

**WinBLEND**

**Version 2.0**

**USER'S MANUAL**

© 2004

## SOFTWARE LICENSE AGREEMENT

This license statement and limited warranty constitutes a legal agreement ('License Agreement') between you and all other associated entities (either as an individual or an entity) ON THE ONE PART and BH & RB Andersson (henceforth referred to as ACR) ON THE OTHER PART for all computer applications, any updates or supplements, online or electronic documentation, printed documentation, and example files created by ACR (collectively and severally referred to as the 'Software')

By installing, copying, or otherwise using the Software, you agree to be bound by all other terms and conditions of the License Agreement. If you do not understand or do not accept these terms, you must stop using the Software immediately.

ACR grants to you a non-exclusive, non-transferable license to use the Software free of charge on a single computer.

### TITLE AND COPYRIGHT

ACR and/or its licensors owns all copyright, trade secret, trademark, patent, and any other intellectual property or proprietary rights in and to the Software. The copyright laws of Australia and international copyright treaties protect the Software. Title, ownership rights, and intellectual property rights in and to any content accessed through the Software is the property of the applicable content owner and may be protected by applicable copyright or other law. This License Agreement gives you no rights to such content.

### UPGRADES

If the Software is an upgrade, you may use or transfer the Software only in conjunction with the upgraded product. The upgrade version of the Software and the Software you upgraded constitute a single product. After the upgrade, you may use only the upgraded product in accordance with the License Agreement that came with the upgrade.

### OTHER RIGHTS AND LIMITATIONS

You MAY NOT:

- a) modify, translate, reverse engineer, decompile, or disassemble the Software, except and only to the extent that applicable law notwithstanding this limitation expressly permits such activity. You acknowledge that the Software in source code form remains a confidential trade secret of ACR and/or its suppliers.
- b) create derivative works based on the Software.
- c) use the Software or any derivative in any form of program which would be generally competitive with or a substitute for ACR's product line, except by written agreement with ACR.
- d) rent, lease, lend, sublicense the Software or any of the documentation
- e) modify or remove any proprietary notices or labels on the Software including any copyright notice, or any 'about' dialog or the method by which it may be invoked.
- f) sell or resell copies of the complete or partial Software or any of the documentation.
- g) use ACR's names, logos, or trademarks, except to state that you use this Software. You will indemnify and hold ACR and its related entities harmless from and against any claims or liabilities arising out of any use of the Software.

### SECURITY

You shall notify ACR immediately on becoming aware of any unauthorized modification of the whole or any part of the Software.

### WAIVER

No forbearance, delay or indulgence by a party in enforcing the provisions of this License Agreement shall prejudice or restrict the rights of that party, nor shall any waiver of those rights operate as a waiver of any subsequent breach.

## TERMINATION

The license will terminate automatically if you fail to comply with any of the terms of this License Agreement. On termination, you must destroy all copies of the Software and documentation. You must also stop using the Software and completely remove it from any computers on which it is installed.

## DISCLAIMER OF WARRANTY

ACR makes no representation or Warranty that the Software or documentation are 'error-free', or meet any user's particular standards, requirements, or needs. The entire risk as to the quality and performance of the Software in your environment is borne by you. Should the Software prove defective, you and not ACR assume the entire cost of any service and repair. ACR provides no Warranty at all to any person.

Under no circumstances and under no legal theory, tort, contract, or otherwise, shall ACR or its suppliers be liable to you or any other person or entity for any indirect, special, incidental, or consequential damages of any character (including, without limitation, damages for loss of goodwill, work stoppage, loss of profit, computer failure or malfunction, or any and all other commercial damages or pecuniary losses) arising out of the use of or inability to use the Software product or the provision of or failure to provide support services.

## HIGH RISK ACTIVITIES

The Software is not fault-tolerant and is not designed, manufactured or intended for use as on-line control equipment in hazardous environments requiring fail-safe performance, such as in the operation of nuclear facilities, direct life support machines, weapons systems, aircraft navigation or communication systems, or air traffic control, in which the failure of the Software could lead directly to death, personal injury, or severe physical or environmental damage ('High Risk Activities'). ACR and its suppliers specifically disclaim any express or implied Warranty of fitness for High Risk Activities.

## MISCELLANEOUS

This agreement shall be governed by, construed, and interpreted in accordance with the laws of the State of New South Wales, Australia. This License Agreement represents the complete agreement concerning this license between the parties and supersedes all prior agreements and representations between them.

These Terms and Conditions may not be waived, amended, or modified in any way except through a written agreement signed by ACR. If any one or more provisions of the License Agreement are found to be illegal or unenforceable, the remaining provisions will be enforced to the maximum extent possible.

ACR reserves all other rights and restrictions not specifically granted in this License Agreement.

# Contents

Chapter	Description	Page
1	Introduction .....	4
2	Features .....	4
3	Minimum System Requirements .....	4
4	Database Relationships .....	5
5	Getting Started .....	6
6	Entering Supplier Data .....	8
7	Entering Contacts .....	9
8	Entering Processing Instructions .....	9
9	Entering Quality Assurance Tests .....	10
10	Entering Raw Material Data .....	11
11	Entering Packaging Data .....	12
12	Entering Formulations .....	13
13	Entering Products .....	15
14	Generating Batches .....	15
15	Adjusting the Size of a Formulations .....	16
16	Viewing the History of a Formulation .....	17
17	Optimizing a Formulation .....	18
18	Using the Formulation Wizard .....	19
19	Evaporation Profile .....	20
20	Binder Solubility Prediction .....	21
21	Cost Optimization .....	22
22	Coverage Calculator .....	24
23	The Usage Button .....	25
24	The Notes Button .....	25
25	The Email Button .....	25
26	The Stats Button .....	26
27	The View Button .....	27
28	Entering Quality Assurance Data .....	28
29	Replacing Raw Materials .....	29
30	Comparing Two Formulations .....	30
31	User Administration .....	31
32	Double-Clicking on Lists .....	32
33	Registration of WinBLEND .....	32
34	Raw Material Category List .....	33
35	Exporting Formulations .....	35
36	Importing and Exporting Raw Materials .....	35
37	Frequently Asked Questions .....	36

## 1. INTRODUCTION

WinBLEND is innovative new computer software for the formulation and optimization of surface coatings. It was developed by a programmer who also has extensive experience in the formulation of architectural, industrial and specialty coatings.

WinBLEND is the successor to the previous Microsoft MS-DOS based software developed in the early 1980's for prediction of evaporation profiles of solvent mixtures (BLEND Version 1.0). This new software takes advantage of the many benefits of Microsoft Windows and extends the features well beyond evaporation profile prediction.

Small coatings manufacturers will find WinBLEND invaluable for developing formulations and generating batch sheets ready for production. Medium to large manufacturers will realize significant time savings through the use of WinBLEND.

NOTE: WinBLEND is a software package designed to assist coatings formulators. WinBLEND does not assist with and stock control or other accounting functions.

## 2. FEATURES

WinBLEND has a comprehensive range of features to assist coatings formulators:

- Simple entry of new coatings formulations in metric or US units
- Calculation of a wide range of formulation parameters "on the fly" including pigment volume concentration (PVC), specific gravity, pigment content, cost, etc.
- Maintenance of full history of formulation modifications.
- Supplier database with multiple contacts.
- Raw material database including properties specific to solvents, resins, etc.
- Packaging database.
- Multiple products can be made from the same formulation.
- Batch record system.
- Quality assurance tests and processing instructions fully customizable.
- Prediction of solvent concentration during evaporation.
- Prediction of solubility parameters during evaporation.
- Prediction of binder solubility during evaporation.
- Calculation of cost variation while varying any raw material quantity.
- Coatings coverage calculator.
- Ability to set optimum levels of raw materials based on total weight, total volume, pigment weight or binder weight.
- Ability to record quality control results for batches.
- Print control charts for any formulation or product.
- Formulation wizard to vary PVC maintaining NVV or vary NVV maintaining PVC.
- Ability to re-size the total volume any formulation.
- Optimize formulations based on pre-defined raw material settings.
- Comprehensive range of reports.

## 3. MINIMUM SYSTEM REQUIREMENTS

IBM compatible computer  
Pentium 233MHz or equivalent processor  
32Mb RAM  
Super VGA 800x600 resolution screen  
100Mb free disk space  
Microsoft Windows 2000 or XP

#### 4. DATABASE RELATIONSHIPS

The operation of WinBLEND is relatively simple once you have an understanding of the concepts and relationships used in the software. There are a number of databases, many of which relate to other databases within the WinBLEND file structure. Following is a chart which summarises the major databases and their relationships.

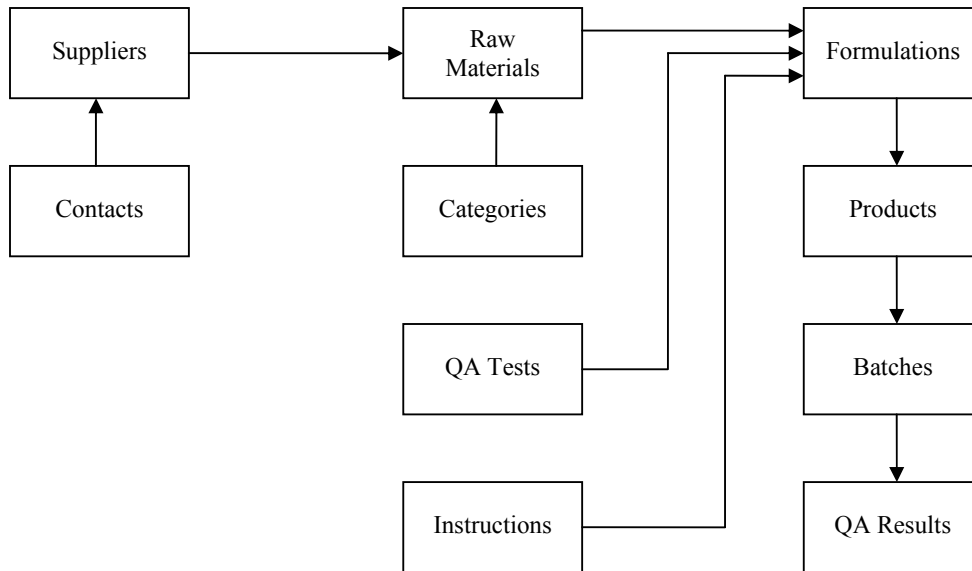


Figure 1 – Database Relationship Diagram

It is important that data is entered into each database before entering data into a dependent database. For example, before a raw material may be added to the database the supplier details for that raw material must first be added. Naturally, before any formulation can be added the necessary raw materials must first be present in the raw materials database.

**The category codes and descriptions that are used in WinBLEND are consistent with those used by the Surface Coatings Association of Australia in the publication of their Raw Materials Index. For this reason raw material categories cannot be altered.**

The typical order for entering data into WinBLEND is:

**Add Suppliers > Add Raw Materials > Add QA Tests > Add Instructions > Add Formulations > Add Products > Generate Batches > Add QA Results**

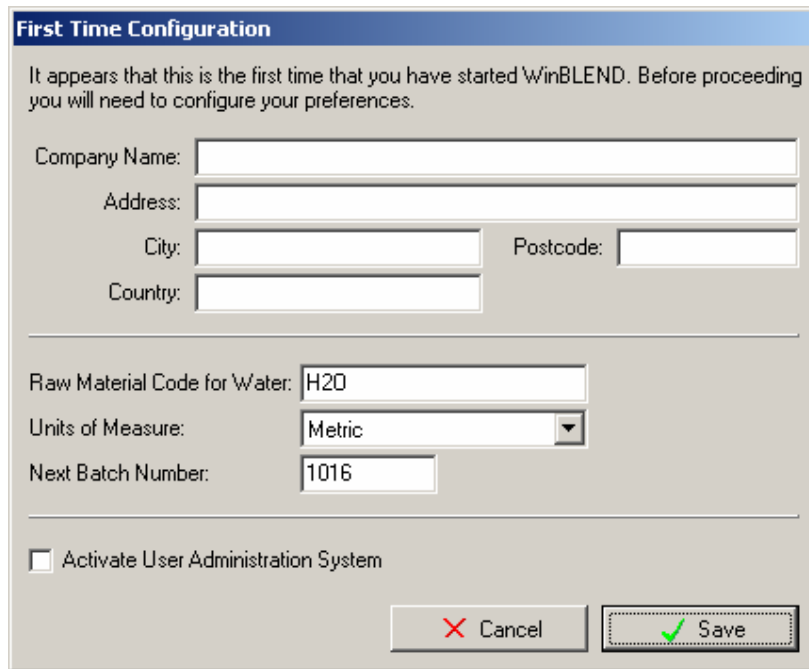
Some flexibility has however been incorporated into WinBLEND. For example, a raw material may be added during formulation entry if it does not already exist in the database.

Naturally, there are quite a few other databases provided with WinBLEND to control the functionality of the software however the database shown above are the primary sources of data.

In many data entry screens required fields are indicated in red, recommended fields are shown in blue and optional fields in black.

## 5. GETTING STARTED

When you first run WinBLEND you will be prompted for a number of configuration settings. These settings must be entered before you can proceed.

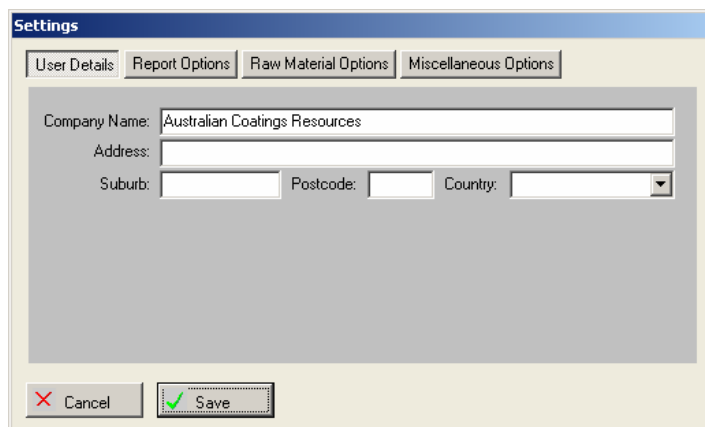


The 'First Time Configuration' window has a blue title bar. Below the title bar, a message reads: 'It appears that this is the first time that you have started WinBLEND. Before proceeding you will need to configure your preferences.' The form contains several input fields: 'Company Name' (text box), 'Address' (text box), 'City' (text box), 'Postcode' (text box), and 'Country' (text box). Below these is a section for 'Raw Material Code for Water' (text box with 'H2O'), 'Units of Measure' (dropdown menu with 'Metric' selected), and 'Next Batch Number' (text box with '1016'). At the bottom left is a checkbox labeled 'Activate User Administration System'. At the bottom right are two buttons: 'Cancel' with a red 'X' icon and 'Save' with a green checkmark icon.

Figure 2 – First Time Use Configuration Window

Raw Material Code for Water is the code that will be used throughout the formulations for water. Setting this code will automatically setup water as a raw material.

Once you have installed WinBLEND you may modify default configuration. To do this click on **File** then **Settings** and the following window will appear.



The 'Settings' window has a blue title bar and four tabs: 'User Details', 'Report Options', 'Raw Material Options', and 'Miscellaneous Options'. The 'User Details' tab is active. It contains input fields for 'Company Name' (with 'Australian Coatings Resources' entered), 'Address' (text box), 'Suburb' (text box), 'Postcode' (text box), and 'Country' (dropdown menu). At the bottom are 'Cancel' and 'Save' buttons.

Figure 3 – Settings Window

The four buttons along the top of this window enable you to configure various preferences.

#### User Details

- Enter your address in the fields provided.

#### Report Options

- Select the items that you would like included on printed formulation reports

#### Raw Material Options

- Choose the raw material code that will be used for water
- Select the percentage variation that you will accept from the optimum raw material levels. For example, the optimum level of humectant may be 50 grams per litre  $\pm$  10%, hence the percentage variation would be 10%.
- Choose if you would like to see the solubility parameter warnings when entering raw materials. If you do not intend to make use of the evaporation prediction feature it is recommended that you select this option.

#### Miscellaneous Options

- The units of measure were set when the software was first run. It is not recommended that this field is changed unless absolutely necessary.
- If you wish to activate the user administration system to prevent some users from accessing various functions in WinBLEND then select this option. NOTE: The default username is "Admin" and the default password is "password".
- The next batch number should have been configured when WinBLEND was first run. It is not recommended that this field is changed unless absolutely necessary.

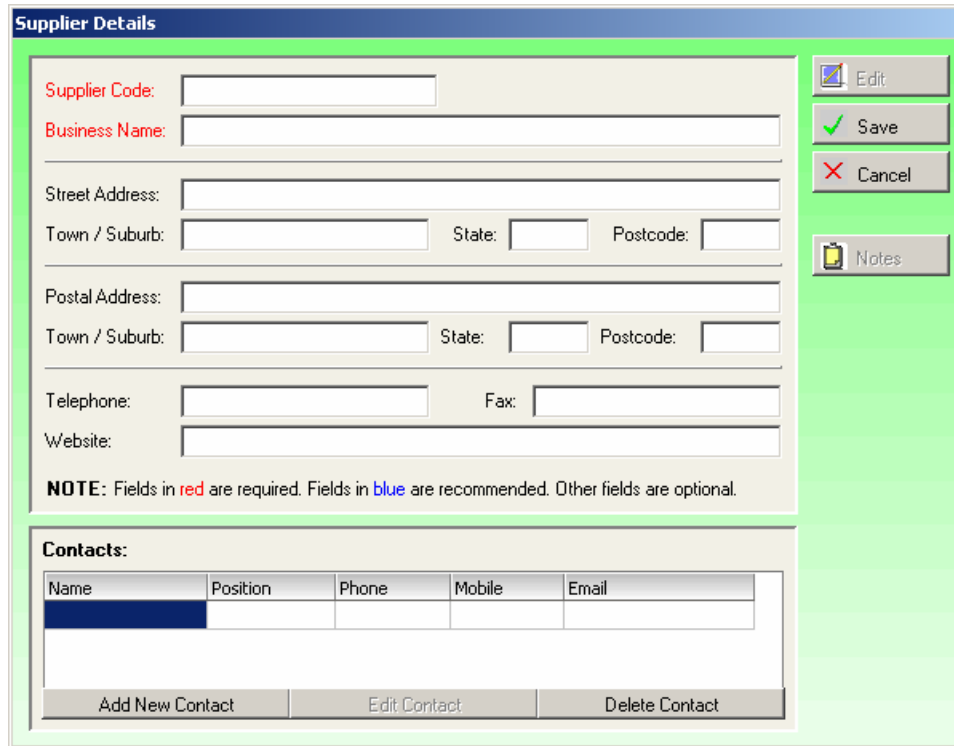
Once all changes have been made click on the **Save** button.

**NOTE – The unregistered version of WinBLEND 2.0 is limited to 30 days use from the day of installation, maximum of twenty (40) raw materials and maximum of five (5) formulations.**

## 6. ENTERING SUPPLIER DATA

From the WinBLEND main screen click on the **Suppliers** button in the left-hand menu. A list of suppliers will appear in the right-hand detail pane.

Click on the **Add** button in the top toolbar and the following window will open.



**Supplier Details**

Supplier Code:

Business Name:

Street Address:

Town / Suburb:  State:  Postcode:

Postal Address:

Town / Suburb:  State:  Postcode:

Telephone:  Fax:

Website:

**NOTE:** Fields in red are required. Fields in blue are recommended. Other fields are optional.

**Contacts:**

Name	Position	Phone	Mobile	Email

Add New Contact    Edit Contact    Delete Contact

Edit    Save    Cancel    Notes

Figure 4 – Supplier Details Window

Enter the details for the supplier into the fields provided. Note that both Supplier Code and Business Name are required fields. Supplier Code may be any combination of letters and numbers.

Once the data has been entered click on the **Save** button.

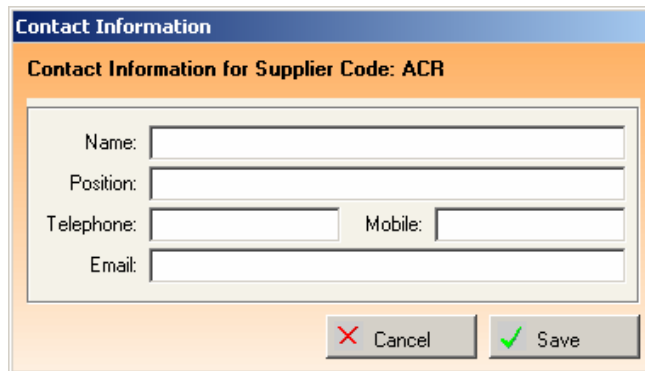
To edit any supplier details select the supplier from the list of suppliers in the main window then click on the **Edit** button in the top toolbar. When editing supplier details it is also possible to add notes for that supplier simply by clicking on the **Notes** button.

## 7. ENTERING CONTACTS

From the WinBLEND main screen click on the **Suppliers** button in the left-hand menu. A list of suppliers will appear in the right-hand detail pane.

Select the supplier for which you would like to add a contact then click on the **Edit** button in the top toolbar. The supplier details window will be displayed (refer chapter 6).

Click on the **Cancel** button then click on the **Add New Contact** button and the following window will be displayed.

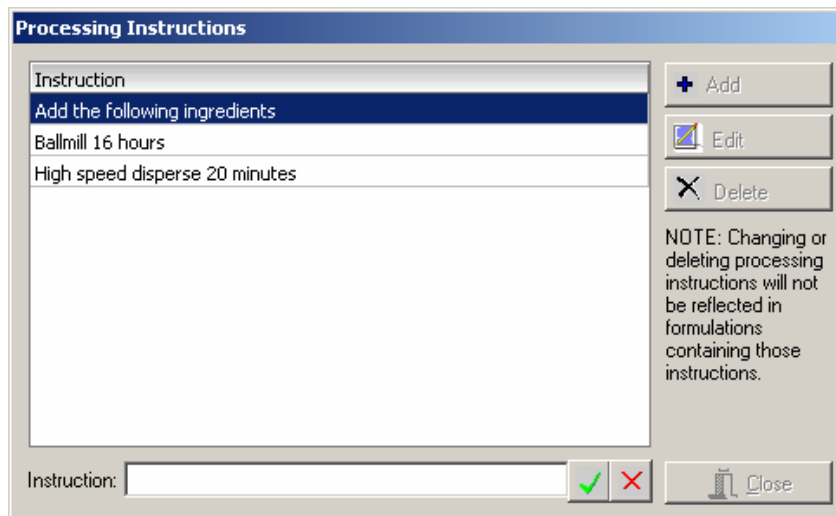


The image shows a window titled "Contact Information" with a subtitle "Contact Information for Supplier Code: ACR". It contains several input fields: "Name:", "Position:", "Telephone:", "Mobile:", and "Email:". At the bottom right, there are two buttons: "Cancel" (with a red X icon) and "Save" (with a green checkmark icon).

Figure 5 – Contact Information Window

## 8. ENTERING PROCESSING INSTRUCTIONS

From the WinBLEND main screen click on the **Instruct** button in the top toolbar then click on the **Add** button. Something like the following should be displayed.



The image shows a window titled "Processing Instructions". It features a list box with the following items: "Instruction", "Add the following ingredients", "Ballmill 16 hours", and "High speed disperse 20 minutes". To the right of the list box are three buttons: "+ Add", "Edit" (with a pencil icon), and "Delete" (with an X icon). Below these buttons is a note: "NOTE: Changing or deleting processing instructions will not be reflected in formulations containing those instructions." At the bottom left, there is an "Instruction:" label followed by an input field and two small buttons: a green checkmark and a red X. At the bottom right is a "Close" button with a window icon.

Figure 6 – Processing Instructions Window

Enter the instruction into the field provided then save by clicking on the **Check** button.

## 9. ENTERING QUALITY ASSURANCE TESTS

From the WinBLEND main screen click on the **Tests** button in the top toolbar then click on the **Add** button. Something like the following should be displayed.

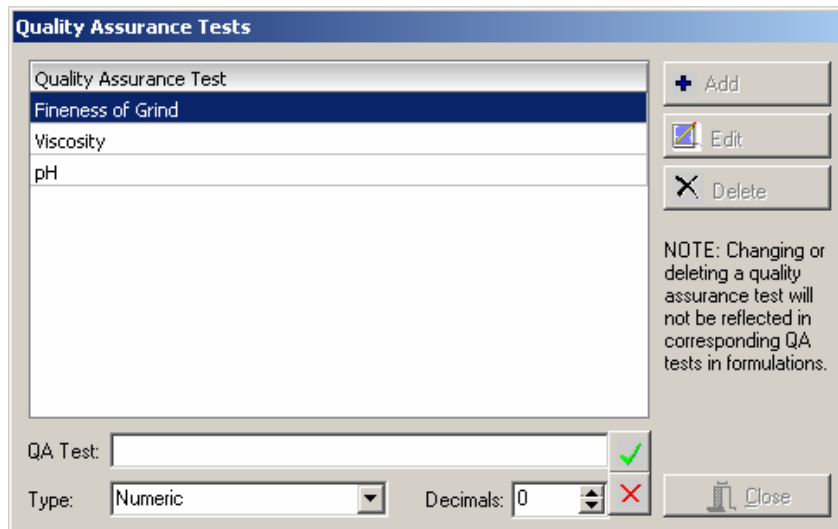


Figure 7 – Quality Assurance Test Entry Screen

Enter the name of the test, whether it is numeric or alphanumeric, and the number of decimals for numeric values. Save the entry by clicking on the **Check** button.

You will be able to plot control charts for tests with numeric values.

## 10. ENTERING RAW MATERIAL DATA

From the WinBLEND main screen click on the **Raw Materials** button in the left-hand menu. A list of raw materials will appear in the right-hand detail pane.

Click on the **Add** button in the top toolbar and the following window will open.

Figure 8 – Raw Material Entry Screen

There are quite a few fields to complete in this screen. Some are specific to different types of raw material. Following are details for each field.

FIELD	DESCRIPTION
Material Code	The code that you will use rather than the full raw material description.
Description	The raw material description.
Active	Denotes whether this raw material will be available for formulations
Supplier	A drop down list of supplier codes previously entered (see Paragraph 6).
Category	A drop down list of the available raw material categories. The selection from this list will determine which other fields become available for data entry.
Cost	The unit cost of the raw material.
Unit	Specifies whether the raw material is costed by weight or volume.
NVM(%)	Percentage non-volatiles by mass.
Volatile Component	A drop down list of solvents. Required for raw materials which have more than 0% NVM but less than 100% NVM.
Hydroxyl Value	Hydroxyl number of polyurethane.
NCO Content (%)	Isocyanate content of polyurethane hardeners.

FIELD	DESCRIPTION
Epoxide Equivalent Weight	Used for epoxies.
Amine Hydride Equivalent Weight	Used for epoxies.
Evaporation Rate	Relative to n-butyl acetate which has an arbitrary value of 100.
Flash Point	In either Degrees Celcius or Fahrenheit depending on Metric or US unit selection.
Vapour Pressure	Expressed in kPa.
Solubility Parameter	Nelson, Hemwall & Edwards Solubility Parameter
Fractional Polarity	Nelson, Hemwall & Edwards Fractional Polarity
Hydrogen Bonding Index	Nelson, Hemwall & Edwards Hydrogen Bonding Index
$\delta_{do}$	Hansen's Solubility Parameter - d
$\delta_{po}$	Hansen's Solubility Parameter - p
$\delta_{ho}$	Hansen's Solubility Parameter - h
$R_{Ao}$	Hansen's Solubility Parameter - R
Drier Metal %	Percentage active metal in metallic driers.
Recommended Level	Numeric value and selection from drop down box or how the recommended level is to be applied.
VOC	Volatile Organic Content in either grams per litre or pounds per gallon depending on unit selection.
MIT/CMIT	Units are ppm for all raw materials except fungicides where the units are percentage by weight. 5-chloro-2-methyl-4-isothiazolin-3-one (CMIT) and 2-methyl-4-isothiazolin-3-one (MIT).
Oil Absorption	Grams of oil per hundred grams of pigment.

Table 1 – Explanation of Raw Material Entry Fields

## 11. ENTERING PACKAGING DATA

From the WinBLEND main screen click on the **Packaging** button in the left-hand menu. A list of packaging will appear in the right-hand detail pane.

Click on the **Add** button in the top toolbar and the following window will open.

Figure 9 – Packaging Entry Screen

Complete each of the fields then click on the **Save** button. The “Lined” option indicates whether the can has an internal, corrosion resistant lining (typically used for water-based coatings).

## 12. ENTERING FORMULATIONS

From the WinBLEND main screen click on the **Formulations** button in the left-hand menu. A list of formulations will appear in the right-hand detail pane.

Click on the **Add** button in the top toolbar and the following window will open.

Figure 10 – Formulation Entry Screen

The formulation code and description are required fields. By checking the **Intermediate** check box the formulation will also be available for use as a raw material. The **Revision Number** and **Revision Date** fields cannot be changed.

A drop down box is available in the **Code** column to select raw materials. Raw material codes may also be typed directly into these cells. If a typed raw material code is not found in the database you will be asked if you would like to add it as a new raw material.

Once a raw material code has been selected the related description will be displayed.

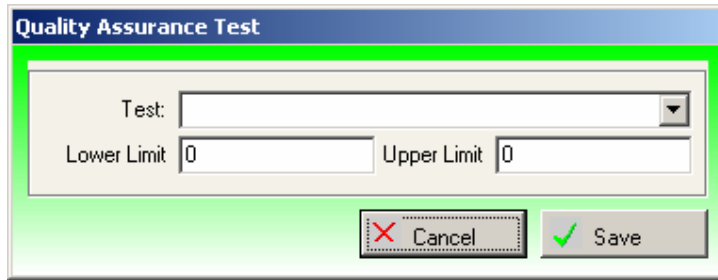
Enter either the weight or volume of the raw material present in the formulation. As each row is entered the properties of the formulation will be updated.

**By clicking with the RIGHT mouse button on the **Item**, **Code** or **Description** column a menu will appear allowing you to add or delete processing instructions, insert a blank row, clear the contents of a row or delete a row.**

NOTE: The first blank line or instruction will mark the end of the mill-base ingredients.

Click on the **Save** button to save the completed formulation. The **Save As** button will allow you to save the formulation with a new code.

After the formulation has been entered you may add any quality assurance tests for the formulation by clicking on the **Add Test** button. The following window will be displayed.



The image shows a software window titled "Quality Assurance Test". It features a light blue header bar with the title. Below the header is a white area containing a "Test:" label followed by a dropdown menu. Underneath the dropdown are two input fields: "Lower Limit" with the value "0" and "Upper Limit" with the value "0". At the bottom of the window, there are two buttons: "Cancel" with a red 'X' icon and "Save" with a green checkmark icon.

Figure 11 – Quality Assurance Test Entry Screen

Select the test from the drop down list then enter the lower and upper control limits for this test. If the test has only one limit the leave **Upper Limit** blank.

Every time a formulation is edited and saved you will be asked whether you would like to increment the Revision Number. In most cases you will choose to increment the Revision Number except if the changes are minor or you are simply correcting a previous error.

**NOTE: There are a maximum of fifty (50) rows in any formulation. Rows can be raw material entries, instruction entries or blank lines.**

### 13. ENTERING PRODUCTS

Any formulation may be used to make multiple products. This is useful when the company wishes to distribute a formulation in different markets or under different brands.

From the WinBLEND main screen click on the **Products** button in the left-hand menu. A list of products will appear in the right-hand detail pane.

Click on the **Add** button in the top toolbar and the following window will open.

Figure 12 – Product Entry Screen

Enter data into each of the fields then click on the **Save** button.

Note that the Packaging Type fields allows you to enter either “lined” or “un-lined”. This is used to set the type of internal lining on the paint cans thus limiting the number of items shown in the filling table of batch sheets.

### 14. GENERATING BATCHES

From the WinBLEND main screen click on the **Products** button in the left-hand menu. A list of products will appear in the right-hand detail pane.

Click on the **Batch** button in the top toolbar and the following window will open.

Figure 13 – Batch Card Generation Screen

Enter the desired batch volume. The batch number is incremented from the previous batch number. A batch sheet will be printed after clicking on the **OK** button.

## 15. ADJUSTING THE SIZE OF A FORMULATION

From the WinBLEND main screen click on the **Formulations** button in the left-hand menu. A list of formulations will appear in the right-hand detail pane.

Select the formulation from the list that you wish to adjust then click on the **Edit** button in the top toolbar and the formulation screen will be displayed.

Click on the **Adjust Size** button and the following windows will be displayed.

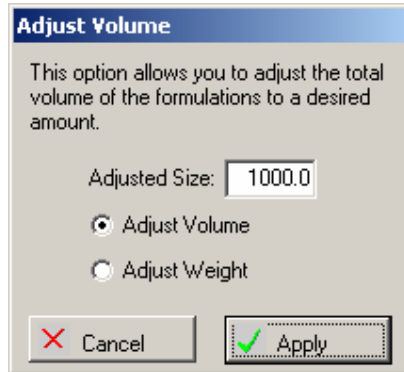


Figure 14 – Formulation size adjustment

Enter the desired new size and select whether to adjust the total weight or volume to this value then click on the **Apply** button.

## 16. VIEWING THE HISTORY OF A FORMULATION

From the WinBLEND main screen click on the **Formulations** button in the left-hand menu. A list of formulations will appear in the right-hand detail pane.

Select the desired formulation then click on the **History** button in the top toolbar. The following screen will be displayed.

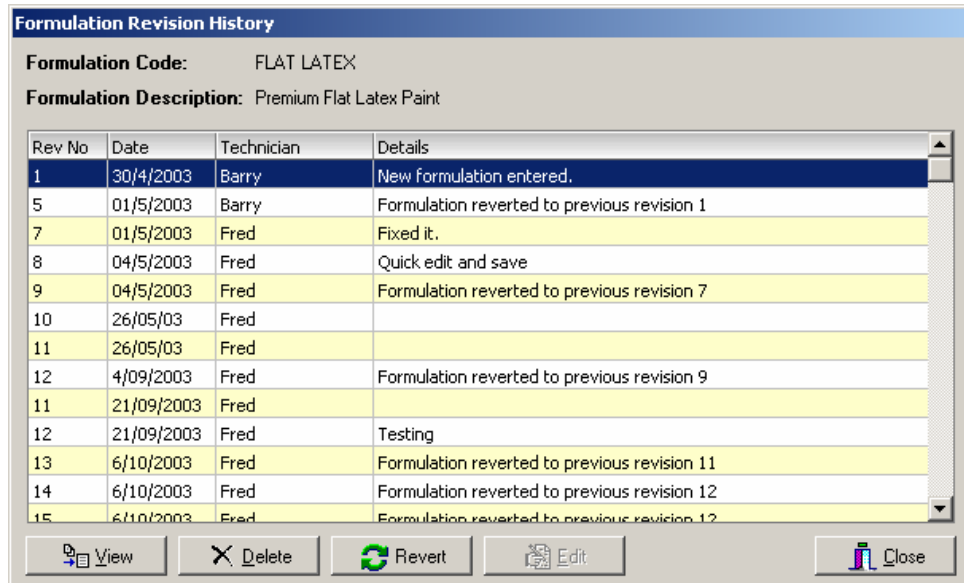


Figure 15 – Formulation history screen

You may view any formulation revision by clicking on the **View** button.

You may revert to a previous version of a formulation (ie. Make the previous version the latest version) by clicking on the **Revert** button.

If the latest revision is selected in the list you may edit this formulation by clicking on the **Edit** button.

## 17. OPTIMIZING A FORMULATION

From the WinBLEND main screen click on the **Formulations** button in the left-hand menu. A list of formulations will appear in the right-hand detail pane.

Select the formulation from the list that you wish to adjust then click on the **Edit** button in the top toolbar and the formulation screen will be displayed.

Click on the **Optimize** button and the following windows will be displayed.

Below is a list of formulation components which have recommended levels. Those shown in red are outside the specified range. Entries in black are within the specified range.

To adjust any of these to within preset amounts simply click on the check box beside the ingredient then click on the optimize button. Note that you must also select a solvent to re-adjust the total volume.

Items	Select	RM Code	Description	Current Level	Recommended Level
3,11	<input checked="" type="checkbox"/>	BEV643	Bevaloid 643	2.0 pounds per gallon	1.0 pounds per gallon
4	<input type="checkbox"/>	BEV22635	Bevaloid 226/35	0.0 grams per litre	2.0 pounds per gallon
5		TERICN9	Teric N9	5.0 grams per litre	5.0 grams per litre
12		PROPLGLYCOL	Propylene Glycol	50.0 grams per litre	50.0 grams per litre
13	<input type="checkbox"/>	TEXANOL	Texanol	13.3 weight % of binder solids	15.0 weight % of binder solids
14		ACTICIDEAZ	Acticied AZ	2.0 grams per litre	2.0 grams per litre

Solvent to use to adjust final volume:

Figure 16 – Formulation Optimization Screen

A list of raw materials which have recommended levels will be displayed. Those raw materials whose current level is outside the limits previously configured in WinBLEND settings will be displayed in **red**.

Select the raw materials that you wish you optimize. You must also select a solvent to use to adjust the final volume of the formulation. Click on the **Optimize** button.

Once the optimization is completed the formulation will be placed into Edit mode and you will have the option to save the changes or cancel the changes.

## 18. USING THE FORMULATION WIZARD

The formulation wizard will allow you to modify an existing formulation by varying the pigment volume concentration (PVC) or non-volatiles by volume (NVV).

From the WinBLEND main screen click on the **Formulations** button in the left-hand menu. A list of formulations will appear in the right-hand detail pane.

Select the formulation from the list that you wish to adjust then click on the **Edit** button in the top toolbar and the formulation screen will be displayed.

Click on the **Formulation Wizard** button and the following windows will be displayed.

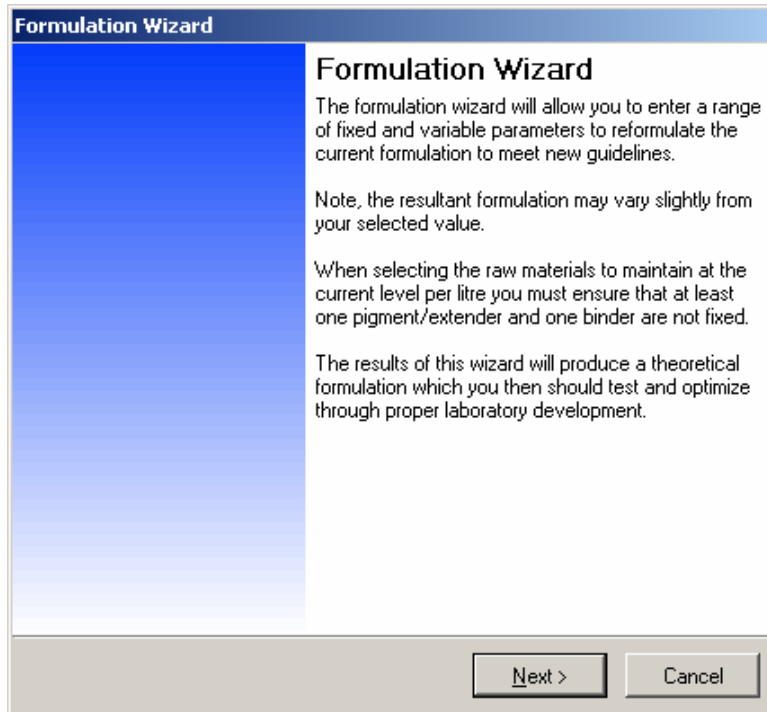


Figure 17 – Formulation Wizard Screen

- Click on the **Next** button.
- Choose whether you want to vary PVC or NVV then click on the Next button.
- Enter the new value for PVC or NVV then click on the **Next** button.
- Select the raw materials from the list to maintain at their current level in grams per litre or pounds per gallon then click on the **Next** button.
- Select the raw materials to be fixed based on pigment weight then click on the **Next** button.
- Select the raw materials to be fixed based on binder (resin) solids then click on the **Next** button.
- Select the solvent that will be used to re-adjust the final volume back to the original volume then click on the **Finish** button.

Once the wizard is complete the formulation will be placed into Edit mode and you will have the option to save the changes or cancel the changes.

## 19. EVAPORATION PROFILE

For those formulations containing organic solvents it is possible to display the solvent concentrations and solubility parameters during evaporation.

From the WinBLEND main screen click on the **Formulations** button in the left-hand menu. A list of formulations will appear in the right-hand detail pane.

Select the formulation from the list that you wish to adjust then click on the **Predict** button in the top toolbar and a graph showing the relative concentration of each component during the evaporation process will be displayed as shown below.

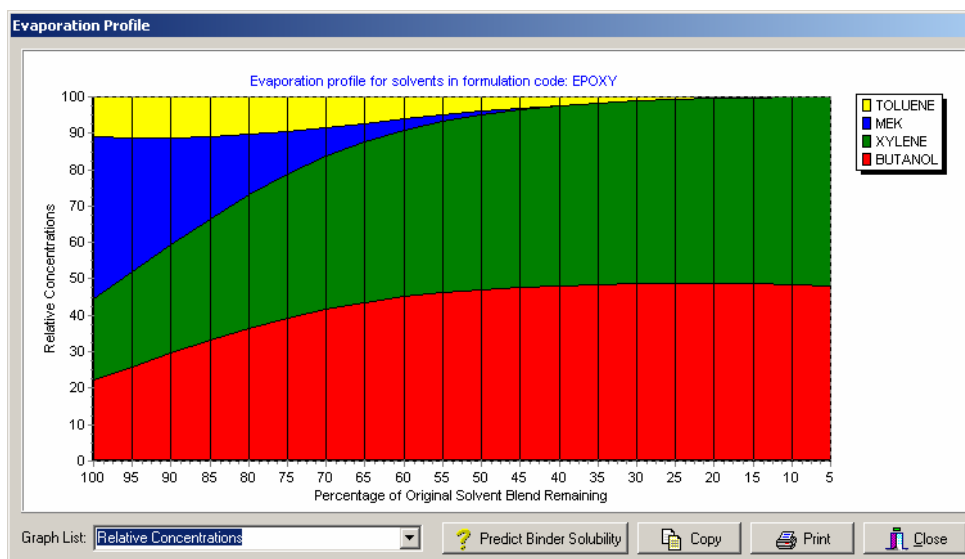


Figure 18 – Evaporation Profile Screen

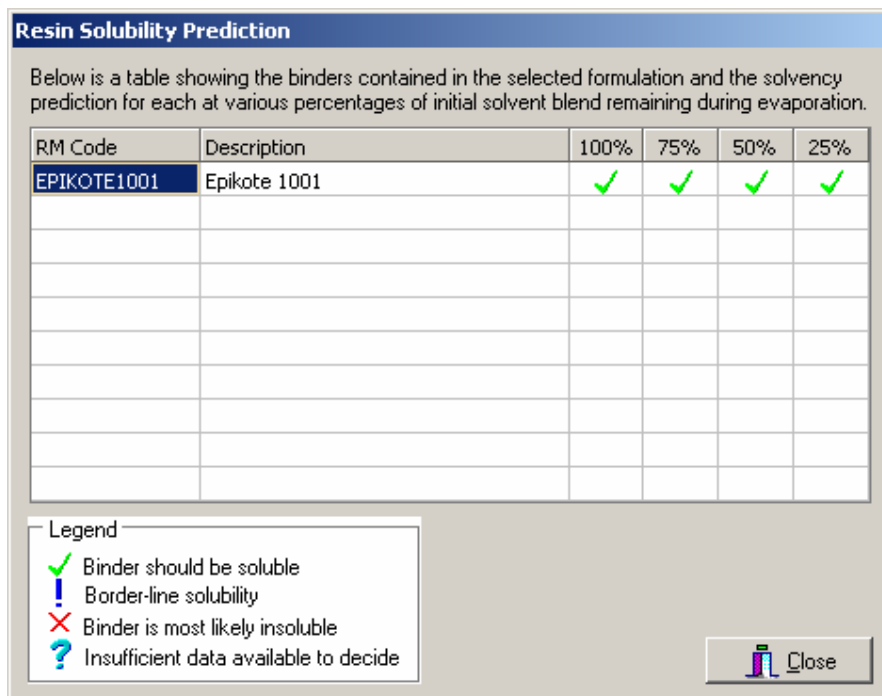
By selecting from the graph list you may view the effect of evaporation on Hansen solubility parameters, Nelson, Hemwall, Edwards solubility parameters and relative concentrations.

The displayed graphs may be copied to the Windows Clipboard or printed.

## 20. BINDER SOLUBILITY PREDICTION

From the evaporation profile graph screen it is possible to also predict the solubility of the binders (resins) contained in the formulation during the evaporation process. This is extremely useful for determining the possibility of binder precipitation during evaporation.

To view the binder solubility click on the **Predict Binder Solubility** button and the following window will be displayed.



**Resin Solubility Prediction**

Below is a table showing the binders contained in the selected formulation and the solvency prediction for each at various percentages of initial solvent blend remaining during evaporation.

RM Code	Description	100%	75%	50%	25%
EPIKOTE1001	Epikote 1001	✓	✓	✓	✓

**Legend**

- ✓ Binder should be soluble
- ! Border-line solubility
- ✗ Binder is most likely insoluble
- ? Insufficient data available to decide


 Close

Figure 19 – Binder Solubilty Screen

Each binder present in the formulation will be listed along with a graphical representation of their solubility during the evaporation process.

## 21. COST OPTIMIZATION

Although this function will not automatically optimize a formulation for cost it allows the user to see the effect on cost (and other properties) of varying the amount of any raw material in a formulation.

From the WinBLEND main screen click on the **Formulations** button in the left-hand menu. A list of formulations will appear in the right-hand detail pane.

Select the formulation from the list that you wish to adjust then click on the **Cost** button in the top toolbar and a window will be displayed as shown below.

Formulation Cost Optimization						
Cost Optimization of Premium Flat Latex Paint						
The table below shows the formulation sorted into descending cost impact per litre. Variations in the items towards the top of the list will result in higher impacts on final cost per litre.						
Select any raw material then choose the optimize button to see the effect on cost and other properties varying the raw material. Only raw materials which contribute more than one percent to the total cost will be available for optimization.						
NOTE: No adjustment is made in the calculations for non-volatile content, PVC or total volume.						
Item #	RM Code	Description	Weight	Volume	Cost/Litre	Cost %
6	TIONA	Tiona 373	330.000	89.189	35.150	77.888
10	ACROPOL63929	Acropol 63-929	205.500	190.278	2.160	10.211
7	CIRCAL6012	Circal 60/12	210.000	77.778	2.700	5.217
12	PROPGLYCOL	Propylene Glycol	50.000	48.170	2.076	2.484
13	TEXANOL	Texanol	15.000	15.789	2.850	1.118
4	BEV22635	Bevaloid 226/35	8.000	6.667	6.000	0.994
8	ECKALITE2	Eckalite 2	33.000	12.692	2.600	0.820
5	TERICN9	Teric N9	5.000	5.000	5.000	0.621
14	ACTICIDEAZ	Acticid AZ	2.000	1.818	7.700	0.348
11	BEV643	Bevaloid 643	2.000	2.105	2.850	0.149
3	BEV643	Bevaloid 643	2.000	2.105	2.850	0.149
16	METHOCEL	Methocel J5MS 2% Solution	175.700	175.700	0.000	0.000
2	METHOCEL	Methocel J5MS 2% Solution	150.000	150.000	0.000	0.000
1	H2O	Water	160.000	160.000	0.000	0.000
17	H2O	Water	62.802	62.802	0.000	0.000

\$ Optimize      Close

Figure 20 – Formulation Cost Optimization Screen

The raw materials are listed in order on descending cost contribution.

It is possible to investigate the effect of varying any of the raw materials whose cost contribution exceeds 1% of the total formulation cost.

Click on the raw material row that you wish to investigate then click on the **Optimize** button and the following window will appear.

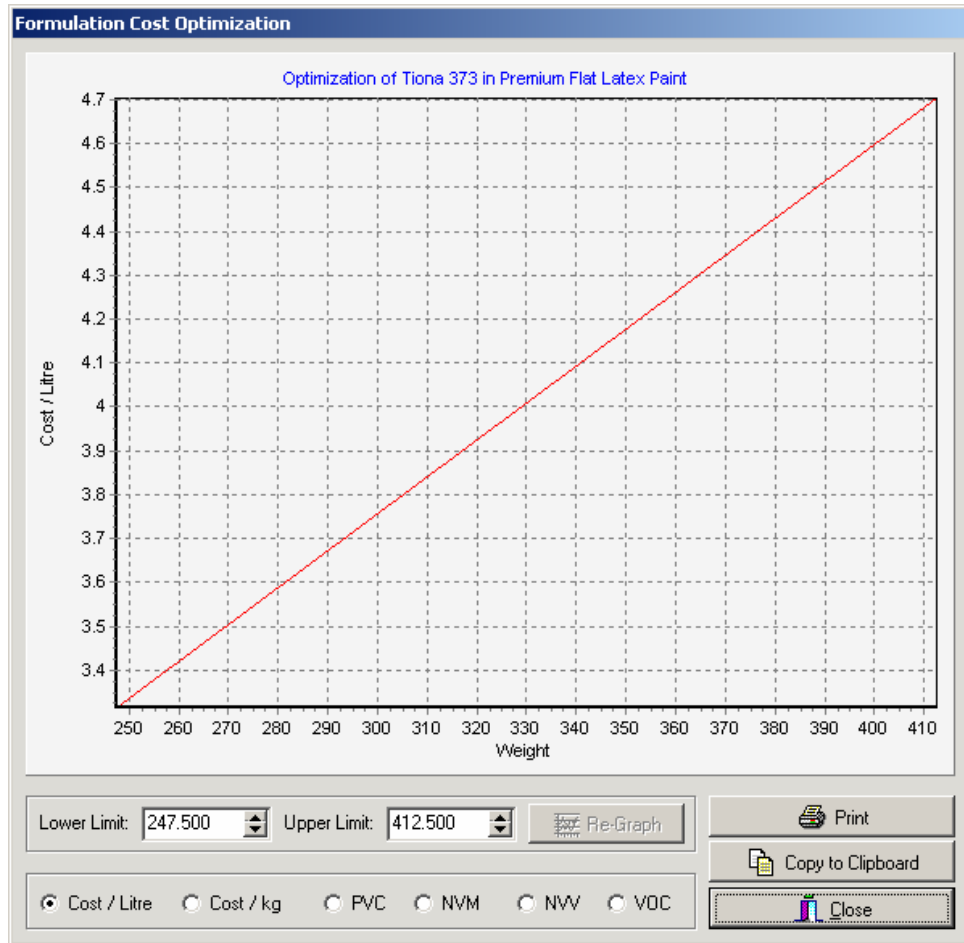


Figure 21 – Formulation Cost Optimization Detail Screen

The lower and upper limits may be reset at any time. The effect on cost, PVC, NVM, NVV and VOC of varying this raw material may be investigated.

The displayed graph may be printed or copied to the Windows Clipboard for pasting into other applications.

NOTE: The cost optimization function does not re-adjust the total volume of the formulation when increasing or decreasing raw material quantities.

## 22. COVERAGE CALCULATOR

The theoretical coverage for any formulation may be calculated using the inbuilt coverage calculator.

From the WinBLEND main screen click on the **Formulations** button in the left-hand menu. A list of formulations will appear in the right-hand detail pane.

Select the formulation from the list that you wish to adjust then click on the **View** button in the top toolbar or double click on the formulation in the list and formulation will be displayed. Click on the **Coverage Calculator** button.

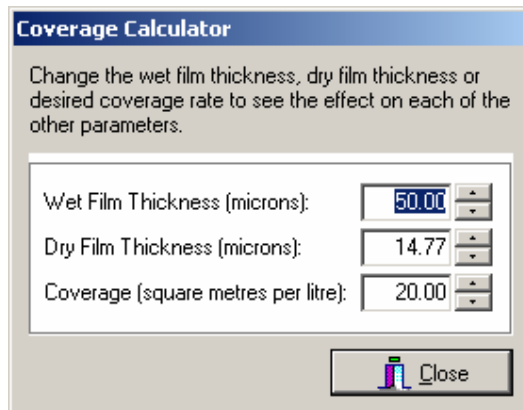


Figure 22 – Coverage Calculator

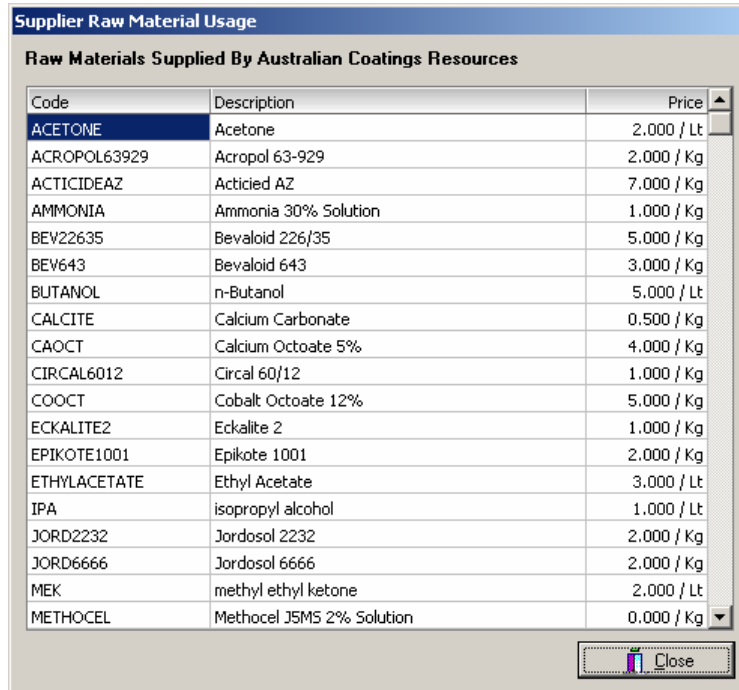
You may change the Wet Film Thickness, Dry Film Thickness or Coverage settings to see the effect on the other parameters.

### 23. THE USAGE BUTTON

The **Usage** button in the top toolbar will display different windows depending on the list displayed in the main window.

#### Suppliers

Displays a list of raw materials supplied by the selected supplier as shown below.



The screenshot shows a window titled "Supplier Raw Material Usage" with a subtitle "Raw Materials Supplied By Australian Coatings Resources". It contains a table with three columns: Code, Description, and Price. The table lists various raw materials and their prices per unit.

Code	Description	Price
ACETONE	Acetone	2.000 / Lt
ACROPOL63929	Acropol 63-929	2.000 / Kg
ACTICIDEAZ	Acticied AZ	7.000 / Kg
AMMONIA	Ammonia 30% Solution	1.000 / Kg
BEV22635	Bevaloid 226/35	5.000 / Kg
BEV643	Bevaloid 643	3.000 / Kg
BUTANOL	n-Butanol	5.000 / Lt
CALCITE	Calcium Carbonate	0.500 / Kg
CAOCT	Calcium Octoate 5%	4.000 / Kg
CIRCAL6012	Circal 60/12	1.000 / Kg
COOCT	Cobalt Octoate 12%	5.000 / Kg
ECKALITE2	Eckalite 2	1.000 / Kg
EPIKOTE1001	Epikote 1001	2.000 / Kg
ETHYLACETATE	Ethyl Acetate	3.000 / Lt
IPA	isopropyl alcohol	1.000 / Lt
JORD2232	Jordosol 2232	2.000 / Kg
JORD6666	Jordosol 6666	2.000 / Kg
MEK	methyl ethyl ketone	2.000 / Lt
METHOCEL	Methocel J5M5 2% Solution	0.000 / Kg

Figure 23 – Raw Materials Usage Screen

#### Raw Materials

Displays a list of formulations which use the selected raw material.

#### Formulations

Displays a list of products which use the selected formulation.

### 24. THE NOTES BUTTON

The **Notes** button in the top toolbar allows entry of notes on suppliers, raw materials and formulations.

### 25. THE EMAIL BUTTON

The **Email** button in the top toolbar is active when the contacts list is open. It enables you to send an email to the contact using your default email client software.

## 26. THE STATS BUTTON

The **Stats** button in the top toolbar is active when the formulations and products list is open. It enables you to display a control chart graph of the results of any QA test for the selected formulation or product as shown below.

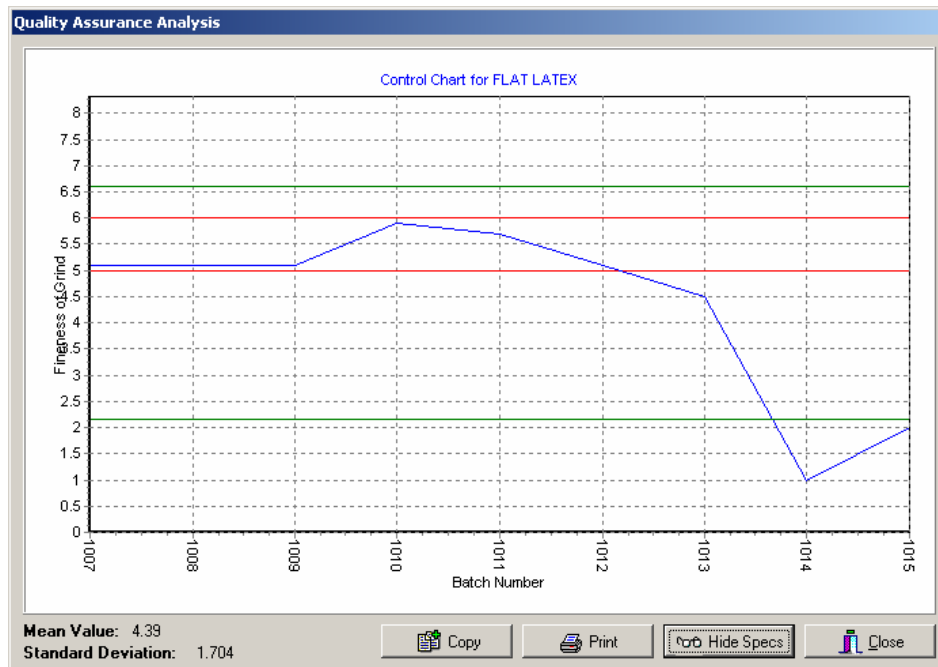


Figure 24 – Quality Assurance Control Chart Screen

The **blue** line represents the quality assurance results. The **red** lines represent the product specifications. The **green** line represents the upper and lower control limits.

The **red** lines may be hidden since control charts should strictly not display specifications.

The graph may be printed or copied to the Windows Clipboard for pasting into other applications.

## 27. THE VIEW BUTTON

The **Stats** button in the top toolbar is active when the formulations list is open. It enables you to display the formulation but you will not be able to edit it.

**View Formulation**

Formulation Code: FLAT LATEX Intermediate: NO

Description: Premium Flat Latex Paint

Revision Number: 27 Revision Date: 10/02/2004 Technician: Fred

Item	Code	Description	Kg	Lt	Wt %	Vol %	NVM	NVV
1	H2O	Water	160.000	160.000	11.339	15.999	0.000	0.000
2	METHOCEL	Methocel J5MS 2% Solution	150.000	150.000	10.631	14.999	3.000	3.000
3	BEV643	Bevaloid 643	2.000	2.105	0.142	0.210	2.000	2.105
4	BEV22635	Bevaloid 226/35	8.000	6.667	0.567	0.667	2.800	1.467
5	TERICN9	Teric N9	5.000	5.000	0.354	0.500	5.000	5.000
6	TIONA	Tiona 373	330.000	89.189	23.388	8.918	330.000	89.189
7	CIRCAL6012	Circal 60/12	210.000	77.778	14.883	7.777	210.000	77.778
8	ECKALITE2	Eckalite 2	33.000	12.692	2.339	1.269	33.000	12.692
9		High speed disperse 20 minutes						
10	ACROPOL6...	Acropol 63-929	205.500	190.278	14.564	19.026	113.025	97.603
11	BEV643	Bevaloid 643	2.000	2.105	0.142	0.210	2.000	2.105
12	PROPGLYCOL	Propylene Glycol	50.000	48.170	3.544	4.817	0.000	0.000
13	TEXANOL	Texanol	15.000	15.789	1.063	1.579	0.000	0.000
14	ACTICIDEAZ	Acticide AZ	2.000	1.818	0.142	0.182	1.000	0.818
			1411.00	1000.09	100.00	100.00	705.34	295.47

QA Parameters | Miscellaneous Properties

Test	Lower Limit	Upper Limit
Fineness of Grind	5.00	6.00
Viscosity	3	4

**Properties**

- SG: 1.411
- NVM%: 49.989
- NVV%: 29.544
- Total PVC: 60.804
- Pigment PVC: 30.185
- Extender PVC: 30.619
- Critical PVC: 55.253
- Pigment g/l: 329.970
- Cost per litre: 4.025
- Cost per kg: 2.853
- Mill Base Vol %: 50.339
- VDC (g/l): 0.542
- VDC - US (g/l): 1.477
- P/B Ratio: 5.070
- MIT/CMIT: 708.717

Figure 25 – View Formulation Screen

The Miscellaneous Properties tab lists properties such as humectant levels, coalescing solvent levels, drier metal levels, epoxy calculations, etc.

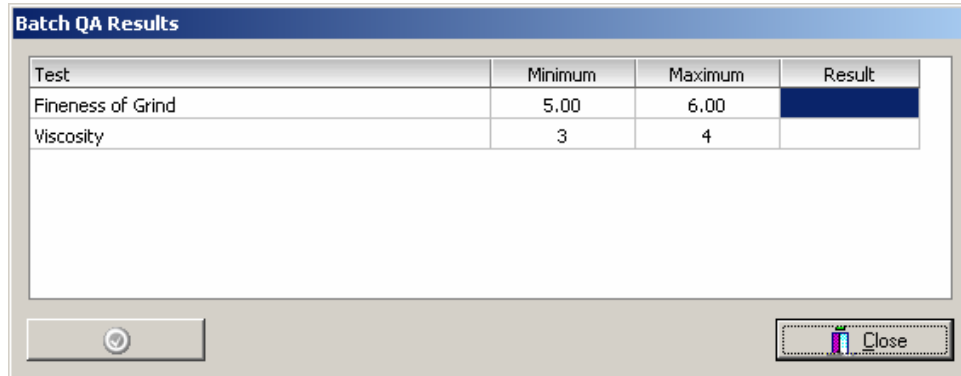
The value calculated for critical PVC is entirely theoretical and does not take into consideration pigment packing or binder density.

## 28. ENTERING QUALITY ASSURANCE DATA

Quality assurance data can be entered for any batch.

From the WinBLEND main screen click on the **Batches** button in the left-hand menu. A list of batches will appear in the right-hand detail pane.

Double click on the batch in the list that you wish to add or edit quality assurance data. The following window will be displayed.



Test	Minimum	Maximum	Result
Fineness of Grind	5.00	6.00	
Viscosity	3	4	

Figure 26 – Entering Batch Quality Assurance Results

Only the **Results** column is editable. Once you have entered the desired result click on the **Save** button or move to the next row of the table to save the record.

## 29. REPLACING RAW MATERIALS

Occasionally you may wish to replace one raw material with another in all formulations. WinBLEND includes a utility to automate this replacement.

Click on **Utilities** in the top menu then click on Replace **Raw Material Globally**. The following window will be displayed.

**Replace Raw Material Globally**

This function will allow you to replace any raw material with another in all formulations.

Replacement raw materials must be in the same category. No checks are made to ensure that the raw materials have the same non-volatiles.

You may replace the raw material globally in all formulations including previous revisions but use caution in doing so. Such replacement will change every formulation revision, not simply the current formulation.

**THIS PROCEDURE MAY TAKE SOME TIME**

Current RM Code: [Dropdown Menu]

New RM Code: [Dropdown Menu]

Direct replacement       Replace by NVM

Replace raw material in all historical formulations. **CAUTION!**

[Cancel] [Start]

Figure 27 – Raw Material Replacement Screen

Select from the drop down list the current raw material and the new raw material code of the replacement.

Choose whether to replace on a weight for weight basis or on a non-volatiles basis.

Select whether you want to replace this raw material in all historical revisions of every formulation. This is normally not necessary.

NOTE – This procedure may take some time to complete.

### 30. COMPARING TWO FORMULATIONS

If you would like to compare the composition and properties of any two formulations then WinBLEND has a utility to simplify this.

Click on **Utilities** in the top menu then click on **Compare Two Formulations**. The following window will be displayed.

Formulation Comparison					
Code	Description	EPOXY		TOLBUT	
		Weight %	Volume %	Weight %	Volume %
EPIKOTE1001	Epikote 1001	33.434	26.950		
BUTANOL	n-Butanol	13.557	16.035	50.000	52.601
XYLENE	Xylene	14.560	16.035		
MEK	methyl ethyl ketone	30.090	32.071		
TOLUENE	Toluene	8.358	8.909	50.000	47.399
<b>Properties</b>					
	Specific Gravity		0.959		0.853
	NVM %		33.43		0.00
	NVV %		26.95		0.00
	Total PVC		0.00		0.00
	Pigment PVC		0.00		0.00
	Extender PVC		0.00		0.00
	Pigment g/l		0.0		0.0
	Cost/litre		2.004		2.114
	Cost/kg		2.089		2.478
	VOC g/l		638.52		853.19
	VOC (US) g/l		638.52		853.19
	Pigment/Binder Ratio		0.00		0.00

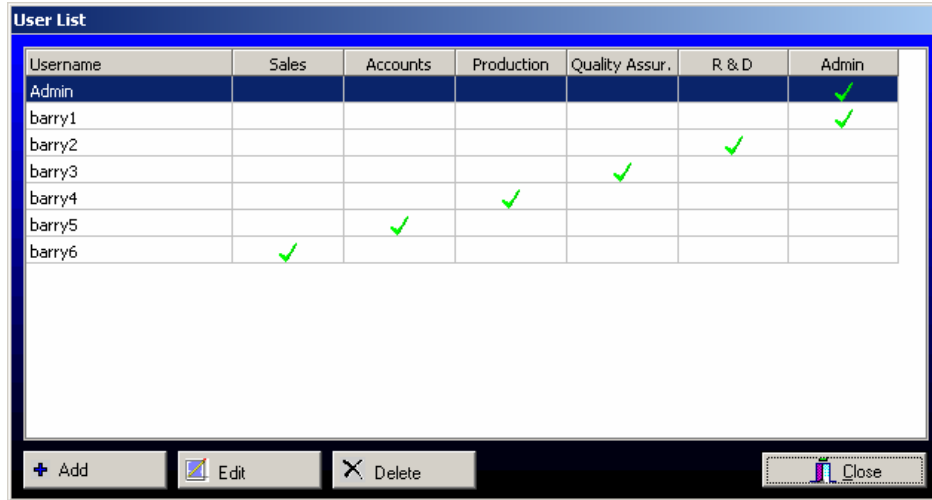
Figure 28 – Formulation Comparison Screen

The weight and volume percentage of each raw material in each formulation will be displayed along with the calculated properties for each formulation.

### 31. USER ADMINISTRATION

If you have activated the user administration feature of WinBLEND you may add users and set their privileges.

Click on **File** in the top menu then click on **User Administration**. The following window will be displayed.



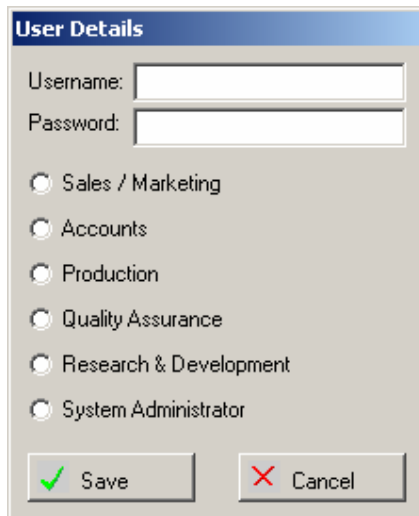
The User List screen displays a table with columns for Username, Sales, Accounts, Production, Quality Assur., R & D, and Admin. The Admin user is the default and cannot be deleted. The following table represents the data shown in the screenshot:

Username	Sales	Accounts	Production	Quality Assur.	R & D	Admin
Admin						✓
barry1						✓
barry2					✓	
barry3				✓		
barry4			✓			
barry5		✓				
barry6	✓					

At the bottom of the window are buttons for Add, Edit, Delete, and Close.

Figure 29 – User List Screen

The Admin user is the default administration account and may not be deleted. To add a new user click on the Add button and the following window will appear.



The User Details screen contains the following fields and options:

- Username:
- Password:
- Radio buttons for privilege selection:
  - Sales / Marketing
  - Accounts
  - Production
  - Quality Assurance
  - Research & Development
  - System Administrator
- Buttons:  (with a green checkmark icon) and  (with a red X icon)

Figure 30 – User Details Screen

The access privileges are listed in order of increasing access levels. Hence Sales/Marketing have minimal access whilst System Administrators have full access.

### 32. DOUBLE CLICKING ON LISTS

WinBLEND has built in short-cuts to some features by double clicking the mouse button on the list items depending on the list that is displayed.

#### Suppliers

Displays details for selected supplier.

#### Raw Materials

Displays details for selected raw material.

#### Packaging

Displays details for selected packaging.

#### Formulations

Displays selected formulation (View mode).

#### Products

Displays details for selected product.

#### Batches

Displays quality assurance results for selected batch.

### 33. REGISTRATION OF WINBLEND

WinBLEND may be used for up to 30 days with limitations on the number of raw materials and formulations that may be entered. Once you have purchased WinBLEND you will be supplied with a registration code giving you unlimited use of the software.

To register **WinBLEND** click on WinBLEND in the top menu then click on **Register WinBLEND** and the following window will be displayed.



Figure 31 – Registration Screen

The registration code is generated based on the company name that you have entered when WinBLEND was first started. Enter the registration code **exactly** as was supplied to you when you purchased the product then click on the **Register** button.

### 34. RAW MATERIAL CATEGORY LIST

WinBLEND 2.0 categorizes raw materials based on their raw material type using codes identical to those used in the Surface Coatings Association of Australia Raw Material Index.

Code	Description
A1	Sulfate Extenders
A2	Carbonate Extenders
A3	Silica and Silicate Extenders
A4	Titanium Dioxide
A5	Other White Pigments
A6	Chrome Yellows, Oranges and Scarlets
A7	Cadmium Yellows, Oranges and Reds
A8	Yellow Oxides, Red Oxides and Brown Oxides
A9	Other Inorganic Yellows, Oranges, Reds and Browns
A10	Organic Yellows and Oranges
A11	Organic Reds, Maroons and Browns
A12	Inorganic Blues and Violets
A13	Organic Blues and Violets
A14	Inorganic Greens
A15	Organic Greens
A16	Black Pigments
A17	Metal Powders and Pastes
A18	Pigment Dispersions
A19	Dyestuffs
A20	Fluorescent Pigments
A21	Pearlescent Pigments
A22	Miscellaneous Pigments & Opacifiers
B1	Alkyd Resins - Pure Drying Long Oil (over 55% oil length)
B2	Alkyd Resins - Pure Drying Medium Oil (45-55% oil length)
B3	Alkyd Resins - Pure Drying and Non-Drying Short Oil (under 45% oil length)
B4	Alkyd Resins - Phenolic and Rosin Modified
B5	Alkyd Resins - Modified
B6	Urethane Alkyds and Oils
B7	Polyurethanes - Prepolymers (incl. Moisture Curing)
B8	Polyurethanes - Hydroxyl Components
B9	Pure Epoxy Resins
B10	Epoxy Curing Agents
B11	Modified Epoxy Resins
B12	Polyester Surface Coating Resins
B13	Pure Phenolic Resins
B14	Modified Rosins (incl. Phenolics)
B15	Natural Resins
B16	Hydrocarbon Resins
B17	Thermoplastic Acrylic Resins
B18	Thermosetting Acrylic Resins
B19	Vinyl Resins
B20	Silicone Resins
B21	Amine Formaldehyde Resins
B22	Emulsions - PVA Homopolymers
B23	Emulsions - PVA Copolymers
B24	Emulsions - Acrylics (Pure & Modified)
B25	Emulsions - Styrene Copolymers
B26	Emulsions - Others
B27	Cellulose Resins
B28	Non-Reactive Polyamides
B29	Hot Melt Resins
B30	Miscellaneous Resins

<b>Code</b>	<b>Description</b>
C1	Hydrocarbons - 40% Aromatics and Above
C2	Hydrocarbons - Below 40% Aromatics
C3	Alcohols
C4	Ketones and Aldehydes
C5	Esters
C6	Glycols
C7	Glycol Ethers
C8	Chlorinated Solvents
C9	Miscellaneous Solvents
D1	Vegetable Oils
D2	Fatty Acids and Tall Oils
D3	Modified Vegetable Oils, Fish Oils and Misc. Oils
D4	Acids and Anhydrides
D5	Polyols
D6	Phenols
D7	Monomers
D8	Radiation Curable Intermediates
D9	Miscellaneous Resin Intermediates
E1	Amines
E2	Antifloat, Suspension and Grinding Aids
E3	Antioxidants
E4	Defoamers and Silicone Additives
E5	Driers
E6	Fungicides, Bactericides and Insecticides
E7	Initiators and Organic Peroxides
E8	Mineral Oils
E9	Plasticisers - Phthalates
E10	Plasticisers - Polyesters
E11	Plasticisers - Adipates and Sebacates
E12	Plasticisers - Miscellaneous
E13	PVC Stabilisers
E14	Surface Active Agents
E15	Thixotropes and Matting Agents
E16	Thickeners and Rheology Modifiers
E17	Waxes (Natural and Synthetic)
E18	Miscellaneous Products

### 35. EXPORTING FORMULATIONS

Users may save formulations from WinBLEND to a .wbd file which may be read by the WinBLEND Formulation Viewer / Printer utility program (download separately).

The export option is available when viewing formulations.

This feature is useful for distributing formulations developed in WinBLEND to clients who do not have WinBLEND. The WinBLEND Formulation Viewer / Printer may be distributed freely with any exported formulations.

### 36. IMPORTING AND EXPORTING RAW MATERIALS

The raw material data contained in WinBLEND may be exported to a TAB delimited text file readable by many other applications including Microsoft Excel. To export the raw material data click on **Utilities** in the top menu then **Import/Export Raw Materials**. The following window should appear.

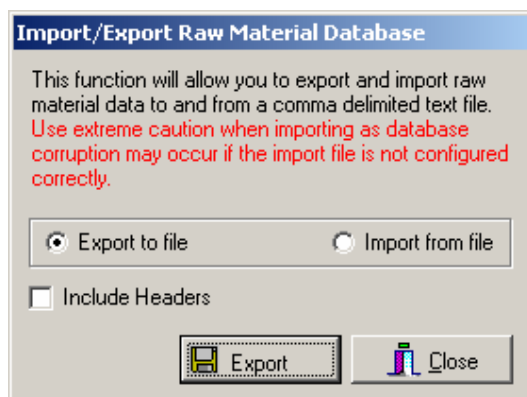


Figure 32 – Import / Export Raw Materials

Select whether you want to include the database headers then click on the Export button. You will be asked to enter the name and location of the exported file.

The exported data will contain all fields from the raw material database.

Data may also be imported into the raw material database from a tab delimited text file. This text file **must** be in the correct format otherwise the import will fail. The following fields must be included in the text file:

Description	Type	Maximum Length
Raw Material Code	Alphanumeric	25
Description	Alphanumeric	50
Supplier Code	Alphanumeric	25
Unit of Measure	kg, lb, lt, gal	3
Cost	Decimal	
Non-volatiles by weight	Decimal	
Specific Gravity	Decimal	
Volatile Material Code	Alphanumeric	25
Category (see Chapter 34)	Alphanumeric	5
Update Date	Date	

**IMPORTANT – IF THE TEXT FILE DOES NOT CONFORM WITH THESE DEFINITIONS ERRORS WILL OCCUR AND DATABASE CORRUPTION IS POSSIBLE.**

### 37. FREQUENTLY ASKED QUESTIONS

I would like to save a report rather than print it.

The simplest way to do this is to save the report as a Adobe Acrobat PDF file. This can be achieved if you have Adobe Acrobat Distiller installed on your computer or alternatively you may use the Freeware software “CutePDF” available from [www.acrosoft.com](http://www.acrosoft.com). When the print dialog appears you simply select Adobe Acrobat Distiller or CutePDF as the output device.

When entering formulations, can I use the keyboard rather than the mouse?

Certainly, use the Tab key to move between fields. When entering raw material codes simply type the code into the field.

When entering formulations can I add a new raw material without exiting the formulation entry screen?

Yes, if you enter a new raw material code into a formulation you will be asked if you would like to add it as a new raw material.

What is the purpose of the “Packaging” database?

Currently the packaging database is only used when printing batch sheets. Future releases will incorporate the packaging costs into product costs.

Can the raw material list and other lists be sorted in a different order?

Yes, simply click on the header of the column that you wish to sort. Clicking multiple times will alternate between ascending and descending order sort.