shot | dci | 2/9/2001 9:36:47 AM | dci | 3/3/2002 11:23:49 AM | REGULAR | Sample | \\My Database\Ingredient System\Demo Folder |
| KN1M-70 | dci | 6/7/2001 1:21:05 PM | dci | 3/3/2002 11:23:49 AM | ROL/ROD | Sample | \\My Database\Ingredient System\Demo Folder |
| KN1M-70/D | dci | 10/4/2000 12:44:04 PM | dci | 3/3/2002 11:23:49 AM | REGULAR | Sample | \\My Database\Ingredient System\Demo Folder\Translucent Data |
| KN1M-70/L | dci | 10/4/2000 12:44:04 PM | dci | 3/3/2002 11:23:49 AM | REGULAR | Sample | \\My Database\Ingredient System\Demo Folder\Translucent Data |
| KN1M-80 | dci | 6/7/2001 1:23:24 PM | dci | 3/3/2002 11:23:49 AM | ROL/ROD | Sample | \\My Database\Ingredient System\Demo Folder |
| KN1M-80/D | dci | 10/4/2000 12:44:04 PM | dci | 3/3/2002 11:23:49 AM | REGULAR | Sample | \\My Database\Ingredient System\Demo Folder\Translucent Data |
| KN1M-80/L | dci | 10/4/2000 12:44:05 PM | dci | 3/3/2002 11:23:49 AM | REGULAR | Sample | \\My Database\Ingredient System\Demo Folder\Translucent Data |

Double-click on a displayed sample and you will display data from the Measurement table as well as Instrument table. Double-click on a measurement and you will display the spectral data (R or T) in decimal format.

Spectral data display:

| Wavelength | Value |
|------------|--------------------|
| 360 | 0.0700354278087616 |
| 370 | 0.0802918970584869 |
| 380 | 0.0993955582380295 |
| 390 | 0.135438069701195 |
| 400 | 0.174036085605621 |
| 410 | 0.189977839589119 |
| 420 | 0.185491696000099 |
| 430 | 0.18042203783989 |
| 440 | 0.176819577813148 |
| 450 | 0.174802020192146 |

You can edit the spectral data for any wavelength displayed. If you edit the data, a warning message will be displayed:



Ingredient Table

The Ingredient Table view allows you to view all of the ingredients in the database table "IngredientProfile". The following data is displayed: Ingredient Name, Type, Modification User, Modification Date, Creation User, Creation Date, and Display Order.

| Ingredient Name | Ingredient Type | Creation Date | Creation User | Modification Date | Modification User | Display Order |
|-----------------|-----------------|---------------|-----------------------|-------------------|-----------------------|---------------|
| Additive A | 6 | dci | 3/22/2001 4:59:35 PM | dci | 11/23/1999 3:50:00 PM | 40 |
| Additive B | 6 | dci | 3/22/2001 4:59:35 PM | dci | 11/23/1999 3:50:00 PM | 41 |
| BLACK P25 | 1 | dci | 3/3/2002 11:39:42 AM | dci | 10/9/2001 3:58:10 PM | 6 |
| BLUE ST8298 | 1 | dci | 10/17/2001 3:27:53 PM | dci | 10/9/2001 3:58:17 PM | 5 |
| CLEAR P100 | 2 | dci | 3/3/2002 11:41:21 AM | dci | 10/9/2001 3:58:08 PM | 8 |
| Flex Black | 1 | dci | 3/22/2001 4:59:35 PM | dci | 9/10/1999 1:37:00 PM | 6 |
| Flex Black Conc | 1 | dci | 3/22/2001 4:59:35 PM | dci | 11/23/1999 3:50:00 PM | 6 |

For an individual ingredient, you can right-click on the ingredient record and display the options:

| | | | |
|-----------------|---|-----|----------------------|
| CLEAR P100 | 2 | dci | 3/3/2002 11:41:21 AM |
| Flex Black | 1 | dci | 3/22/2001 4:59:35 PM |
| Flex Black Conc | | dci | 3/22/2001 4:59:35 PM |
| Flex Black Dry | | dci | 3/22/2001 4:59:35 PM |

Show Lots

Show Components

Related Colorants

Show Lots – Displays the related lots or histories of the ingredient. You can edit the strength and cost.

| Lot History Table (Flex Black Conc) | | | | | | | | | |
|-------------------------------------|----------|------------------|------------------|-----------|----------|-----------------------|-------------------|-----------------------|---------------|
| Lot ID | Strength | Density | Cost | Cost Unit | Date To | Date From | Modification User | Modification Date | Creation User |
| RTM FBkF01 | 100 | 1.90180003643036 | 6.78900003433228 | liters | 1/1/7911 | 11/23/1999 2:25:00 PM | dci | 6/16/2000 10:42:19 AM | dci |

Show Components – Displays the components or sub-ingredients.

| Component Table (Flex Black Conc) | | |
|-----------------------------------|--------|----------|
| Component Name | Amount | Unit |
| Flex Black Dry | 20 | kilogram |
| Resin B | 40 | kilogram |
| Solvent B | 40 | kilogram |

Show Related Colorants – Shows a list of the colorants and sets that are associated with the ingredient.

| Related Colorants (RED XP441) | |
|-------------------------------|--------------|
| Colorant Name | Colorant Set |
| RED XP441 | Translucent |

Set Table

The Set Table view allows you to view all of the colorant sets in the database. For an individual set, you can view all of the colorants for that set.

| Set Table | | | | | | | | | |
|-------------------|-----------|-------------------|------------|------------------|-----------------------------|---------------|-------------|--|--|
| Colorant Set Name | Load Form | Input/Output Form | Nominal FT | Mixture Mode | Optical Model | Product Gloss | Gloss Angle | Instrument Geometry | |
| Opaque | Ready | Ready | 1 | Weight/100/KG/2d | Two Constant Relative | 0 | 60 | SCI Diffuse Specular Included (d/8 or d/0) | |
| Translucent | Ready | Ready | 1 | Weight/100/G/4d | Two Constant Absolute | 0 | 60 | SCI Diffuse Specular Included (d/8 or d/0) | |
| Transparent | Ready | Ready | 1 | Weight/100/KG/2d | One Constant with Substrate | 0 | 60 | SCI Diffuse Specular Included (d/8 or d/0) | |

Double-click on an individual set, to view all of the colorants for that set:

| Colorants (Translucent) | | | | | | | | | | | | |
|-------------------------|--------------|-------------------|--------------|--------------|-------------|-------------|-------------|----------------|-------------------|-------------------|-------------------|-----------|
| Colorant Name | Type | Input/Output Form | Min/Max Form | Min/Max Mode | Min Percent | Max Percent | Performance | Optical Weight | Calibration White | Calibration Black | Calibration Resin | Substrate |
| BLACK | Black | Ready | Ready | % Weight | 0 | 100 | 1 | 1 | WHITE | | CLEAR | CARD |
| BLUE ST8298 | Color | Ready | Ready | % Weight | 0 | 100 | 1 | 1 | WHITE | BLACK | CLEAR | CARD |
| CLEAR | Resin | Ready | Ready | % Weight | 0 | 100 | 1 | 1 | | | | CARD |
| GREEN P509 | Color | Ready | Ready | % Weight | 0 | 100 | 1 | 1 | WHITE | BLACK | CLEAR | CARD |
| MAGENTA P41 | Color | Ready | Ready | % Weight | 0 | 100 | 1 | 1 | WHITE | BLACK | CLEAR | CARD |
| RED P481 | Color | Ready | Ready | % Weight | 0 | 100 | 1 | 1 | WHITE | BLACK | CLEAR | CARD |
| RED XP441 | Color | Ready | Ready | % Weight | 0 | 100 | 1 | 1 | WHITE | BLACK | CLEAR | CARD |
| WHITE | Master White | Ready | Ready | % Weight | 0 | 100 | 1 | 1 | | | CLEAR | CARD |
| YELLOW P159 | Color | Ready | Ready | % Weight | 0 | 100 | 1 | 1 | WHITE | BLACK | CLEAR | CARD |
| YELLOW P162 | Color | Ready | Ready | % Weight | 0 | 100 | 1 | 1 | WHITE | BLACK | CLEAR | CARD |

Right-click on an individual colorant, to view a menu to select mixture data or optical data:

| Colorants (Translucent) | | | | |
|-------------------------|-------|-------------------|--------------|--------------|
| Colorant Name | Type | Input/Output Form | Min/Max Form | Min/Max Mode |
| BLACK | Black | Ready | Ready | % Weight |
| BLUE ST82 | | | Ready | % Weight |
| CLEAR | Resin | Ready | Ready | % Weight |
| GREEN P509 | Color | Ready | Ready | % Weight |

Show Mixture Option:

| Mixtures (BLACK) | | | | |
|---------------------|----------------|--------|--------------|-------|
| Name | Film Thickness | Active | Total Amount | Unit |
| BLACK 0.3000% 1.00 | 1 | True | 100 | grams |
| BLACK 0.6000% 1.00 | 1 | True | 100 | grams |
| BLACK 1.2000% 1.00 | 1 | True | 100 | grams |
| BLACK 2.4000% 1.00 | 1 | True | 100 | grams |
| BLACK 4.8000% 1.00 | 1 | True | 100 | grams |
| BLACK 20.0000% 1.00 | 1 | True | 100 | grams |

Show Optical Constants

Double-click on a row, to show the optical constants (K/S or K and S)

| Optical Constants (BLACK) | | | | | |
|---------------------------|----------------|-------------|--------|------------------------|------------------------|
| Type | Optical Weight | Performance | Active | Absolute Concentration | Relative Concentration |
| Il-Constant K & S | 1 | 1 | True | 0.00300000002607703 | 0.00999999977648258 |
| Il-Constant K & S | 1 | 1 | True | 0.00600000005215406 | 0.0199999995529652 |
| Il-Constant K & S | 1 | 1 | True | 0.0120000001043081 | 0.0400000028312206 |
| Il-Constant K & S | 1 | 1 | True | 0.0240000002086163 | 0.0800000056624413 |
| Il-Constant K & S | 1 | 1 | True | 0.0480000004172325 | 0.159999996423721 |

Optical Constants

| Optical Coefficients (0.00300000002607703) | | |
|--|--------------------|---------------------|
| Wavelength | K | S |
| 400 | 0.053160984069109 | 0.00129516725428402 |
| 410 | 0.0571131259202957 | 0.00123792514204979 |
| 420 | 0.0578657649457455 | 0.00133196485694498 |
| 430 | 0.0569437295198441 | 0.00118848821148276 |
| 440 | 0.0571714006364346 | 0.00105519394855946 |
| 450 | 0.0575341768562794 | 0.00103000819217414 |
| 460 | 0.0573335289955139 | 0.00104324892163277 |
| 470 | 0.057468693703413 | 0.0009376349626109 |
| 480 | 0.0576966926455498 | 0.00094177044229582 |

Enhanced Correction Options

Automatic Add Limit

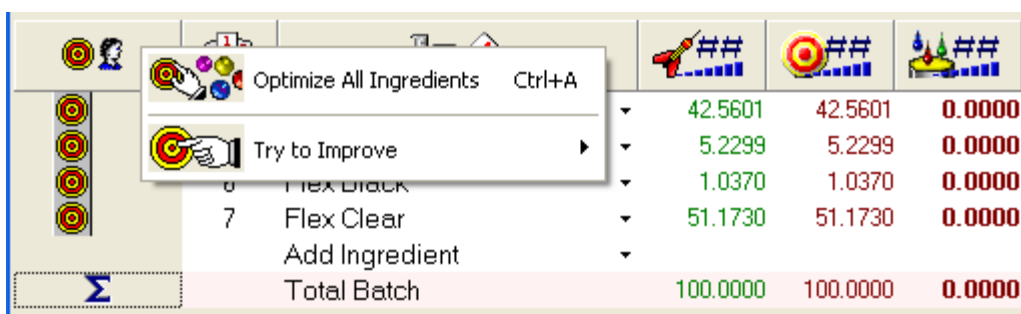
In order to control the size of a correction add and to avoid the occasional large add that can be generated by an automatic add, we have added an adjustment parameter that can be used to limit the maximum size of the add.

There is a new field "Correction Add Limits" that sets the maximum size that an add can increase the batch size. This field is exposed on the Tolerances tab of the Job Preferences screen. The default value is 2.3 which would limit a 100 KG batch to a maximum add of 130 KG for a new total batch size of 230 KG.



The quality of the add (the after add DE) will be affected by this constraint. If the original bucket capacity options are used, the add limit will not be used.

Optimize All Ingredients



| Optimize All Ingredients | Ctrl+A | | |
|--------------------------|----------|----------|--------|
| Try to Improve | | | |
| Flex Black | 42.5601 | 42.5601 | 0.0000 |
| Flex Clear | 5.2299 | 5.2299 | 0.0000 |
| Flex Black | 1.0370 | 1.0370 | 0.0000 |
| Flex Clear | 51.1730 | 51.1730 | 0.0000 |
| Add Ingredient | | | |
| Total Batch | 100.0000 | 100.0000 | 0.0000 |

The "Optimize All Ingredients" option in the manual add section of Formula Central has changed functionality. Previous to this version, the option basically sent all the ingredients to the optimizer and gave you the same results as the automatic add or automatic reformulate. The "Optimize All Ingredients" option now will sequentially optimize each colorant individually in an attempt to improve the DE.

This option is also available for the add case without first running the automatic add and switching to manual. To run this option, select the option "Auto Optimize" from the Formula Central "Tools" menu.

Optimize All Ingredients – CR Matching

The new “Optimize All Ingredients” option does not try to maintain or improve CR even if the CR option is “=”. We have made a change to allow CR to be added to the goal function which will allow the sequential optimization to consider CR. The stopping point for the optimization process will still be DE1 but with CR in the goal the load can also change. A CR weight of 10% to 20% may be enough but results may vary depending on individual colorant sets. Some experimentation will be required.

Data Navigator – Backup Database Option

You can now do a database backup from the Data Navigator. From the Data Navigator “File” menu, select the option “Backup Database”. You will be prompted for a Windows folder where you want to save the database. After you select a folder, the database will be backed up to that location.