Formulation Module

User Guide

Neon Version

Procession

Contents

About Procession

Procession is a Sage X3 suite of modules, which was created by **Procession Software LLC**. Designed for process manufacturers and distributors, ***Procession*** provides premium features and modules for your Sage X3 system. ***Procession*** allows companies to get more out of Sage X3.

Procession picks up where Sage X3 leaves off. ***Procession*** provides enhanced functionality for customers who are looking to get more from their Sage X3 system. ***Procession*** helps to manage the complexity of process manufacturing allowing you to do more with less.

Procession is a fully integrated solution that runs seamlessly within X3 and does not require additional hardware. Since ***Procession*** is part of your Sage X3 system, it is easier to install and maintain than external third party applications. Since it shares the Sage X3 user interface, it is quick to learn and adopt. ***Procession*** becomes part of your Sage X3 system and therefore requires no integration links and all data resides within the Sage X3 database.

About Procession Software LLC.

Procession Software LLC is a team of professionals from the worlds of process manufacturing and software development and implementation. Our vision is to create THE process manufacturing solution for Sage X3. This vision guided our development of ***Procession.***

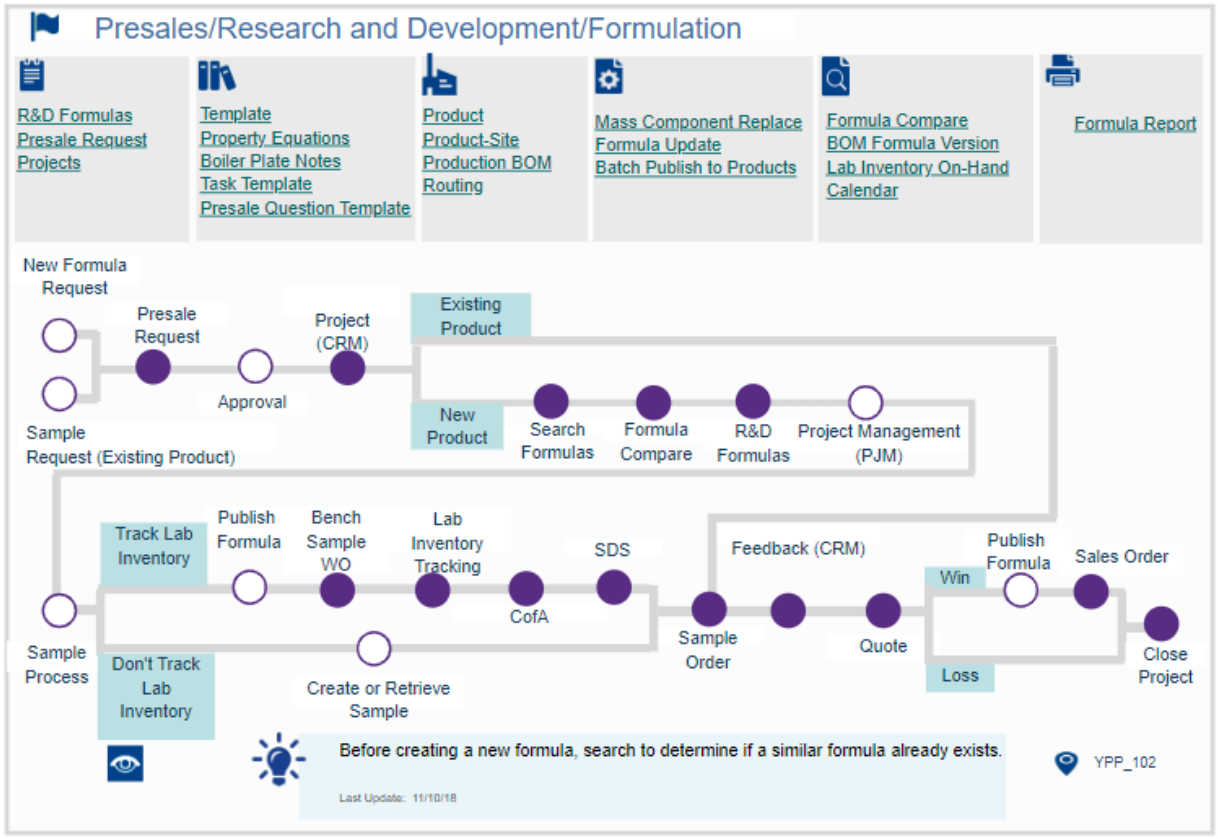
The initial seeds of ***Procession*** started in 2006 when a team of process manufacturing professionals and developers designed and built software that would handle the unique requirements for chemical manufacturers. The software brought order to the chaos of regulation compliance, formula management, material safety data sheets and quality control.

The solution, which started in 2006, has evolved into ***Procession***, an enhancement suite for process manufacturers. Since its launch in 2014, ***Procession*** has received much praise from the Sage X3 community. Today, companies ranging from hundreds of employees to companies with tens of employees use ***Procession***. As our user base continues to grow, our team is dedicated to adding innovative functionality that addresses the ever-changing landscape of regulations and the needs of formulators, quality control professionals, manufacturers and distributors.

Since 2013, the Procession team has been working closely with Sage Software to ensure that our solution meets the development standards of Sage. ***Procession*** has been a Sage Certified Solution since 2015.

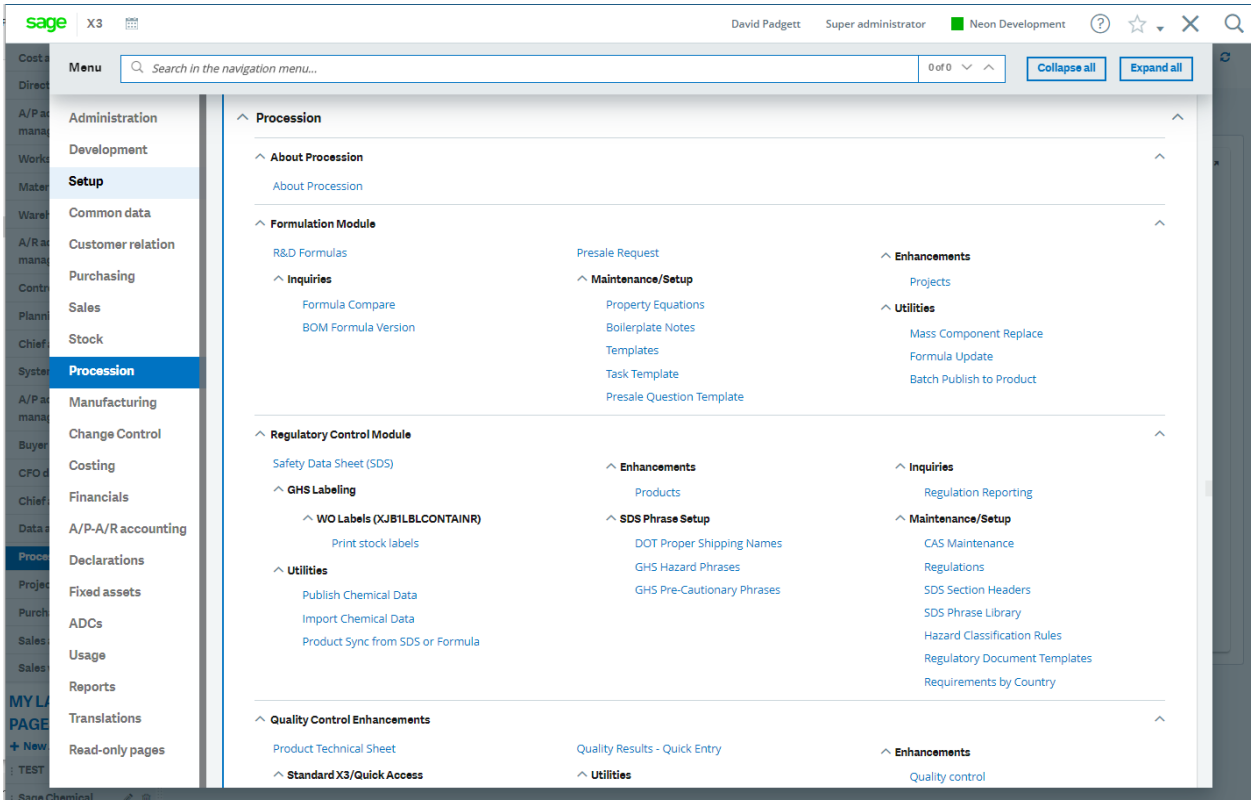
Visual Process Flows

PRESALE/R&D FORMULAS

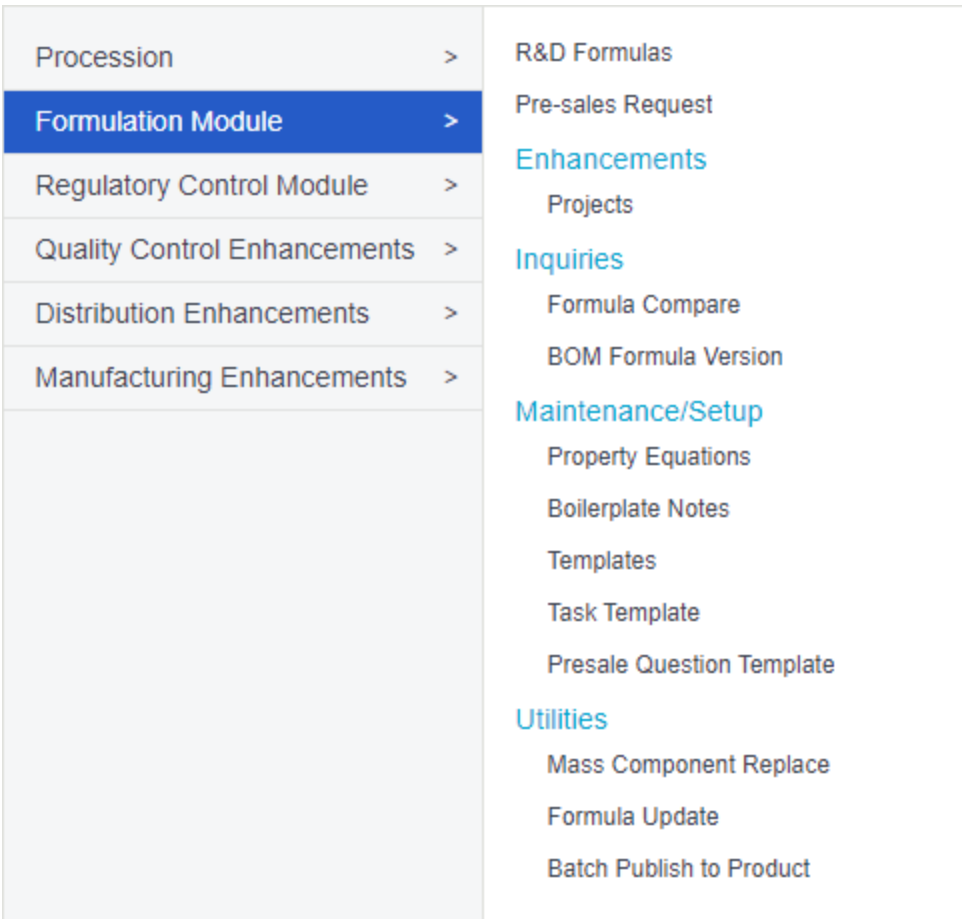


Procession can also be accessed from either the Procession menu or from Visual Process Flows within Sage EM. An example visual process flow is shown above. Customers can also create their own process maps in order to access both Sage X3 and ***Procession*** features.

The image below shows the ***Procession*** menu in Sage X3 Version 12 (R09.022.00)



Sage X3 Version 11 Procession Menu


Procession >
Formulation Module >
Regulatory Control Module >
Quality Control Enhancements >
Distribution Enhancements >
Manufacturing Enhancements >
R&D Formulas
Pre-sales Request
Enhancements
Projects
Inquiries
Formula Compare
BOM Formula Version
Maintenance/Setup
Property Equations
Boilerplate Notes
Templates
Task Template
Presale Question Template
Utilities
Mass Component Replace
Formula Update
Batch Publish to Product

Formulation Module

The ***Procession*** Formulation module provides the tools needed to manage formulas and lab projects, track new business opportunities, manage customer sample requests, classify hazards, perform detail costing and provide estimates.

The cornerstone of the Formulation module is the R&D Formulation functionality. The R&D Formulation functionality provides a "sand-box" environment for the development of new formulas or for creating revisions of existing formulas.

The Formulation module provides a toolset for chemists, formulation scientists and food scientists including:

- Lab projects
- Sample tracking
- Formula management
- Access controls with workflow approvals and change logs
- Formula costing
- Estimating and Quoting (New in Neon)
- Property Calculations or Nutrient Calculations
- Formula Side-by-Side Comparison
- Boilerplate Production Notes and Images
- Ability to publish formulas to create or update products and production BOM records.
- Version control for QC Specifications
- Version control for Formulas
- Regulatory and Technical Document Management (New in Neon)
- Integration with the following Sage X3 and ***Procession*** Modules:
  -Quality Control
  -Regulatory Control
  -Manufacturing
  -Stock
  -Sales
  -Customer Relation (CRM)
  - Nutraceutical Plug-in

Setup

Before using the ***Procession*** Formulation module for the first time, please refer to the different topics in this Setup section.

Unit of Measure Setup

Procession has the ability to convert formula quantities between any two different units of measure. However, in order to use this functionality, some setup is required. The following appendices contain information on unit of measure conversion system configuration settings:

- APPENDIX 3 – SYSTEM PARAMETERS
- APPENDIX 4 – UNIT OF MEASURE SETUP
- APPENDIX 5 – PRODUCT UNIT OF MEASUREMENT SETUP
- APPENDIX 6 – UNIT OF MEASUREMENT CONVERSIONS

Boilerplate Notes

Boilerplate notes are used to maintain a common set of production instructions that are used in the production of one or more products. Images can also be included with the instructions in order to provide visual guidance that complements the accompanying text.

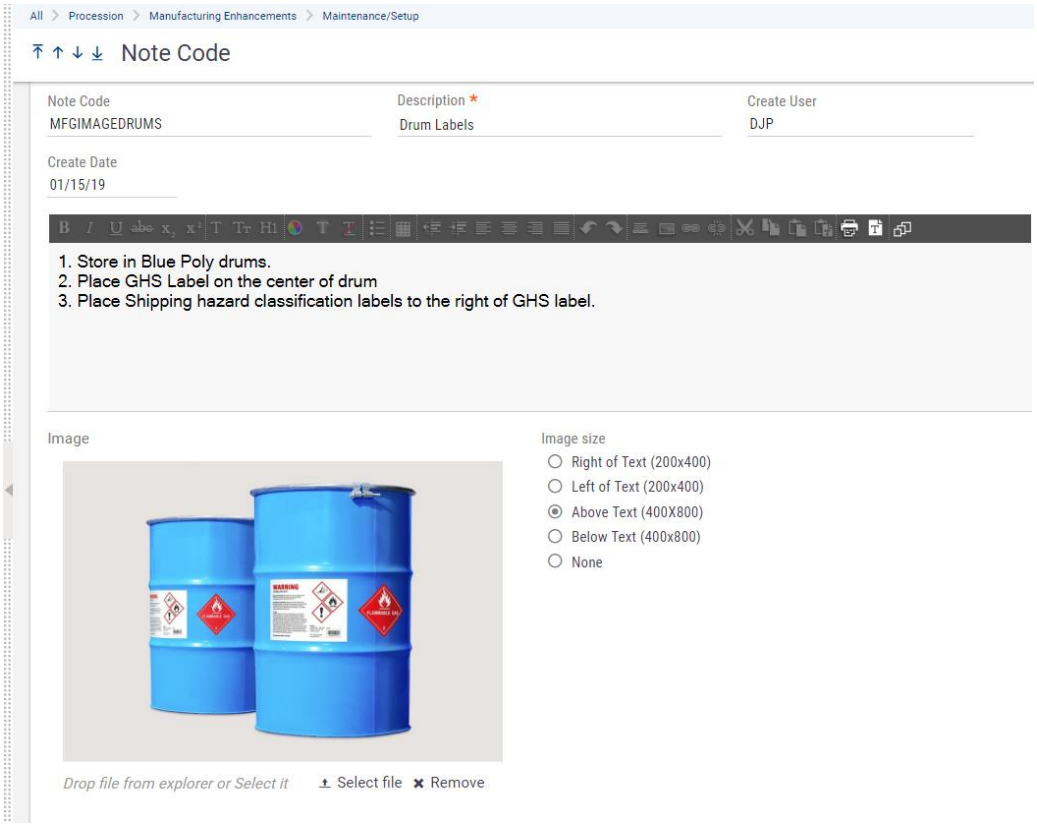
Boilerplate Notes can be accessed by navigating to **Procession→ Formulation Module → Boilerplate Notes.**

Boiler plate notes can be added to formulas, BOMs or directly to work orders. These notes can be used as either simple instructions, images, or elaborate check-off lists.

The benefits of the boilerplate notes feature are:

- Reduces user errors by eliminating the need for entering common production instructions for each product.
- Allows for rapid global changes to instructions. If an instruction is changed on the Boilerplate Note, the instruction is automatically changed on all Formulas and BOM's where the Boilerplate note is used.
- Provides the ability to add images that can be used for visual verifications during the manufacturing or quality processes.

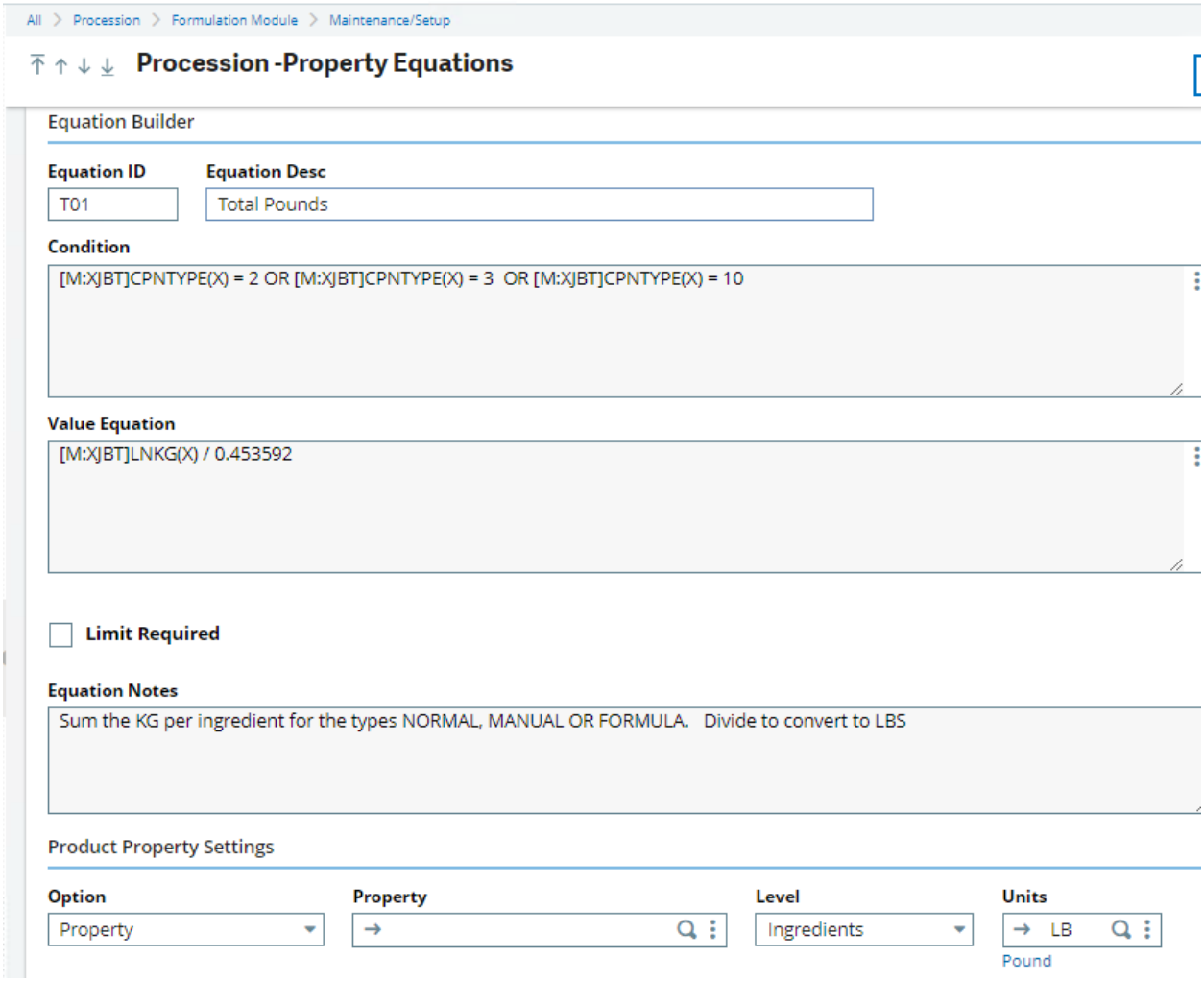
The image below shows an example of a Boiler plate note along with an image file. These images are displayed in the ***Procession*** Manufacturing module's Batch Ticket Report. The Image Size field allows the user to dictate where the image will show in relation to the text. The image pixel sizes that are supported are shown in parenthesis.



Property Equations

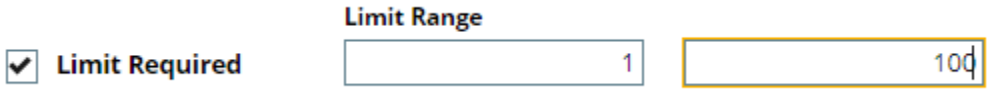
Property equations are used to either calculate properties or allow manual entry of properties for a formula. The properties that are calculated can include chemical properties, nutritional information, allergens, etc. These calculations provide real-time information that can be used during formulation in order to adjust formulas to meet specific targets.

Property Equations can be accessed by navigating to **Procession→ Formulation Module → Property Equations.**



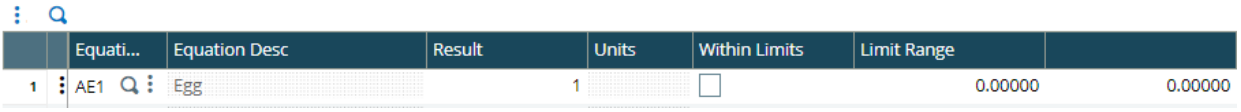
The fields on the Property Equation are:

- **Equation ID** – Unique 3 character alphanumeric identifier for the equation.
- **Equation Description** – Free form text description of the equation.
- **Condition** – Logic condition for the equation. If the condition returns a result of false, then the value equation calculation will not occur.
- **Value Equation** – The calculation that occurs when the condition is met.
- **Limit Required (New in Neon)** – When selected, this option allow the entry of a valid Limit Range. This range can be defined on the equation or the range can be formula specific.



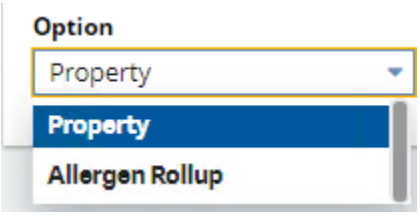
Below is an example of an equation with a limit. In this case, the limit range was 0 and the calculated value was 1, indicating that 1 ingredient contains eggs. Therefore, the "Within Limits"

checkbox is unchecked, because the calculated value for the formula is outside the acceptable limits set for the equation.

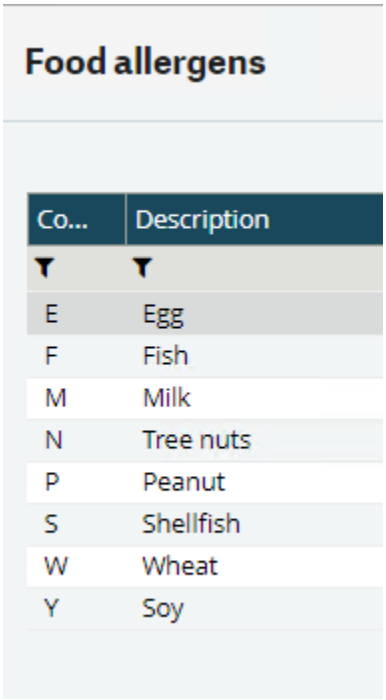


	Equati...	Equation Desc	Result	Units	Within Limits	Limit Range	
1	AE1	Egg	1		☐	0.00000	0.00000

- **Expression Notes** – Text field for entering user documentation for the equation. When creating an equation, it is recommended to enter a full text description of the equation's purpose and document who created the equation and when it was last changed. This information is helpful in managing revisions to equations and for trouble-shooting any problems with the equation.
- **Option (New in Neon)** – Defines if this equation is a property (default) or an allergen. This selection determines if the Property fields or the Allergen fields are displayed for this record.



- **Allergen (New in Neon)** – (Requires Option = Allergen Rollup) Allows the selection of one of the allergens that have been defined within X3.

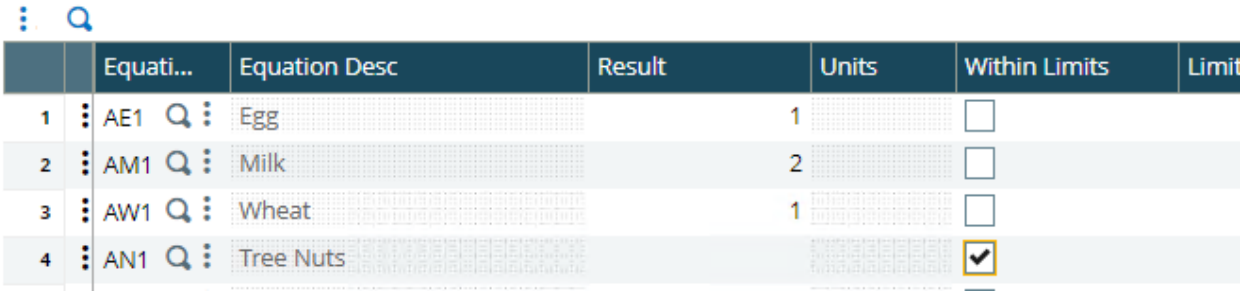


Food allergens

Co...	Description
E	Egg
F	Fish
M	Milk
N	Tree nuts
P	Peanut
S	Shellfish
W	Wheat
Y	Soy

When an allergen is selected, the Property Equation and Condition fields are automatically populated. Allergen Roll-up equations are used on the formula in order to determine if an allergen

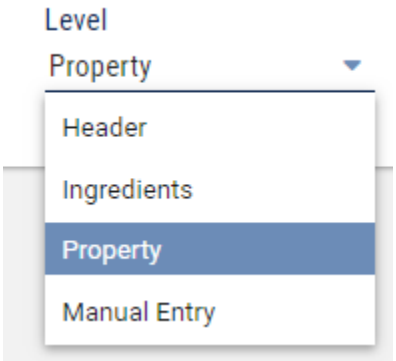
is present within the formula ingredients. On the formula, the equation returns a number indicating the number of ingredients containing that allergen. If the allergen is not found, then the equation will show that it is “Within Limits”.



	Equati...	Equation Desc	Result	Units	Within Limits	Limit
1	AE1	Egg	1		☐	
2	AM1	Milk	2		☐	
3	AW1	Wheat	1		☐	
4	AN1	Tree Nuts			☑	

When publishing a formula to a product, the allergen roll-up will update to the Product record’s Allergen field, which can be found on the Product record’s Maintenance tab.

- **Property** – (Requires Option = Property) Maps a formula property equation to a product property. If an equation is mapped to a property, then product properties can be updated from formulas during the formula publish. If an equation is not mapped to a property, then it is ignored during the formula publish.
- **Level** – Determines how and when the equation is evaluated.



Options are:

- **Header** – Only evaluate the equation once for the entire formula. This is useful for calculations that are based upon the results of other equations or on formula totals.
- **Ingredients** – Calculate the equation once for each ingredient in the formula. This is used when calculating total weights, volumes or costs of the formula.
- **Property** – Evaluate the equation once for each property of each ingredient in the formula. This is used when calculating totals based upon specific property values.
- **Manual Entry** – Don’t calculate. This can be used to allow property values to be manually entered instead of calculated. Manual Entry properties are designed to allow the entry of data that can be used in other equations. An example of a Manual Entry property may be the

container size, which could then be used in equations for calculating properties for that container size.

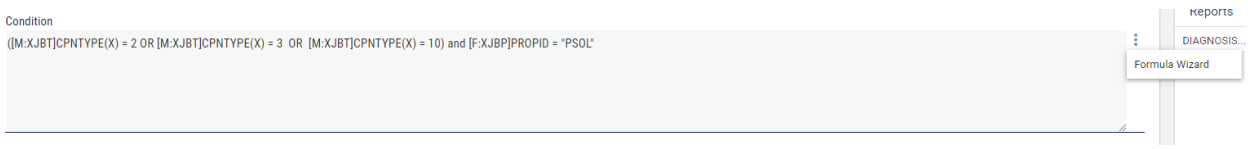
- **Units** – Reference field that shows the unit for the equation result.

Property Equations - Sage X3 4GL Quick Start

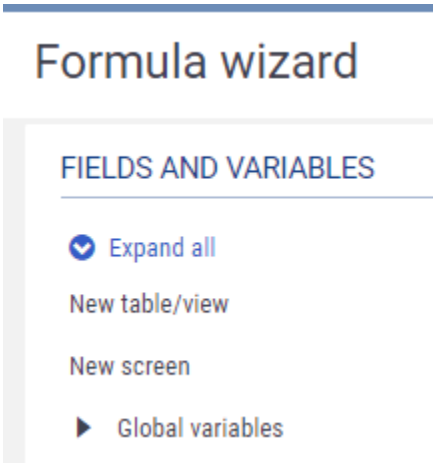
The conditions and value equations are written using the Sage X3 4GL language. This is a full programming language; however most conditions and equations can be created using the brief information described below.

Formula Wizard

The formula wizard is a tool that aides in the creation of expressions that can be used in conditions and value equations. The formula wizard can be accessed from the quick menu on the right of the condition or expression fields as shown in the image below.

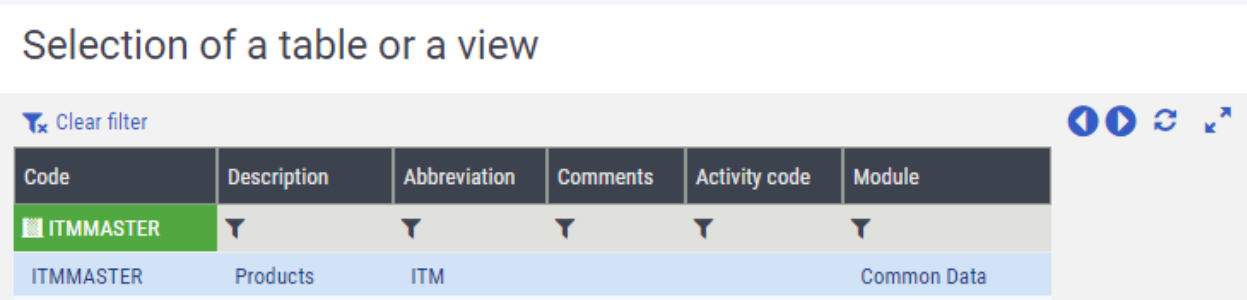


The image below shows the left menu options in the formula wizard window.

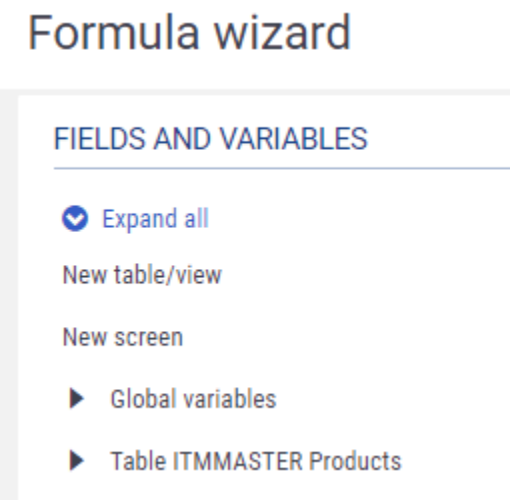


In the formula wizard, select the table or screen that will be used in the expression. For a complete list of tables and screens that are available for use in these expressions, refer to:

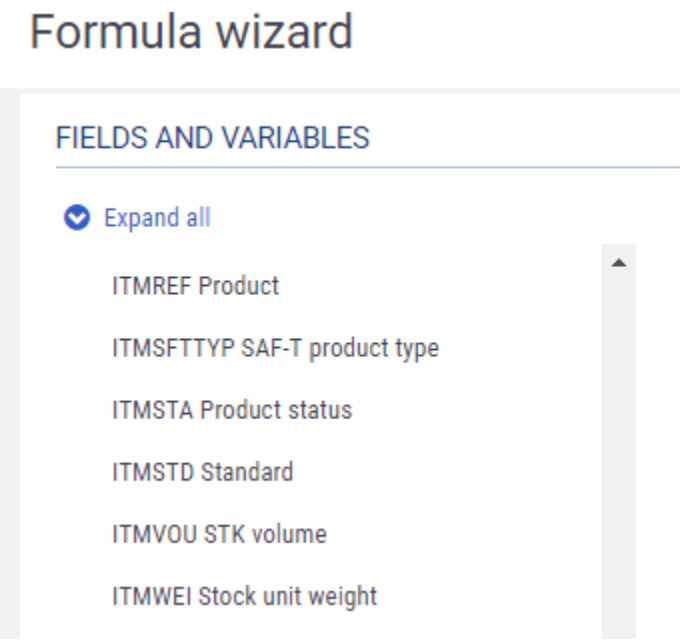
- PROPERTY EQUATIONS - TABLES
- PROPERTY EQUATIONS – SCREENS



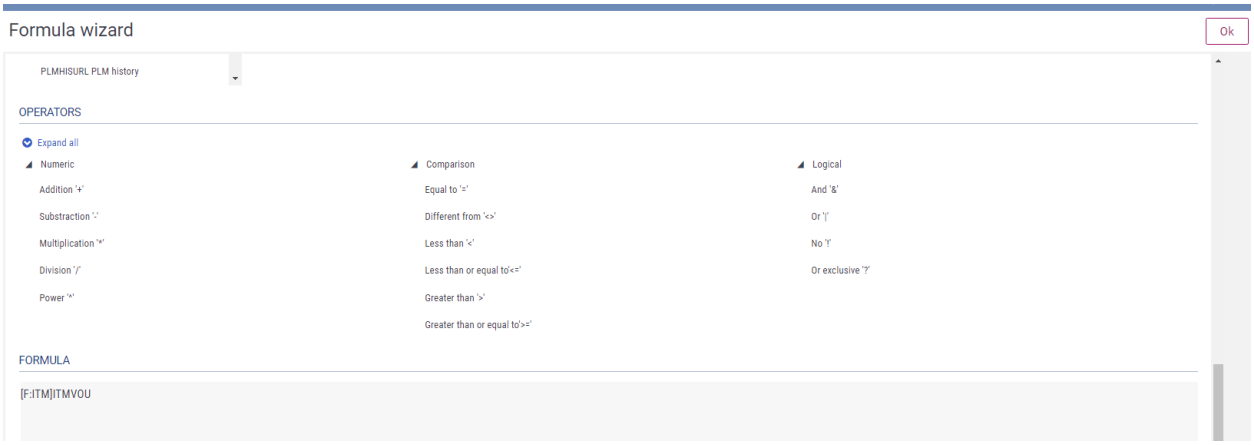
After selection, the table or screen will show in the Formula wizard.



Expand the list of fields by clicking on the arrow beside the table or screen.

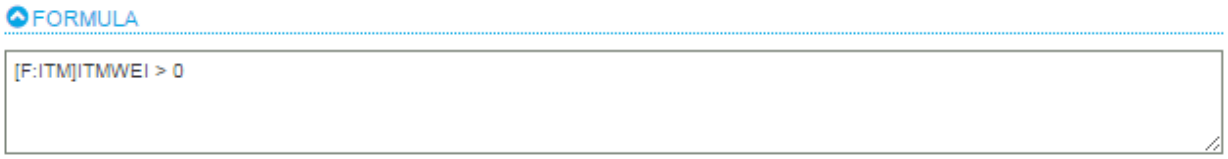


One or more fields can be selected from this list by double-clicking on the field. When a field is selected, it is automatically added to the expression found in the “Formula” field.



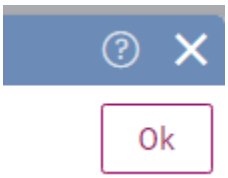
The field name will be preceded by the abbreviation for the table or screen. For example, the abbreviation for the ITMMASTER table is [F:ITM]. In Sage X3 4GL, table abbreviations always start with “[F:” and screen abbreviations always start with “[M:”.

The formula wizard also provides a list of available operators and functions that can be added to your expression. These can include basic operators such as “+” or “And” or more advanced functions such as string transformations.



In the example above, the “Greater Than” operator was selected and the value of 0 was entered.

Once the formula has been built in the formula wizard, the formula can be copied into the clipboard by highlighting the value and pressing the key combination CTRL+C. The Formula Wizard can be closed by pressing the Ok button or the “X” in the upper corner of the screen.



On the Property Equation record, the value built in the formula wizard can be pasted by pressing the key combination CTRL+P.

Property Equations –Ingredients

The formula ingredients can be accessed using the screen mask "[M:XJBT]". When an equation is setup to calculate at the "Ingredient" or "Property" level, then the equation will loop through each ingredient on the formula during the calculation. As the system loops through the ingredient list, the current row number is indicated by the variable "X". Therefore, when creating an expression using a field from this screen mask, the field name must be followed by "(X)". For example, a condition of "[M:XJBT]CPNTYPE(X)=1" would only be true for the ingredients where the component type was 1.

Property Equations - Properties

The product properties for each ingredient is stored in the table mask "[F:XJBP]". Each ingredient can have up to 250 properties. Formula properties can be calculated based upon the ingredient's properties.

For example, a condition of "[F:XJBP]PROPID = 'PVOL') indicates that the equation should only calculate for ingredients that have the property whose ID is "PVOL".

Property Equations – Building Equations Using Results from Other Equations

Equations can be built using the results of previous equations. In the expression, use the string "[XJB]" followed by the formula ID. For example, if the Property Equation "T01" calculates the weight of the formula in pounds, we can convert this weight to kilograms using the value equation:

[XJB]T01 * 0.453592

Property Equations – More Examples

The most common condition used in equations is the one shown below:

[M:XJBT]CPNTYPE(X) = 2 OR [M:XJBT]CPNTYPE(X) = 3 or [M:XJBT]CPNTYPE(X) = 10

This condition states that only the calculation should only occur for ingredients of the type "normal" or "manual" or "formula".

Below is an example of a value equation:

[M:XJBT]LNKG(X) / 0.453592

This example used the LNKG field, which holds the calculated Kilograms and converts the Kilograms to pounds. In this case, the calculation only uses fields from the Ingredients tab. However, since the Product master table is an option, the equation could also be written as:

[F:ITM]ITMWEI * [M:XJBT]LIKQTY(X)

Note, that if you use the "ITMWEI" field for calculating weights, then each ingredient must have the same weight unit ("WEI") on the product record.

Property Equations - Tables

Below is a list of tables that are available for use in property equations:

Table Name	Description	Abbreviation
ITMMASTER	Product Master table	[F:ITM]
XJBITMGHS	Product GHS Pictograms	[F:XJV]
XJBITMHAZMAT	Product HMIS/NFPA/PPE	[F:XJW]
XJBFRMCAL	Property Equations	[F:XKF]
ATABDIV	Miscellaneous Table # 4848 – Properties	[F:ADI]
XJBITMPROP	Product Properties	[F:XKI] or [F:XJBP] (either is acceptable)

Property Equations – Screens

Below is a list of screens that are available for use in property equations:

Screen Name	Description	Abbreviation
XJBRDF0	Formula Header Section	[M:XJBR]
XJBRDF1	Formula Header Tab	[M:XJBS]
XJBRDF2	Formula Ingredients Tab	[M:XJBT]
XJBRDF3	Formula Property Calculation Tab	[M:XJBU]
XJBRDF4	Formula Specifications Tab	[M:XJBV]
XJBRDF6	Formula Hazard Classifications	[M:XJBRDF6]
XJBRDF7	Nutrient Plug-in	[M:XJBN]

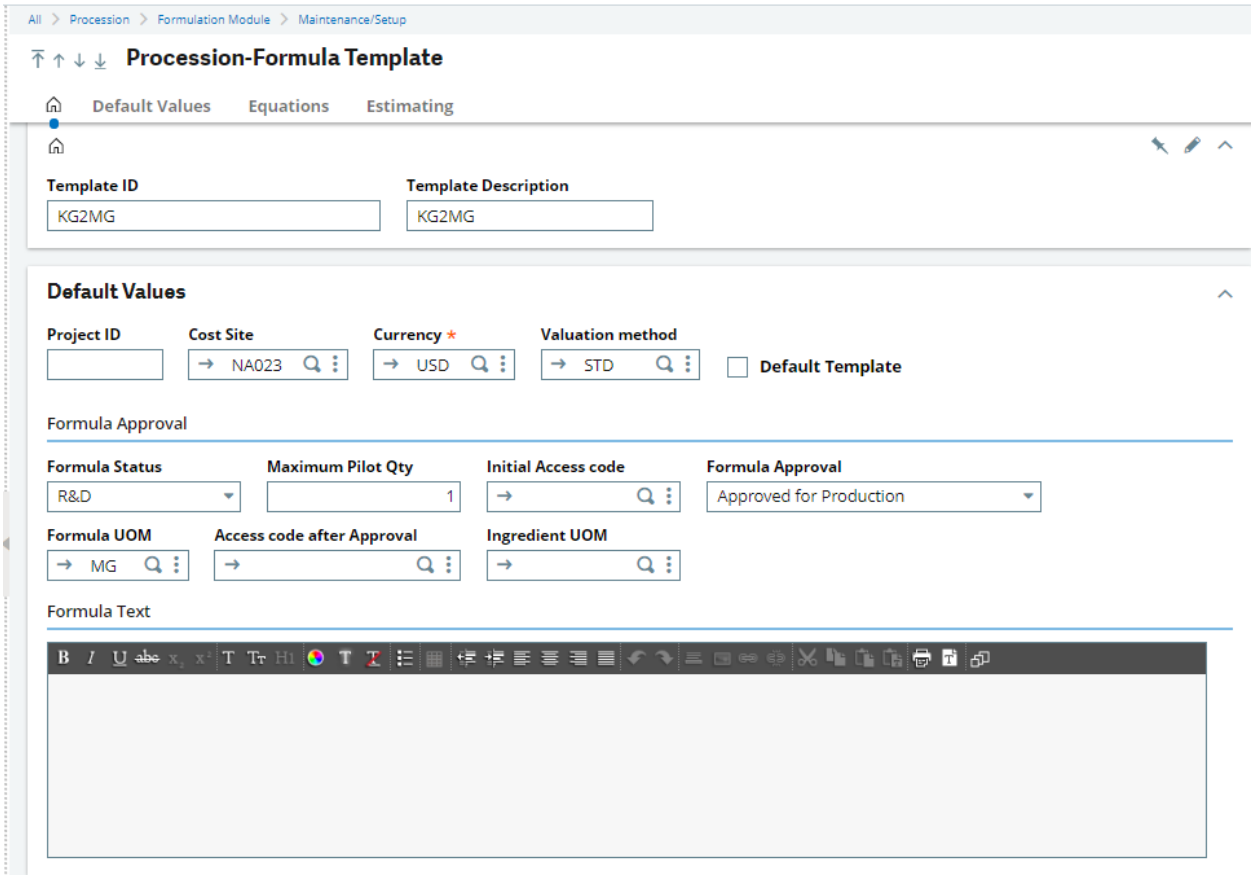
Templates

Templates are used to setup the default values, valuation methods, estimating settings and property equations that will used when creating new formulas. Templates may be accessed by navigating to **Procession→ Formulation Module → Templates**.

The template contains access code settings that determine which access codes are assigned to the formula before it is approved (ex. “XJBRDNORM”) and which access codes are assigned after the formula has been approved (ex. “XJBRDLOCK”). These access codes are used to control who has access to edit a formula before and after the formula approval.

Default Values Tab

The image below shows the Default Values tab.



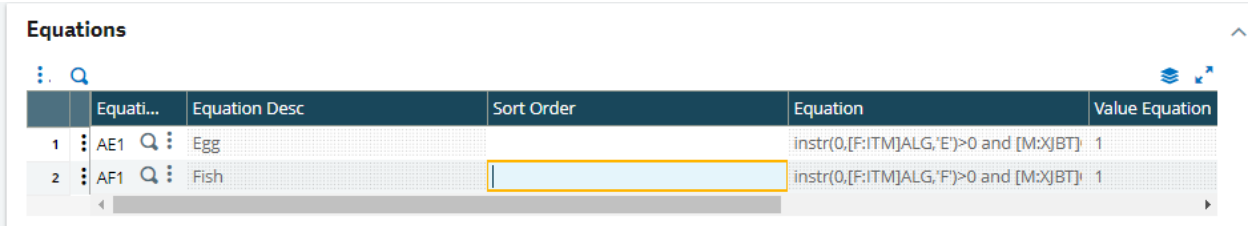
The fields on this tab are:

- **Project Id** – The default Project ID for formulas created using this template.
- **Cost Site** – The default site for formula costing.
- **Currency** – The currency unit for the cost site.
- **Valuation Method** – Method used for calculating ingredient costs on the formula.

- **Default Template –** If selected, then this template will be the default one used for creating new formulas.
- **Formula Status –** Default status for new formulas.
- **Maximum Pilot Qty –** This populates the maximum pilot qty field on new formulas. Also, for the default template, this value is used as the base quantity in the Formula Compare feature (refer to FORMULA COMPARE).
- **Initial Access Code –** Defines the access code that will be assigned to a formula prior to the formula being approved. This access code would be assigned to users who have the ability to edit formulas. Typically, the access code XJBRDNORM is used for this purpose.
- **Formula Approval –** Defines the initial approval status for new formulas.
- **Formula UOM** – The default unit that will be used for the formula. This value is used as both the unit of measure used in the totals section of the Formula Ingredient tab and the Batch Unit on the Formula Estimating tab.
- **Access code after Approval –** This access code will be automatically assigned to the formula when it is approved. This access code is used to prevent users from modifying the formula version once it has been approved and has gone into production. Typically, the access code XJBRDLOCK is used for this purpose.
- **Ingredient UOM** – (Optional) – Defines the unit of measure to be used for all ingredients added to a formula. For example, when formulating supplements, the raw materials may be stocked in Kg, but the formulation may be in mg. If used, this field will automatically change the unit of measure for all ingredients. If this field is empty, then all ingredients will default to their stock unit when added to the formula.
- **Formula Text** – This is an informational text field. If used, this text will be added to each new formula as they are created.

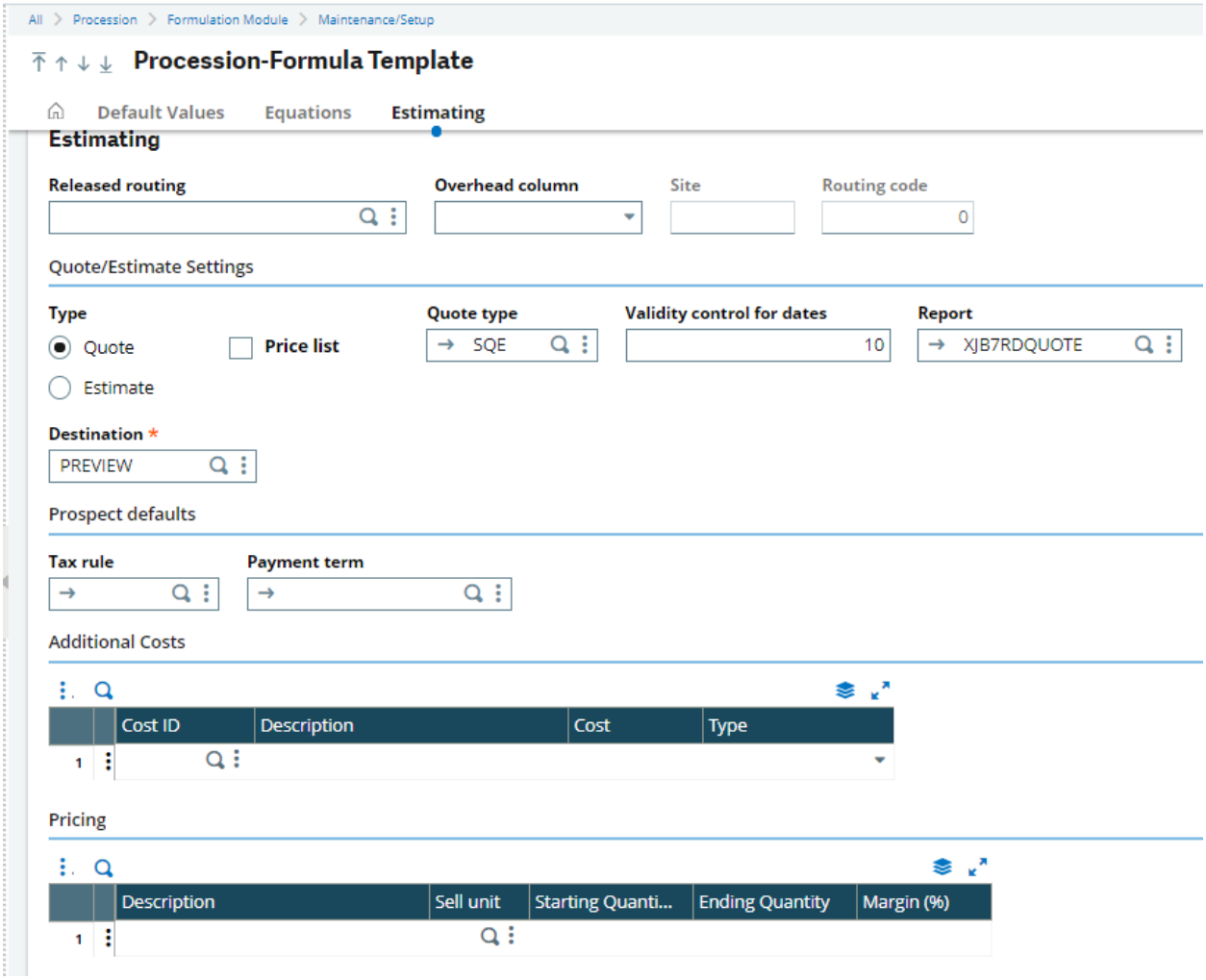
Equations Tab

The image below shows the Template Equations tab.



Estimating Tab (New in Neon)

The image below shows the Estimating tab. The default settings for generating an estimate or a quote for a formula can be defined here.

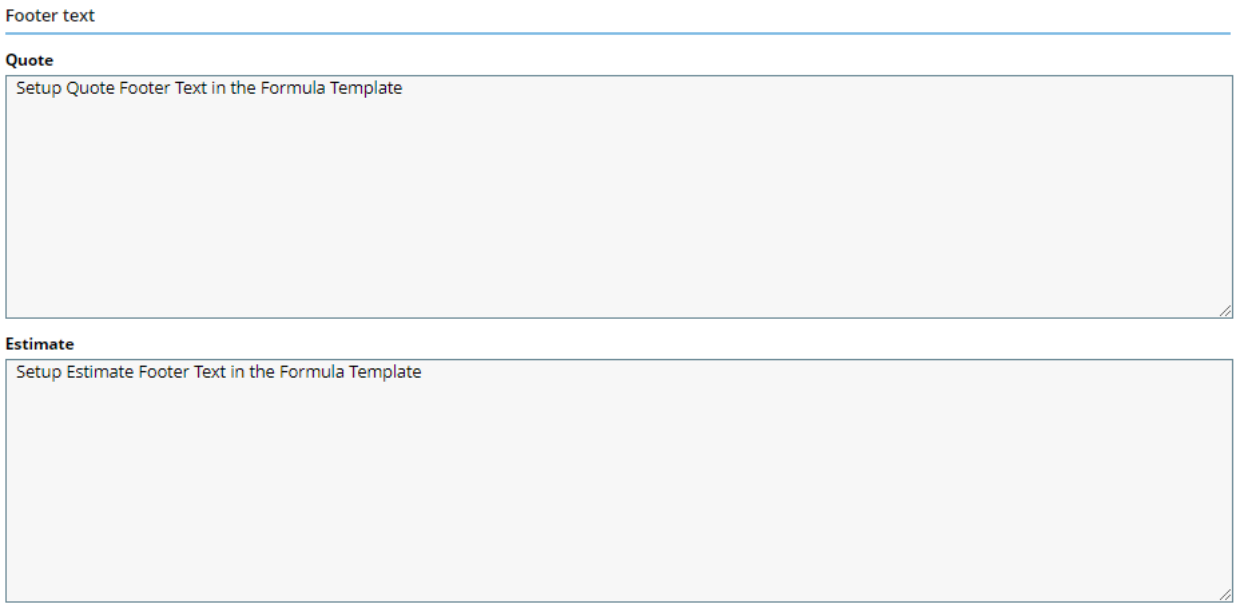


Fields on this tab are:

- **Released routing** – Default routing to use in the calculation of Labor, Machine and Overhead costs on an estimate.
- **Overhead column** – Defines which overhead formula (A, B, C, D) to use in the calculation of overhead.
- **Type** – Defines whether quotes or estimates are created by default when using the Generate Estimate/Quote option on a formula.
- **Price List** – If selected, then when printing the estimate or quote, the tiered pricing will print instead of traditional quote which contains a single quantity * single price = Extend Price format.
- **Quote Type** – When generating an Estimate/Quote, a Sage X3 Quote record is created. The quote type determines what type of quote is created.
- **Validity Control for Dates** – Sage X3 quotes have expiration dates. This setting determines the default number of days that a quote is valid.
- **Report** – defines which report form to use for the Quote/Estimate.

- **Destination** – The destination for the report.
- **Prospect Defaults - Tax Rule and Payment Term –** Sage X3 quotes require a Tax Rule and Payment Term. However, these values cannot be defined on a Prospect record. Therefore, when manually creating a quote for a prospect, these values are typically manually entered. ***Procession*** allows these fields to have default values defined in the formula template.
- **Additional Costs –** Define default additional costs that will be added to formulas.
- **Pricing –** Defines the default price-tiers and margins.

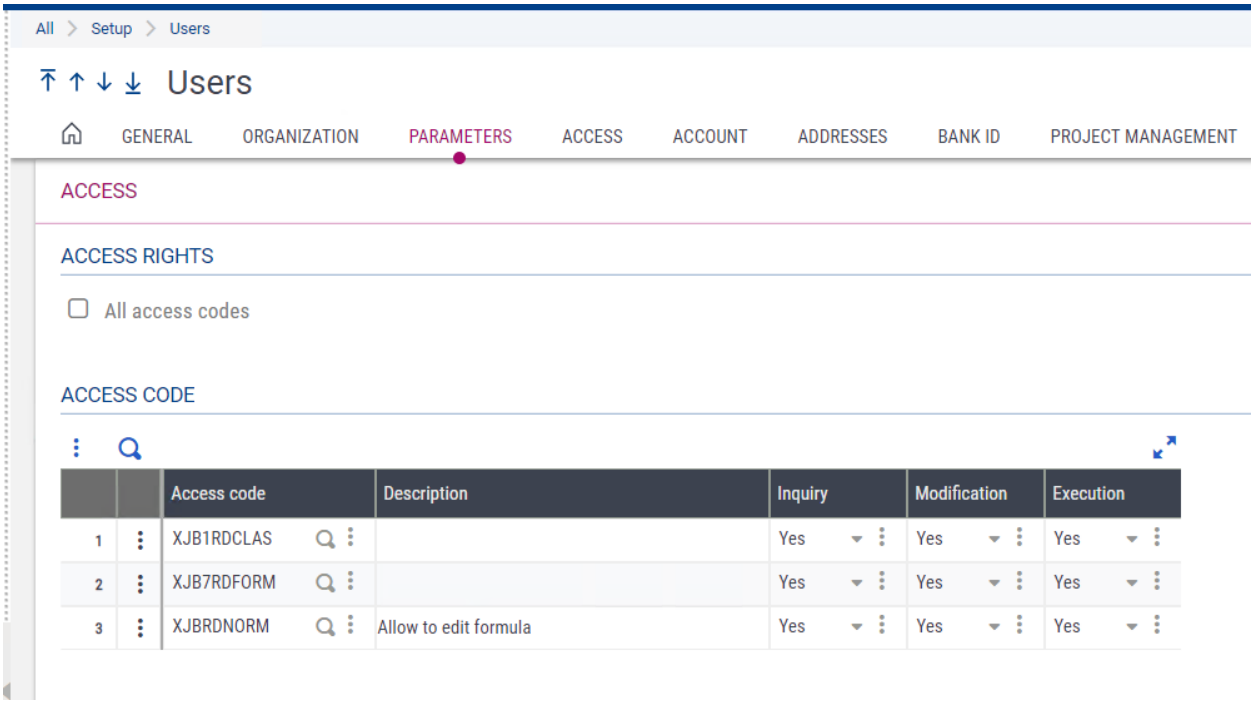
At the bottom of the Estimating tab are the Footer Text fields. These fields are used to define the terms or disclaimers that should appear at the bottom of the Estimate or Quote.



Access Codes

The following is a list of the standard Access codes used by the ***Procession*** Presales/Formulation module. During the setup process for a Sage X3 user, each of these access codes should be considered for assignment to the user.

- **XJB1RDCLAS** - Controls access to the "Certified" fields on the formula hazards tab.
- **XJB7RDFORM** - Controls access to the Approval field on the formula header tab.
- **XJBRDLOCK** - Used to lock down a formula for non-administrator users after a formula has been approved. This activity code should not be assigned to users, since doing so would allow users to change the formulas after approval.
- **XJBRDNORM** – This access code should be assigned to all users who will be editing formulas.
- **XJBPSBMAPR (new in Neon) –** Presale Request Business Manager Approval.



Regulatory Documents (New in Neon)

Regulatory Documents are documents whose distribution is required for a product or customer. Procession provides the following features for Regulatory Documents:

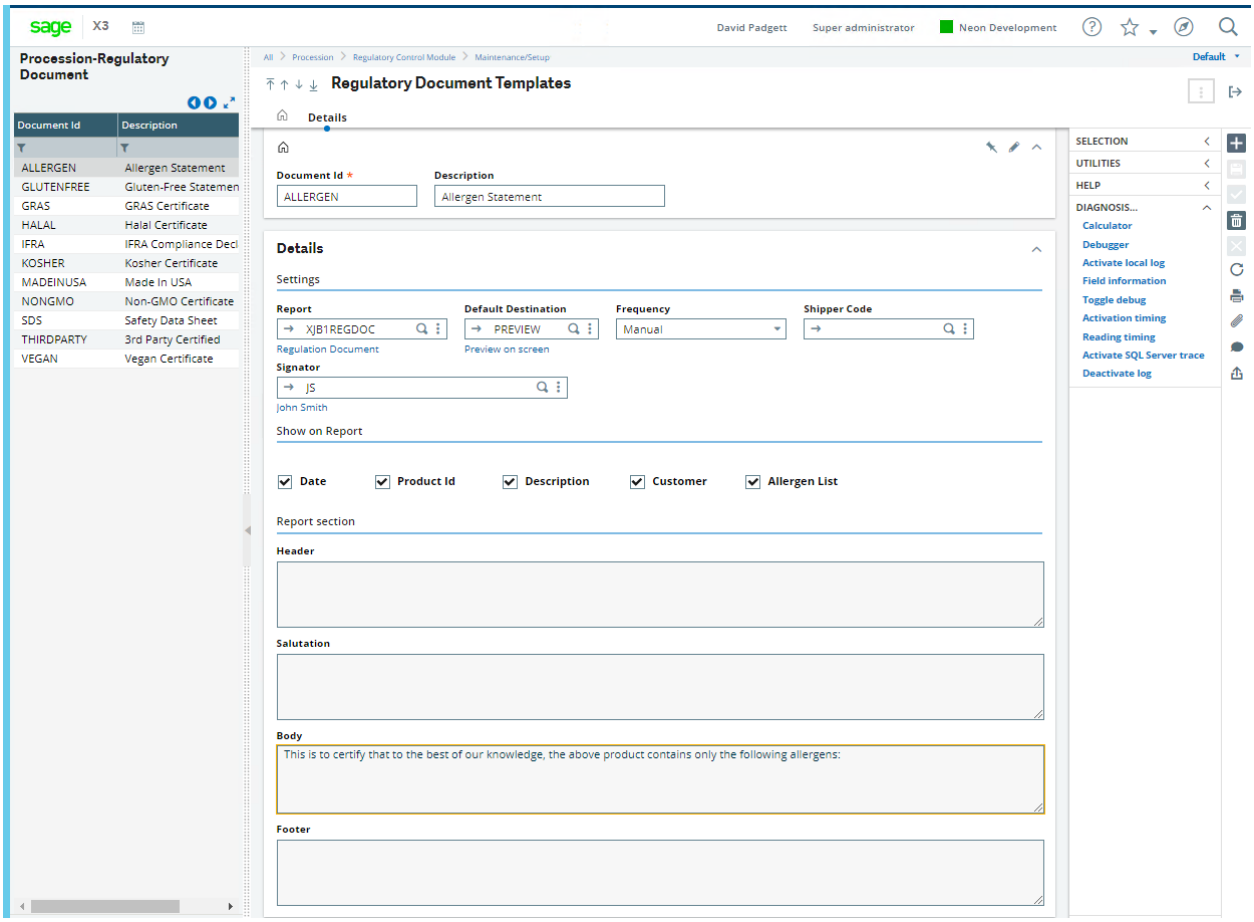
- Track Document Distribution History by Product and Customer
- Generate Documents at Sales Order Delivery
- Set Document Distribution Frequency settings by Product or Customer
- Set document destination, for example set to automatically email to customers or print to printer.

For example, this feature can be used to automatically generate and distribute documents such as allergen statements, safety data sheets or certificates.

When a line item is added to a sales order, any Regulatory Documents assigned to the product are automatically added to the Sales Order Delivery/Regulatory tab for the product. The settings for each of these Regulatory Documents are determined based upon the Regulatory Document settings assigned to the product and customer records, with the customer record settings taking priority.

Regulatory Document Templates

To define a new Regulatory Document, navigate to **Procession→Regulatory Control Module→Maintenance/Setup→Regulatory Document Templates**.

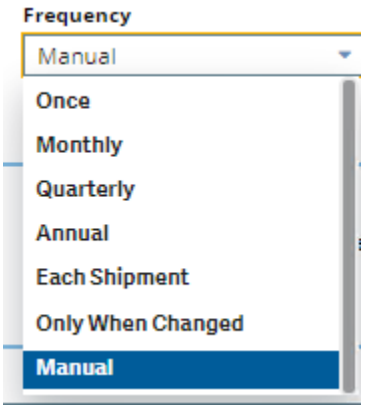


This feature is used to define report templates for different documents. These templates allow you to define the text that will print in certain sections of the document. The template can also specify which customer, product or allergen information to print.

The fields on this template are:

- **Document Id** – The ID for the record. This ID is user defined and it is not system generated.

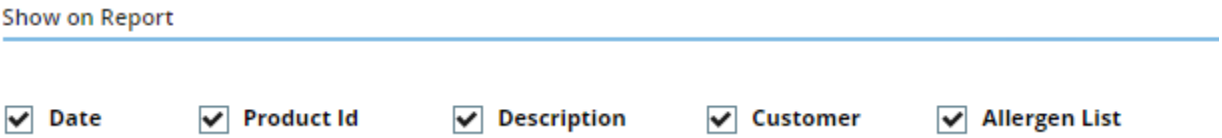
- **Description** –
- **Report** – The X3 report to use when printing this document. The default report is XJB1REGDOC and this report is designed to generic so that it can be used for most documents.
- **Default Destination** – The X3 destination for the report. This can be a printer, preview or a message/email type destination.
  If the destination is of type Message, then the XJBPRINT workflow rule should be configured to automatically email the report. Refer to the Procession Setup and Technical Guide for more information on how to setup the XJBPRINT workflow.
- **Frequency** –This option is used to define how often the Regulatory Document should be distributed. For example, if the document is set to distribute annually, then once the product's document has been delivered to the customer, the document will not be required again for another year.



Most of the frequency options are self-explanatory. However, the "Only When Changed" option requires some additional information. This option is used to indicate that the document will only be sent if the "Change Date" on the Regulatory Document record on the Product is more recent then the last date the document was sent. This date can be used to trigger new versions of the product's document to be sent to customers.

The Manual option indicates that the document will **not** be sent when the "Print Regulatory Documents" option is selected on the Product, Sales Order or Delivery. Instead, documents that are set with a "manual" frequency, must be manually distributed.

- **Shipper Code** – A shipper code can be used to define the logo that will print on the document. If a shipper code logo is not provided, then the default logo defined for the company will be used (**Setup→Organizational structure→Companies**).
- **Signator** – Defines the signature line for the document.
- **Show On Report** – This section contains checkboxes which are used to define whether certain sections of data will display on the report. The data in each of these report sections is dynamic and is determined by the product and customer for the sales order.



- **Header** – Defines text which will show before the salutation line of the document.
- **Salutation** – Defines the text for the Salutation (ex. "To whom it may concern").
- **Body** – Defines the body of the document.
- **Footer** – Defines the text that prints after the signature line.

An example of a regulatory document is shown below.

COMPANY
COMPANY

Date: 7/23/2020

Product: ZSUGARCOOKIES

Description: Sugar Cookies

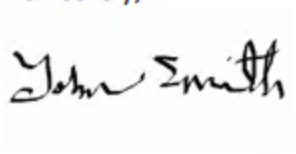
Customer:

This is to certify that to the best of our knowledge, the above product contains only the following allergens:

Allergen List:

- Egg
- Milk
- Wheat

Sincerely,



John Smith

Director

Quality Assurance

Technical Requirements (New in Neon)

Technical Requirements are documents or tasks that must be performed when a product is order or delivered to a customer.

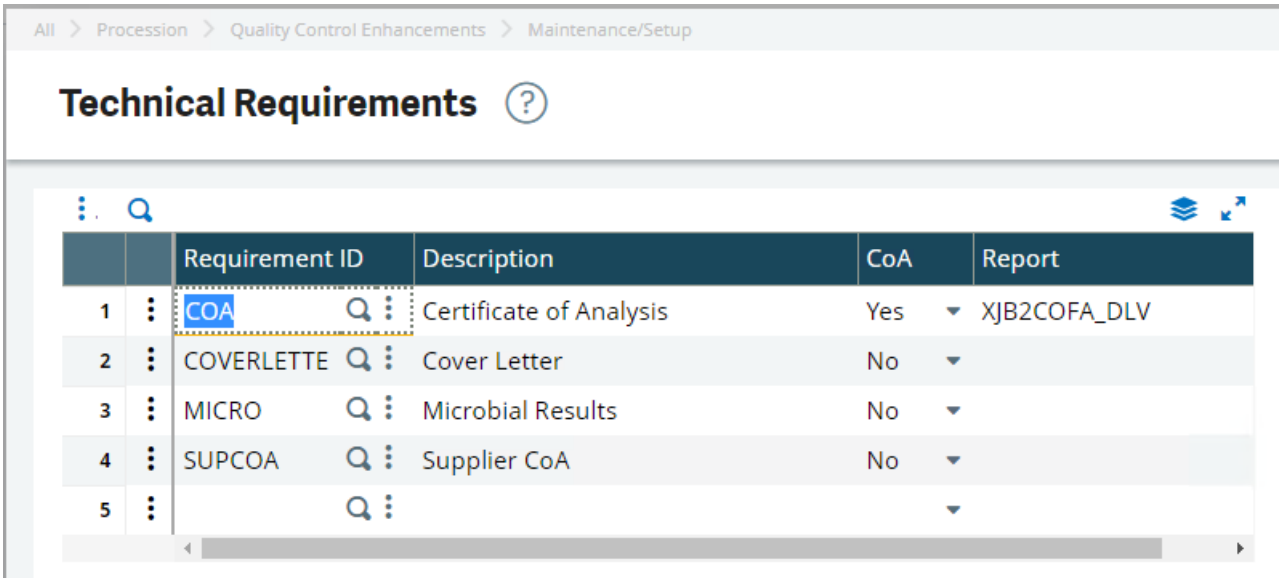
The benefits of this feature are:

- Define the Lab documents that are required to be distributed with a product
- Define Lab documents that are required by customer

- Automatically track when a Certificate of Analysis has been printed or sent to the customer.
- Assign report versions or custom reports by product or customer
- Attach and track documents
- Specify lab-related tasks for an sales order

Technical Requirements Master Data

The master Technical Requirement records can be accessed from the menu **Procession→Quality Control Enhancements→Maintenance/Setup→Technical Requirements**.



The fields on this window are:

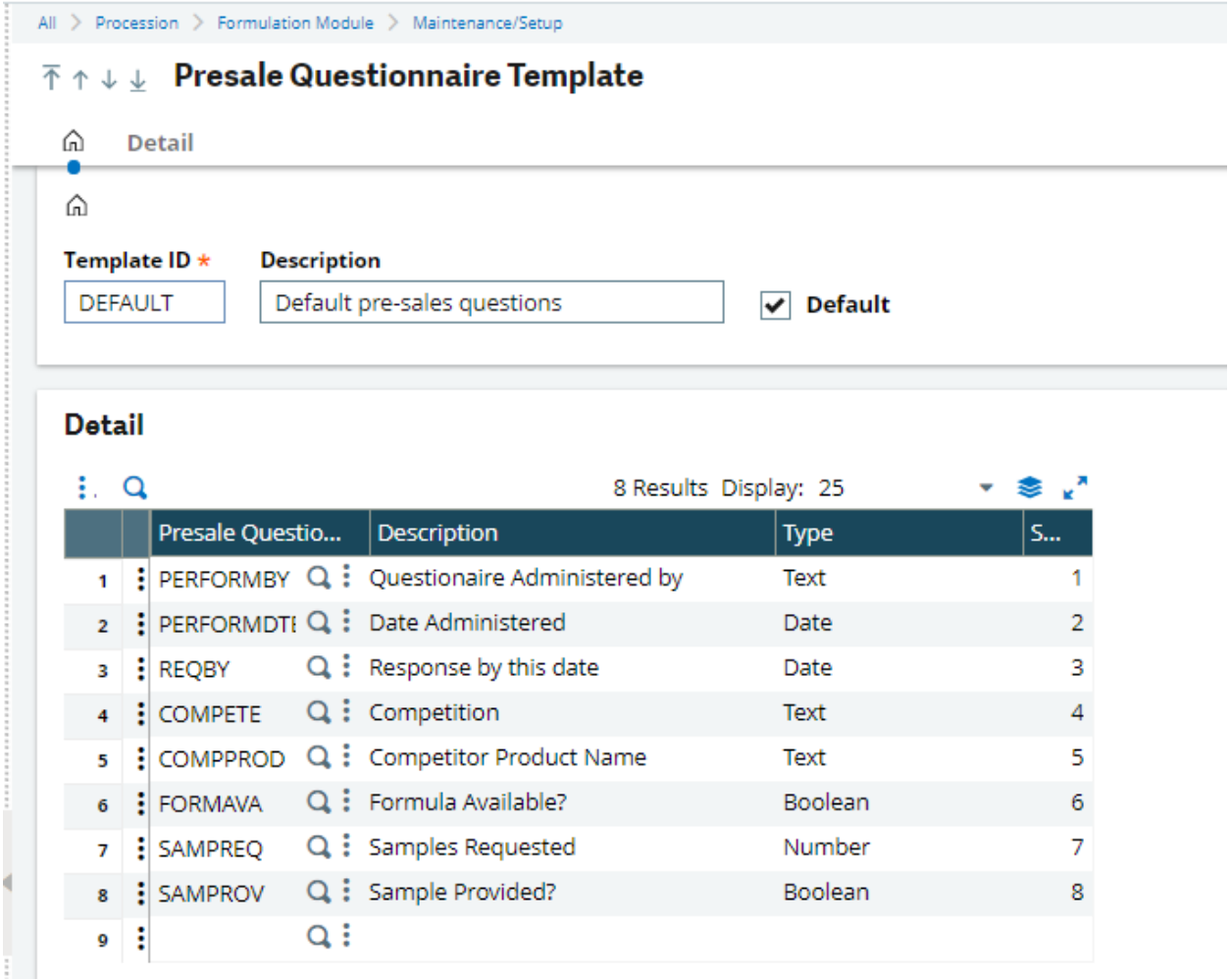
- **Requirement ID** – User defined ID code for the requirement.
- **Description** –
- **CoA** – If this field has a value of "Yes", then the requirement is a Certificate of Analysis (CoA). This flag is used to automatically update the delivery status and date on a sales order
  ***Note**: The Procession standard CoA report that is printed from the Delivery is named "XJB2COA_DLV". In the X3 Report Dictionary, this report has a script called XJBSPVSDHCOA. This script automatically updates the "Delivered" and "Delivery Date" fields on the Sales Order Delivery/Regulatory tab. This update occurs when the report is printed or emailed from the Delivery record. If a custom CoA report is created, then the XJBSPVSDHCOA script should be added to the custom report.*

- **Report** – Defines the name of the report to use for this Technical Requirement. Note that the report value is optional and some Technical Requirements may not have a report associated with it.

Presale Questionnaire Template (New in Neon)

This feature is used to create questionnaires to be used Presale Requests. These questionnaires can be used to qualify an opportunity or to gather requirements for a new product request.

The Presale Questionnaire Template can be accessed from the menu path **Procession→Formulation Module→Maintenance/Setup**.

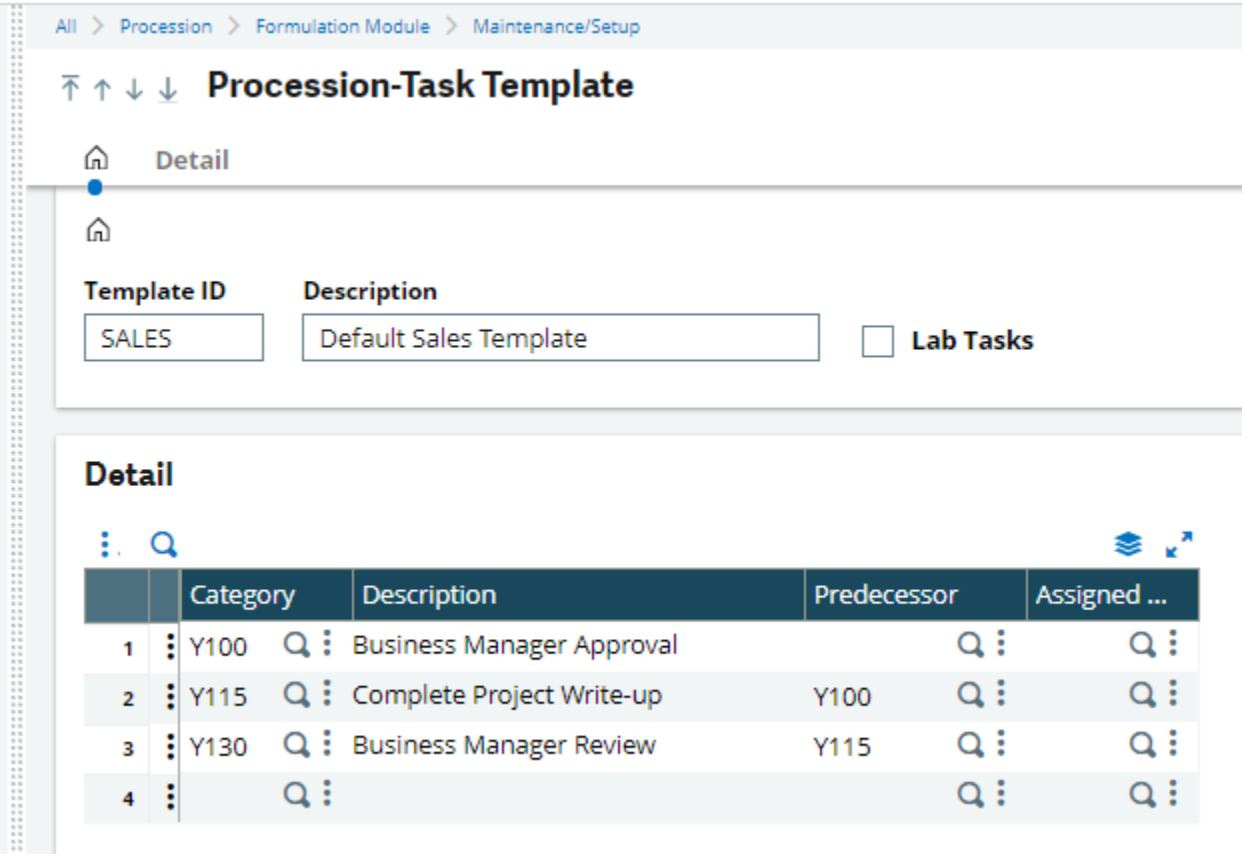


The fields on this window are:

- **Template ID** – User-defined ID for the template.
- **Default** – If selected, then this template will be selected by default on all new Presale Requests.
- **Presale Question** – In this column, select the questions that will be used on the questionnaire. For more information about questions, refer to Miscellaneous Table 20520 – Presale Questions.
- **Type** – The type of answer required for the question.
- **Sequence** – the order in which the questions will display.

Presale Task Template

This feature is used to define types of assignable tasks used on a Presale Request. These tasks can either be sales tasks or lab tasks. The Task Template can be accessed from **Procession→Formulation Module→Maintenance/Setup**.



The fields on this window are:

- **Template ID** – User-defined name of the template.
- **Description** –
- **Lab Tasks** – Mark this field if the tasks are for the lab. Leave this field unmarked if the tasks are for sales.
- **Category** – The type of task. For setup and field information, refer to MISCELLANEOUS TABLE 431 and MISCELLANEOUS TABLE 4862.
- **Predecessor** – The task category that proceeds the current tasks. Be default, this field is informational, but it can be used to generate alerts to indicate that a task can begin, once the predecessor has completed.

- **Assigned** – This is the default user ID that the task will be assigned to. This field should be left blank if there is not a default assignment.

Presale Requests

This feature allows lab requests to be tracked from customers or prospects, as well as internal requests. The Presale Request feature allows the management of these requests as a lab project.

Incoming requests may be for new formulas/recipes or sample requests for existing products. A Presale Request manages the following process:

1. Request
2. Data Collection
3. Approvals
4. Task Assignments
5. Regulatory Document and Technical Requirements
6. Lab Project
7. Formulation
8. Send Samples
9. Estimating/Quoting
10. Sales Order

Use cases:

1) A prospect is looking to expand their product offerings. They provided us with guidelines for each product offering and they have asked our lab to provide sample formulations for each. If one of our formulations is deemed acceptable, then we will be asked to provide a quote. A different Presale Request will be created for each product.
2) A sales person receives feedback from a prospect that a competitor's product has a feature that has a competitive advantage. The sales person may submit a lab request for the same feature for the product they sale. There is not an immediate sell opportunity here, so this request is not tracked in CRM. The request is passed to the lab along with any supporting documentation. This presales request is then reviewed for business and technical considerations and approved.
3) A prospect has requested a sample of one of our manufactured products. Before approving the request, the manager may search the presales requests to see if the customer has requested samples for this product before. If there is an opportunity, then a sample may either be pulled from the warehouse or created as a lab workbench sample.

A Presale request is used to manage lab projects and links all of the following documents:

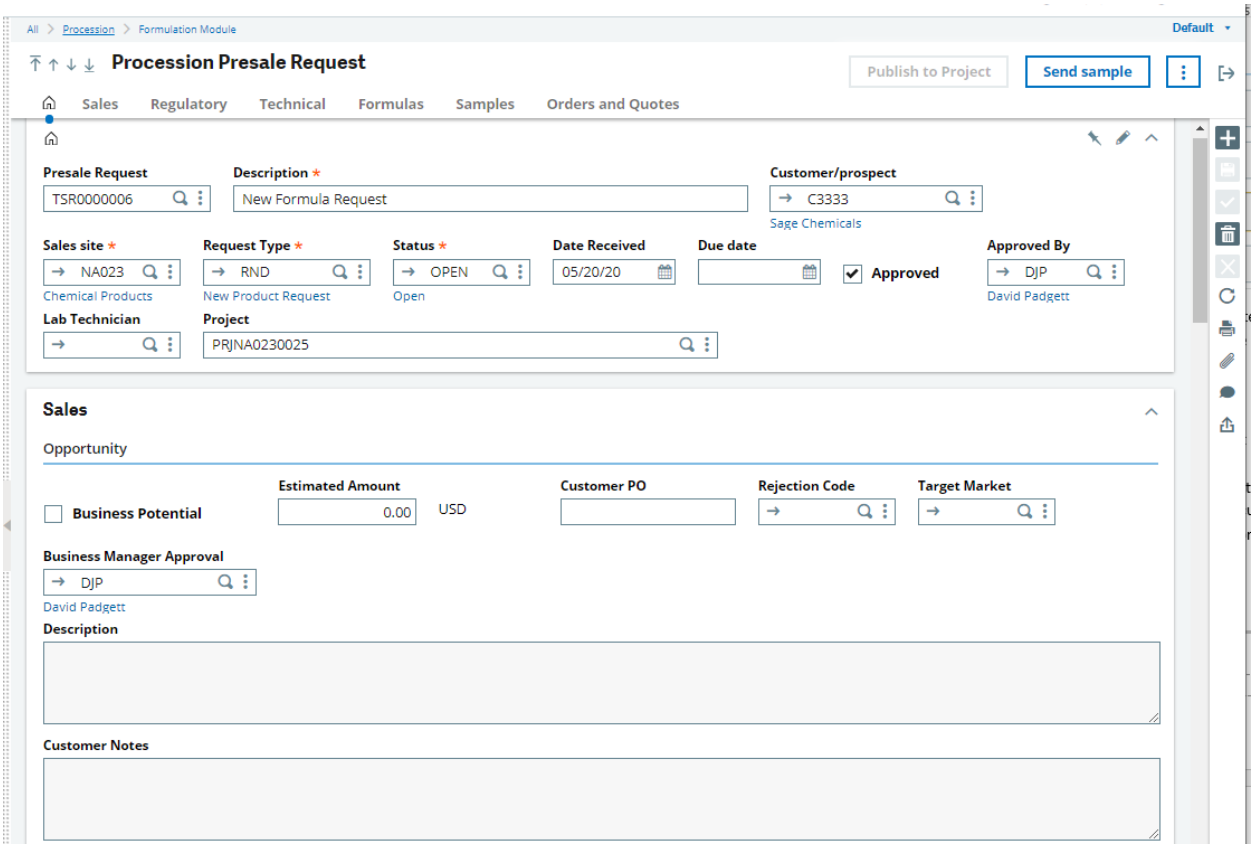
- CRM or PJM projects
- Tasks

- Formulas
- Sample Orders
- Quotes
- Sales Orders
- Attachments

Additional benefits of the Presale feature are:

- Publish a request to create a Sage X3 CRM Project
- Generate a Sample Order from the request
- Track Customer Feedback for samples
- User-defined Project Questionnaires for gathering formula requirements

Below is an image of the Presale Request Header and Sales tabs.



Presale Requests - Header tab

Fields:

- **Presale Request** – Id number for the request. This number is automatically generated when the request is created.

- **Description** – Description of the request.
- **Customer/prospect** – The customer or prospect that initiated the request.
- **Sales site** – Location for the sale opportunity
- **Request Type** – Standard options for this field include "RND – New Product Request" and "SAMPLE-Sample Request". Additional types can be added by using the "Jump To" option on the field.
- **Status** – User defined list of statuses for the request (refer to MISCELLANEOUS TABLE 4863)
- **Date Received** – Date the request was received.
- **Due Date** – Date that the prospect needs a reply by.
- **Approved** – Indicates final approval of the request. Note, that there is a separate lab approval on the Technical tab and a Business Manager approval on the Sales tab. The typical process is that once both the Technical and Business Managers have approved, then the final approval is marked in this field.
- **Approved By** – User id of the person who provided the final approval of the request.
- **Lab Technician** – This is the technician or food scientist for whom the request has been assigned. This is the person that will be responsible for managing the project in the lab/kitchen.
- **Project** – Lab Project number. The source for the project number can be any of the following:

  a) **Sage X3 Customer Relation Module –**
  The Customer Relation Project Number can be either manually entered, or created using the PUBLISH TO PROJECT feature. When the publish feature is used on the Presale Request record, a Sage X3 Customer Relation Project is automatically created and the Project field is automatically populated. The Customer Relation Project can also be created manually and then assigned to the Presale Request record.

  b) **Sage X3 PJM Module –**
  The Sage X3 PJM Module allows for the creation of PJM Projects that can be used to assign materials and resources to a project. A PJM Project can also be used for tracking project budgets. If the PJM Module is used to create a project, the project can be assigned to the Presale Request by manually entering the project number into the Presale Request Project field.

  c) **3rd Party CRM –**
  If an external CRM system is used, then the external project number can be manually entered here. This same project number should also be used throughout Sage X3, including Quotes, Sales Orders, etc.) In order to link those records to the Presale Request and the Project.

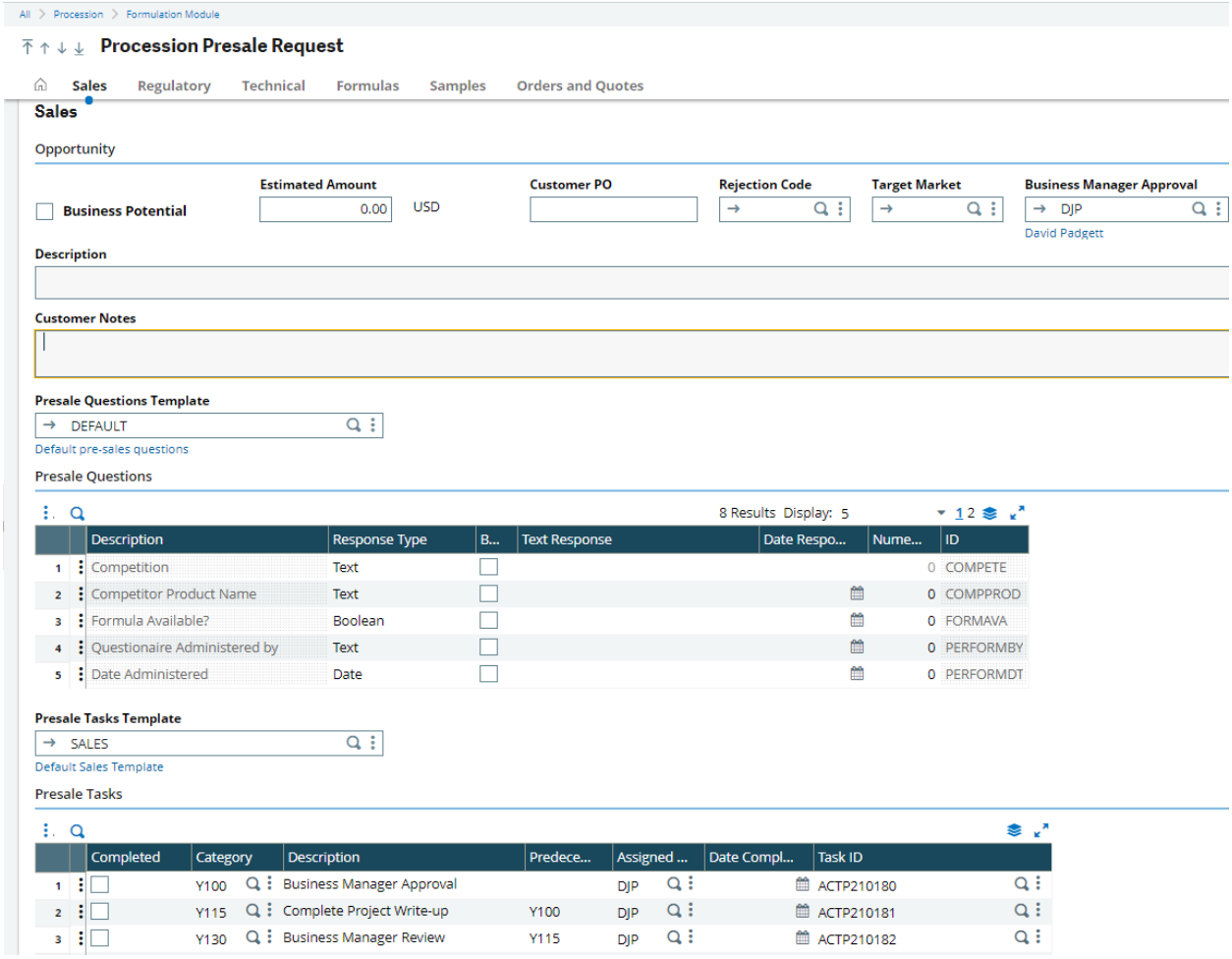
  d) **No CRM –**
  If no CRM system is used, then the Presale Request number can be used as the project number. In this scenario, the Presale Request record is the Project and the Presale Request number should be entered into the project field. This project number should be entered throughout Sage X3 in order to link Quotes, Orders, etc. to the project.

Presale Requests - Sales Tab (New in Neon)

The sales tab is used to track the sales opportunity information related the request. Benefits of this tab include:

- Track business potential and target markets
- Sales Questionnaire
- Assign Sales tasks

The image below shows the Sales tab.



The fields on the Sales tab are explained below.

Opportunity

- **Business Potential** – Used to indicate whether this request has the potential for generating new revenue.
- **Estimated Amount** – Estimated revenue for this opportunity.
- **Customer PO** – Customer PO number.

- **Rejection Code** – If the request is not approved, a rejection code can be assigned to the request in order to track the reason for the rejection.
- **Target Market** – The target market for the request.
- **Business Manager Approval** - The Business Manager can approve the request by entering their X3 user id in to this field. Note, access to this field is restricted to administrators and users assigned the access code XJBPSBMAPR.
- **Description** – Long description for the request.
- **Customer Notes** – any special instructions from the customer.

Presales Questions

In this section, a Presale Questionnaire template is selected and the responses for the questionnaire are recorded.

The fields in this section are:

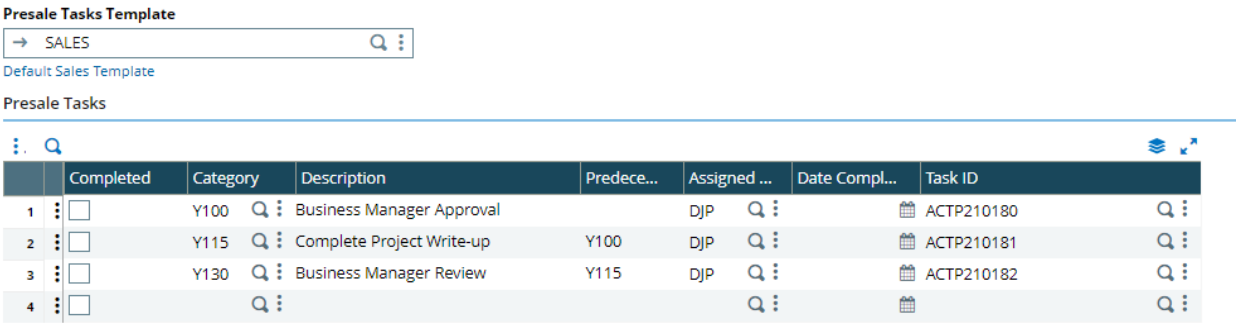
- **Description** – Question description.
- **Response Type** – Indicates the type of response expected. For example, if the type is "Boolean", then the response should be recorded in the "Boolean Response" field.
- **Boolean Response** – Used for recording responses to Boolean type questions.
- **Text Response** – Used for recording responses to Text type questions.
- **Date Response** - Used for recording responses to Date type questions.
- **Numeric Response** – Used for recording responses for Numeric type questions.
- **ID** – The question ID. For more information regarding setting up questions, refer to Presale Questionnaire Template.

Note: If you have a specialized form of questions that are required for new requests, that form can be scanned and attached to the Presale Request record using the standard Sage X3 attachment feature.

Presale Tasks

This section is used to assign sales related tasks to Sage X3 users.

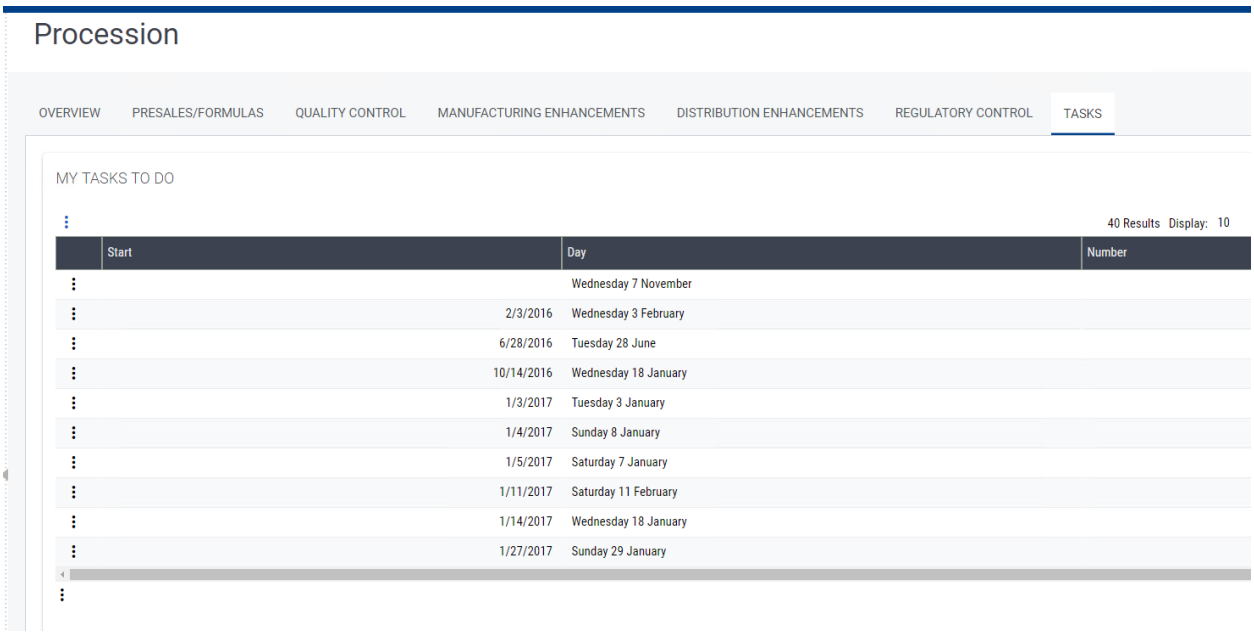
Note: Users must be setup as sales reps within Sage X3 in order for Sage X3 CRM tasks to be assigned to them.



Fields in this section are:

- **Presale Tasks Template** – Select a Presale task template in order to bring in the tasks defined on the template. Refer to Presale Task Template for more information.
- **Completed** – Indicates if the task is completed. This field should not be checked until the task has been created, as indicated by the presence of a task ID on the row. However, once the task is created, it can be marked as completed by clicking this checkbox and saving the Presale Request.
- **Category** – The task to be completed. These tasks can come from the Presale Tasks Template or can be added on the fly. Only tasks that are not defined as Lab tasks will display in this section.
- **Predecessor** – the task that proceeds the current task.
- **Date Completed** – The date that the task was completed. This field is automatically populated when the Completed checkbox is checked.
- **Task ID** – the ID for the Sage X3 CRM task id. When a Presale Request is saved, Sage X3 CRM tasks are created for each task defined on the Presale Request. When the Sage X3 CRM task is created, the Task Id is automatically stored into this field. The Sage X3 CRM task can be accessed from the Task ID field using the "Jump To" action menu option on the field.

  Open Tasks can be shown on the user's dashboard. In the example below, the Sage X3 standard "My Tasks To Do" graphical query has been selected to show on the user's dashboard.



Presale Requests – Regulatory Tab (New in Neon)

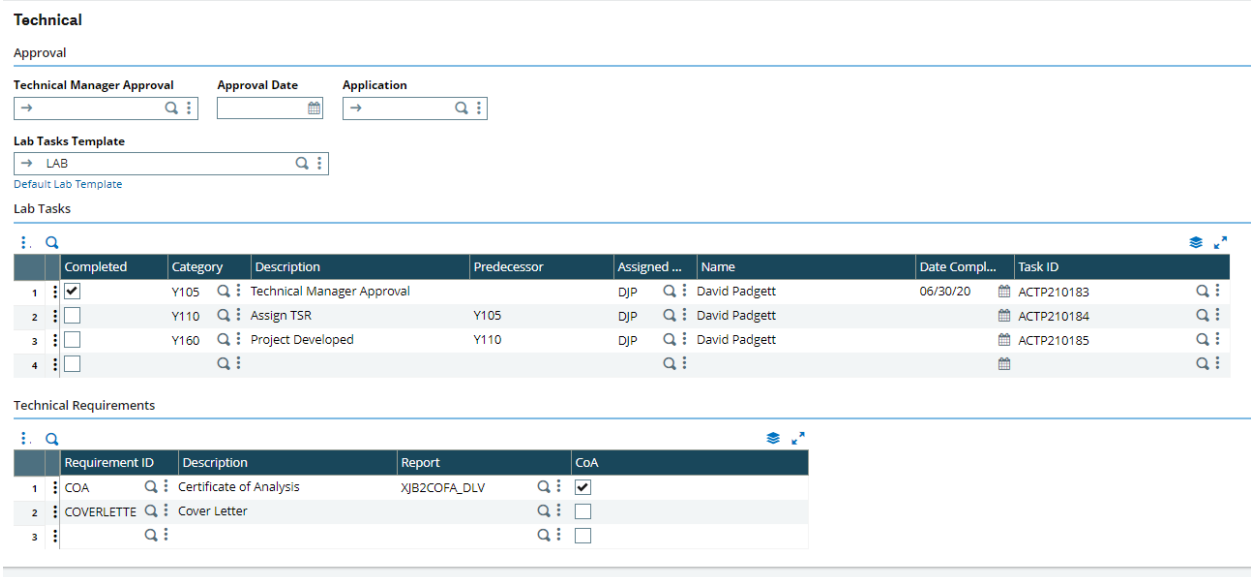
The regulatory section is used to define Regulatory Document requirements for the request. For example, a customer may submit guidelines that the new product must be gluten-free and non-GMO. In this section, we can capture that requirement by specifying that Regulatory Documents for the Gluten-Free and Non-GMO certificates are required for this product. Refer to Regulatory Documents for more information on how to setup a Regulatory Document.

The data for the Regulatory Document requirements flows to a Formula when the Presale Request is assigned to the formula. The data for these requirements can flow to the Product record, when the Formula is published to a product. Regulatory Documents are used on sales orders and deliveries in order to manage the delivery of these documents to the customer. Refer to the ***Procession Distribution***

User Guide for more information on how the Regulatory Document feature is used to manage document distribution.

Presale Requests – Technical Tab

The Technical section is used to manage data related to the lab, such as the Technical Manager Approval, Application for the product, Lab Tasks and Technical Requirements.



The fields on this tab are listed below by section.

Approval

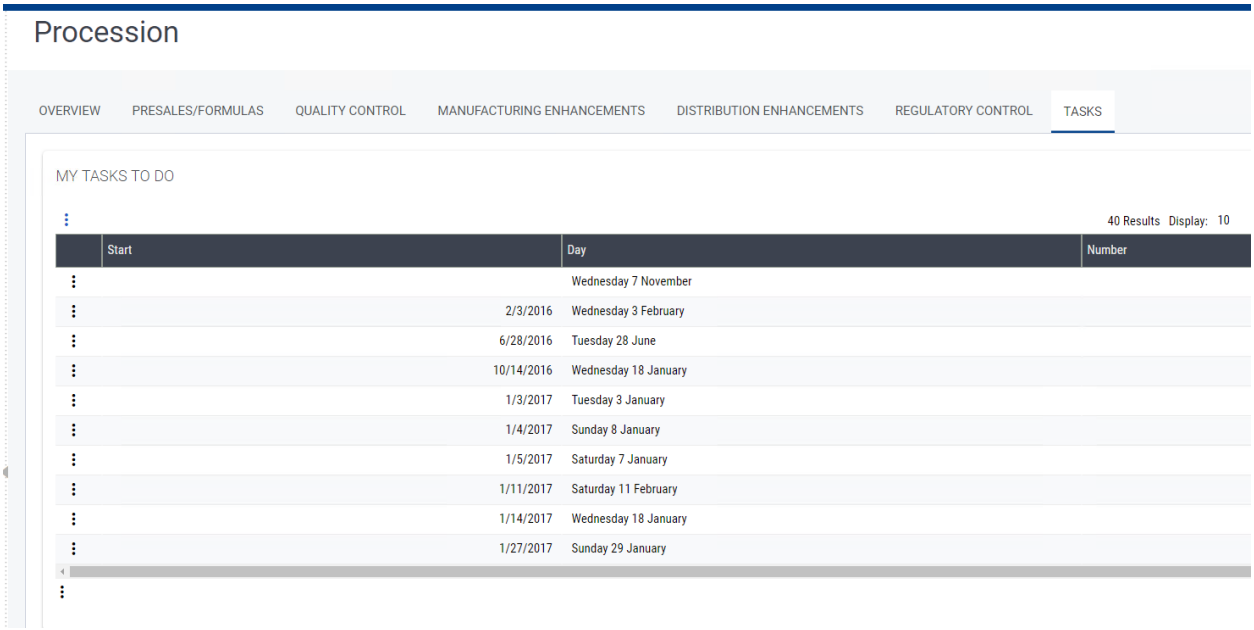
- **Technical Manager Approval** – Used to indicate that the Lab Manager has approved the request.
- **Approval date** – the date of approval.
- **Application** - In what application will this field be used? For example, will the product be consumed for food, cosmetics, or other purpose?
- **Lab Tasks Template** – Template containing tasks to be assigned to lab personnel. Refer to Presale Task Template for more information.

Lab Tasks

- **Completed** – Indicates if the task is completed. This field should not be checked until the task has been created, as indicated by the presence of a task ID on the row. However, once the task is created, it can be marked as completed by clicking this checkbox and saving the Presale Request.
- **Category** – The task to be completed. These tasks can come from the Presale Tasks Template or can be added on the fly. Only tasks that are not defined as Lab tasks will display in this section.

- **Predecessor** – the task that proceeds the current task.
- **Date Completed** – The date that the task was completed. This field is automatically populated when the Completed checkbox is checked.
- **Task ID** – the ID for the Sage X3 CRM task id. When a Presale Request is saved, Sage X3 CRM tasks are created for each task defined on the Presale Request. When the Sage X3 CRM task is created, the Task Id is automatically stored into this field. The Sage X3 CRM task can be accessed from the Task ID field using the "Jump To" action menu option on the field.

Open Tasks can be shown on the user's dashboard. In the example below, the Sage X3 standard "My Tasks To Do" graphical query has been selected to show on the user's dashboard.



Technical Requirements

This section is used to define Lab-related documents which are required for this project. These documents may or may not be distributed to the customer.

For more information on creating new Technical Requirements, refer to Technical Requirements the in Setup section of this guide.

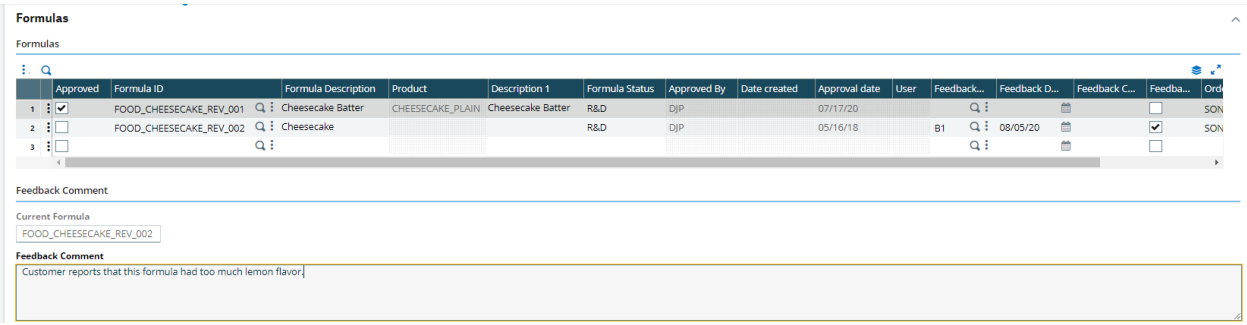
Presale Requests – Formulas Tab (New in Neon)

The formula tab is used to track formulas related to the lab project. Benefits include the ability to track client approvals and feedback.

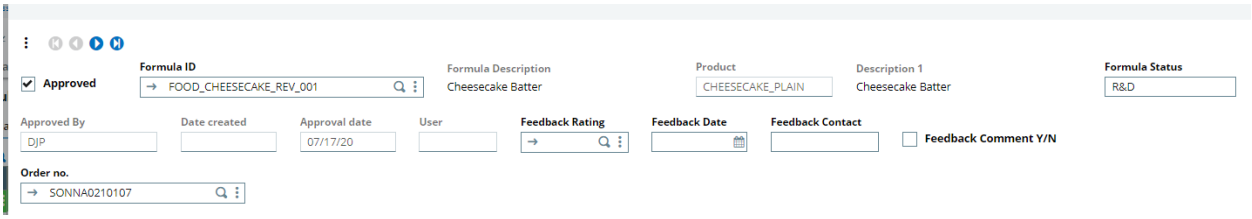
There are two processes that can be used in order to add formulas to this tab.

1. Formulas can be manually added to this tab by selecting the formula in the Formula Id field.

2. The Presale Request can be assigned to the Formula on the Formula window. When a Presale Request is assigned to a formula, then the formula will be automatically added to the Presale Request Formula tab.



Popup View



The fields on this tab are:

Formulas Section

- **Approved** – Used to mark the formulas that have been approved by the client.
- **Formula ID**
- **Product** – If a product is linked to the formula, it is shown here.
- **Formula Status**
- **Approved By** – The user who approved the formula.
- **Date Created**
- **Approval Date**
- **Feedback Rating –** The client's satisfaction rating with the formula.
  Note: *The values for this field are stored in a table (Miscellaneous Table 436), which is shared with the Sage X3 Customer Relation Module's Call Satisfaction ratings.*
- **Feedback Date –** Date the feedback was received.
- **Feedback Contact –** The contact at the client which provided the feedback.
- **Feedback Comment Y/N** – This field is automatically populated when a feedback comment is entered below the grid. The purpose of this checkbox is to allow the user to quickly see which rows have comments.
- **Order no. –** Contains the last sample order number that was created for this formula for this lab project.

Feedback Comment Section

- **Current Formula** – Indicates which row is currently selected in the formulas grid that is above this section. A row can be selected by clicking into any editable field in the formulas grid.
- **Feedback Comment –** In this field, enter the feedback that was received from the client or project sponsor.

Presale Requests – Samples Tab (New in Neon)

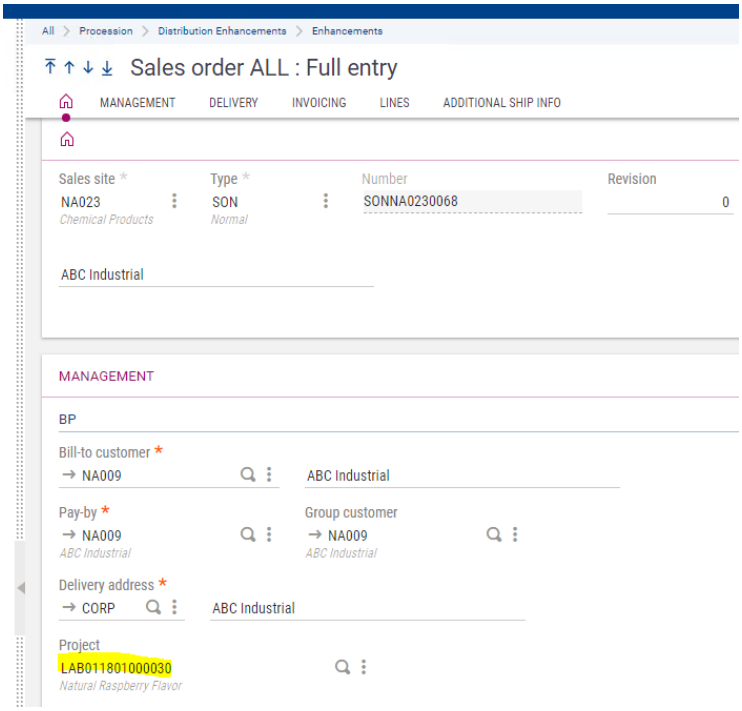
When sample orders are created for the project, the sample orders are listed on the samples tab, along with the status of the sample orders.

Samples

	Lot	Product	Sold-to	Order no.	Order date	Delivery status	Validity date	Ordered quant...	S...
1		CHEESECAKE_PLAIN	NA009	SONNA0210107	07/24/20	Not delivered		1	KG
2		SAMPLE	NA009	SONNA0210108	07/24/20	Not delivered		1	LB
3									

Sample orders can be created directly from the Presale Request, using the SEND SAMPLE feature. Sample orders can also be manually created in the standard Sage X3 sales order feature.

When a sample order is created, it is linked back to the Presale Request based upon the Project number assigned in the Presale Request header tab. If manually creating a Sample order, the Project number must be entered or selected on the order in order to link the Sample order to the project and the Presale Request for that project.



Procession considers an order to be a sample order if the line item price is zero. If the line item price is not zero, then the order is considered a normal order and will show on the project in the Orders and Quotes tab.

If a sample order is manually created, it must meet the following must match between the order and the Presale Request in order for the order to show on the Sample Tab:

- **Project Number**
- **Customer Number**
- **Price must be 0**

Samples - Special Note on Types and Sites

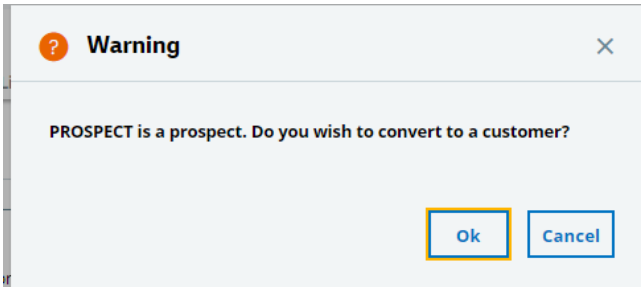
Sample orders can be separated from normal orders using either of the following methods:

1. **Sales Site** – Sample orders can be assigned to a lab sales site.
2. **Type** – A sales order type can be created for sample orders.

Either of these options can be used to filter the left list records on the sales order window to include or exclude sample orders.

Samples - Special Note on Prospects

A Presale Request can be created for a prospect. Quotes can also be created for prospects. However, there is a restriction in Sage X3 that prevents orders from being created for prospects. When trying to create an order for a prospect, Sage X3 presents the following message



For this reason, that we recommend the following procedure in Sage X3:

1. Leads can be setup in Sage X3 and can be used in Sage X3 Customer Relation module is used to track contacts, calls, appointments and tasks. When an opportunity arises with a lead, the lead can be promoted to a Prospect or Customer.
2. If there is a business opportunity with a Lead, then the Lead can be promoted or entered as a Prospect in Sage X3. The following records can be created for Prospects :
   a) New product requests
   b) Request for Quote
   c) Contacts, Calls, Appointments and Tasks

3. Prior to creating the first sample order for the prospect, promote the prospect to a customer. The customer record can be categorized as a prospect by assigning the new customer record a customer category of “PROSPECT”.
4. When the first sales order is placed for the prospect, re-categorize the customer record by assigning a different customer category.

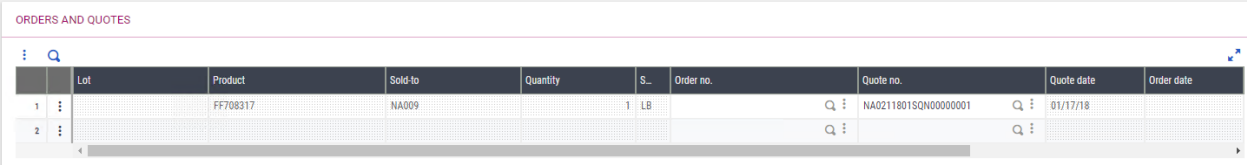
Samples - Special Note on Products

Sample Orders can be created for formulas regardless of whether a Sage X3 product record has been created for the formula. However, if sample inventory tracking is required, then formulas must be published to become inventory products, prior to placing the sample order.

If sample inventory tracking is not required, then a non-stock product can be used on the sample order. Using a non-stock product allows R&D samples to be sent and tracked without requiring the formula to be published to a product. For example, a non-stock product called “SAMPLE” can be created and then added to a sample order. The description for the Sample Line item can then be manually edited to contain the formula information.

Presale Requests - Orders and Quotes Tab (New in Neon)

The order and quote tab lists all quotes and non-zero price orders which were linked to the project. Quotes and orders are linked to a project by entering the project value on the order, as shown in the previous section. The Orders and Quotes tab on the Project also shows the status of each of the orders and quotes, as well as the final selling price for the product.



The fields on this tab are:

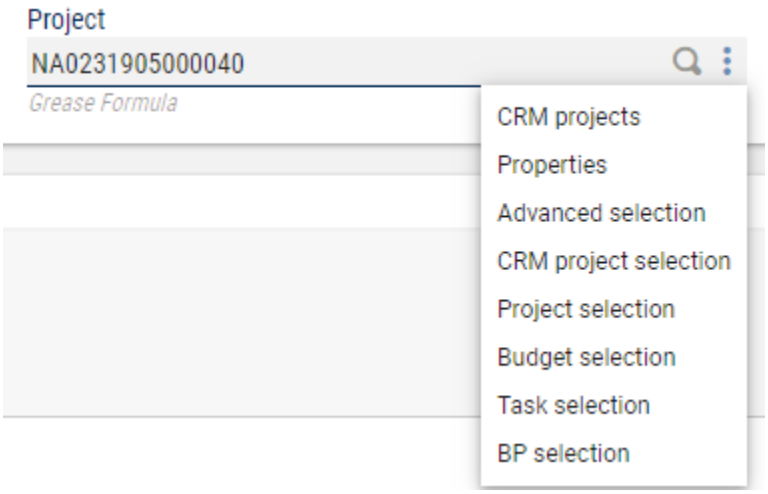
- **Lot** – If the product is lot tracked, then the lot that is allocated or shipped on the sales order is shown here.
- **Product** – Product number from the sales order or quote.
- **Sold To** – For sales orders, this is the customer number. For quotes, this can be the customer or prospect number.
- **Quantity**
- **Sales Unit**
- **Order Number** – If a record is a sales order, then the sales order number will display here.
- **Quote Number** – If a record is a quote, then the quote number will display here.
- **Quote Date**
- **Order Date**
- **Delivery Status** – Indicates whether the sales order has been delivered.

- **Net Price** – The line item price on the order or quote.
- **Validity Date** – This field is for quotes and indicates the quote expiration date.

Presale Requests - Publish To Project

A Sage X3 Customer Relation Project can be created from a Presale Request by clicking the "Publish to Project" button.

When this option is selected, the project is automatically created and the resulting project number is stored in the project field.



The project can be accessed from the menu on the project field by selecting the "CRM projects" option.

Presale Requests - Send Sample (New in Neon)

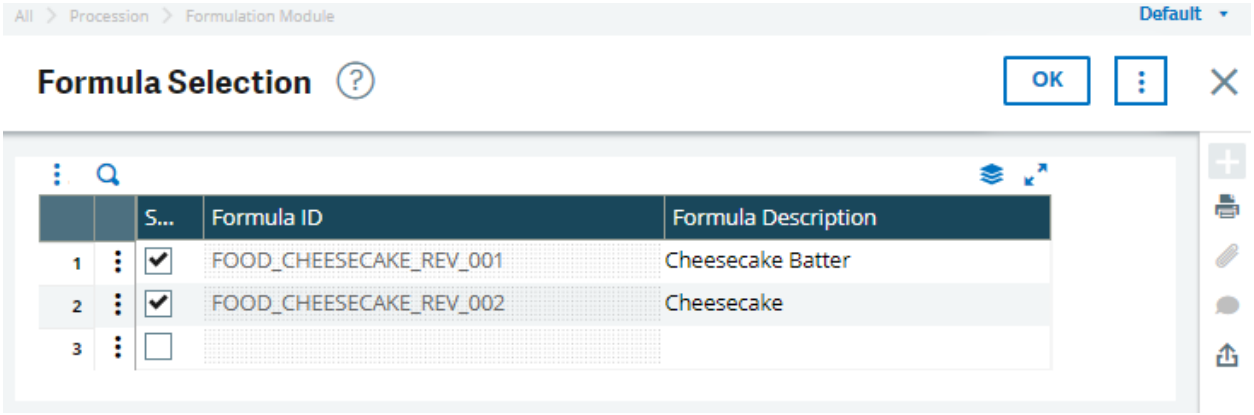
A sample order can be created from the formulas on a Presale Request by clicking the "Send Sample" button.

This option will automatically create and display the sample order and populate the following information on the order:

1. Sales Site
2. Customer Number
3. Ship To
4. Project Number
5. Customer Defaults

6. Product number - If the formula has a product assigned to it, then the product number is used. Otherwise, the default sample product is used.
   Note: The default sample product is defined by the parameter XJBFORMPRO.
7. Product Description – If the formula has a product assigned to it, then the product description is used. Otherwise, the formula description is used.
8. Price – The price is set to $0.

If the Presale Request contains multiple formulas, the Formula Selection dialog will display. This dialog lists all of the formula on the Presale Request. One or more formulas can be selected from this dialog. If multiple formulas are selected, then the sample order will be created with a separate line item for each formula. The order is created when the "Ok" button is selected.



Sage X3 Customer Relation Project

The Sage X3 Customer Relation Module is included in most Sage X3 systems. This module provides basic CRM functionality. This section describes the enhancements to the Customer Relation Project feature provided by ***Procession***.

The Sage X3 Customer Relation Project can be accessed from either from the Sage X3 Customer Relation module or from the ***Procession*** menu **Procession→Formulation Module→Enhancements→Project**.

Note on changes made in ***Procession*** Neon

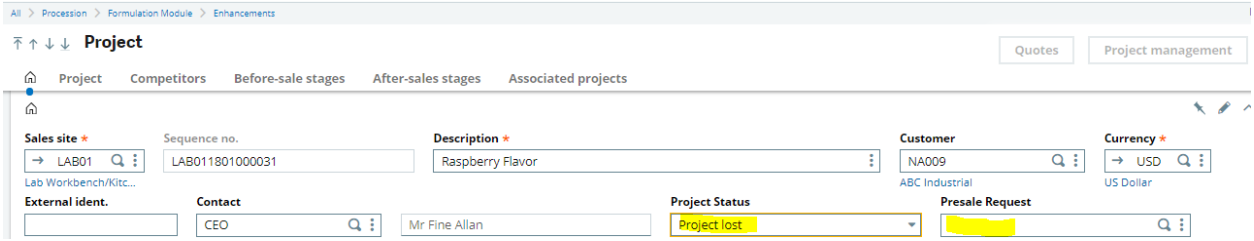
The following ***Procession*** features have been retired in the Neon version. These features have been recreated and on the Presale Request window.

- **Formulas Tab**
- **Samples Tab**
- **Quotes and Orders Tab**

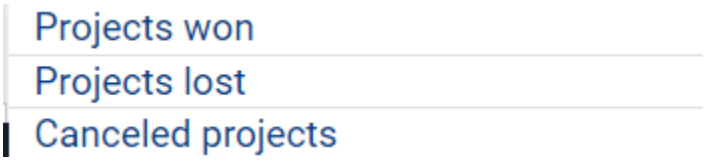
Procession Enhancements:

Project Status

Procession enables the project status field for the project. In standard Sage EM, the project status (Project Gained, Project Lost, Project Cancelled, etc.) are automatically maintained by Sage EM, based upon when a sales order has been created for the project. ***Procession*** enables the project status field on the project in order to allow the user to control the project status. Note that changing the project status does not automatically move a project to the "Projects Won" or "Projects lost" drawers in the left list.



Left list drawers:



Presale Request

The Presale request field can be used to link a Customer Relation Project to a Presale Request. If the Project record was created using the PUBLISH TO PROJECT feature, then this field is automatically populated when the project is created.

R&D Formulas

The R&D Formula feature is a comprehensive tool for managing all aspects of a formula prior to production and for managing the on-going formula revisions for existing products.

R&D Formulas may be accessed by navigating to **Procession→ Formulation Module → R&D Formulas**.

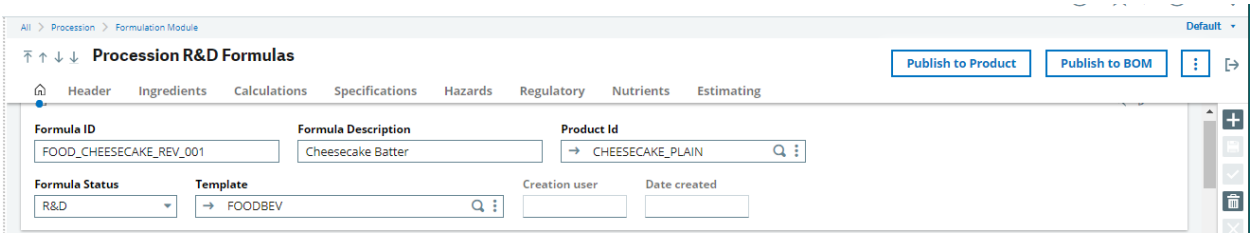
The R&D Formula feature provides the ability to:

- Calculate formula costs, including machine, labor and overhead costs.
- Calculate properties
- Roll-up allergens
- Resize formulas
- Track formula versions and revisions
- Track Specification versions and revisions
- Manage formula access
- Approval work flow process
- Publish formulas to inventory and manufacturing BOMs
- Calculate Chemical Composition by CAS number.
- Classify Hazards
- Create and send Estimates and Quotes
- Pricing Tiers
- Define batch sizes
- Generate Safety Data Sheets
- Explode Intermediates
- Consolidate Ingredients
- Assign, print and track Regulatory Documents and Technical Requirements

R&D Formulas provides a "sand-box" for creating formulas and for tracking formula revisions. These formulas can be created outside of your Sage X3 inventory and manufacturing. Once a formula is approved, it can be published in order to create the following records in Sage X3:

- Product
- Product Site
- Product Standard Cost
- Product List Price
- Product Properties
- Production BOM
- QC Product Technical Sheet

R&D Formulas – Header Section



The Formula header contains the following fields:

- **Formula ID** – Lab identifier for the formula. Some companies will use the product ID as the formula id, when data is first migrated into ***Procession***. Other companies will use a lab book number as the formula ID. If no formula ID is specified by the user, the system will automatically assign a unique ID upon creation of the formula.

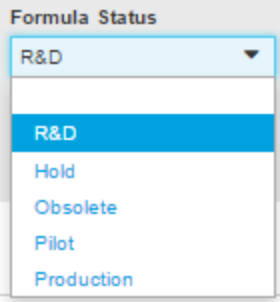
  Revisions are also managed using the Formula ID. For instance, the first revision for formula 33510 may be "33510-REV-001". The only requirement for how version or revisions are numbered is that the pattern must be consistent. This is required in order to use the ***Procession*** feature, which automatically creates new formula revisions when an ingredient is replaced in a formula or when the formula update utility is used to update formulas.

  Refer to the MASS COMPONENT REPLACE UTILITY and the FORMULA UPDATE UTILITY for more information on auto revision numbers.

- **Formula Description** - Free-form formula description field. If a product is created from the formula, then the new product will inherit the formula description. However, this field can be automatically populated if the formula description is empty and an existing product ID is selected on the formula.

- **Formula Status** – Shows the current status for the formula. When a formula is created, the default status is populated based upon the template that is selected. However, after the formula record is created, this status field must be manually maintained and the status does not automatically change.

  When the Formula Status is set to Hold or Obsolete, then the formula cannot be published to inventory or manufacturing. The system prevents publishing by disabling the Publish to Product and Publish to BOM menu options for these statuses.



- **Template** – A template is selected when a formula record is created. The template will automatically populate the default values for the formula header, ingredients and calculation tabs. The template determines the default formula status, costing site and costing method, formula unit of measure, access controls and the default property equations. For more information about the templates refer to RESEARCH & DEVELOPMENT TEMPLATES.

- **Product ID** (Optional) – The product ID is a link from the formula to a product record in inventory. During the initial R&D phase of the project, the product ID will be blank. However, this link will be established once the formula has been published to inventory. The product ID can also be manually entered for the formula in order to link a formula to an existing product.

  If a product ID is entered or selected, the following events will automatically occur:

  1. Formula Description is populated, if it is currently empty.
  2. If a BOM record exists for the Product, then the ingredients/components for the BOM are loaded into the formula.

  Note: If populating the formula ingredients from the BOM, click on the Update UOM Factors button on the Ingredients tab after the ingredients have automatically loaded. This is done in order to update the formula with the current conversion factors of the ingredients.

- **Creation User** – User ID for the person who created the formula.
- **Date created** – Date that the formula was created

R&D Formula Header Tab

The header tab contains the following information:

- Links to Presale Requests and customer information
- Approval Status
- Succession data
- Access Controls
- Additional Identifiers
- Publish History

The functionality for each of these sections on the R&D Formula Header Tab is described below.

Project Section

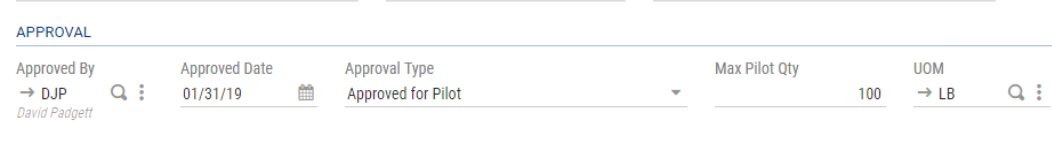
The Project section can be used to link a formula back to its original request, define the application for the formula and/or define its Trade Name.

Fields:

- **Presales Request** – This is the original request for which the formula was created.
  Note: A formula can be linked to multiple Presale Requests by assigning the formula to a Presale Request record.

- **Application** – Indicates how the formula will be used. For example, will it be used for human consumption, cosmetics, industrial use, etc.? The application is used by the Regulation Requirements feature. This feature determines if there are any regulatory issues with the formula based upon its composition and the specified application.
- **Trade Name** (Optional) – The customer's trade name for the formula.
- **Customer/prospect** – The customer or prospect that originally requested the formula.

Approval Section



Procession requires formulas to be approved before the formula can be used in production or for a pilot.

The "Publish to Product" or "Publish to BOM" options are only available after the formula has been approved. In addition, when a formula is approved, the user access on the formula is automatically changed in order to prevent additional changes to this version or revision of the formula.

A formula is approved by entering or selecting a user ID in the Approved By field. Access to the approval fields is limited to only users who have been assigned the XJB7RDFORM access code and administrators.

Once a formula has been approved, the following changes occur automatically:

- The Approval Date is populated with Today's date.
- The Approval Type changes to the value "Approved for Pilot".

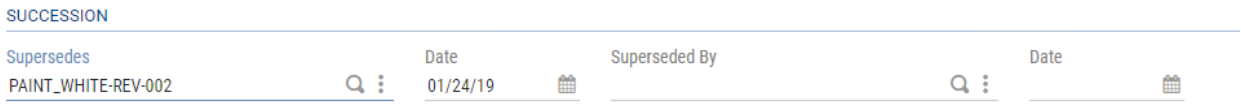
- User Access changes to the value specified in the “Access code after Approval” field on the Formula Template. For example, the default access code for approved formulas is “XJBRDLOCK’. This access code is intended to lock down the formula from future changes.
- The Publish to Product and Publish to BOM buttons are enabled.

Fields in this section are:

- **Approved By**– User who approved the formula.
- **Approval Date** – Date of the approval.
- **Approval Type**- Type of approval. This is a separate status from the formula status field in the formula header. The reason for this is that a formula may be “Approved for production”, but it has not yet been released for production. The Publish to Product and Publish to BOM features are If not available with the Approval Type is “Not Approved”.
- **Max Pilot Qty** – The maximum quantity that is approved for the Pilot. This field is a reference field.
- **UOM**- The UOM for the Pilot QTY

For more information on access codes, refer to the standard Sage X3 help documentation.

Succession Section



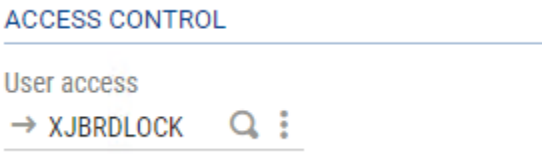
The Succession Section contains the following reference fields:

- **Supersedes** (Optional) - The formula that the current formula replaced.
- **Superseded By** (Optional) - The formula that replaces this formula.

These succession fields are automatically populated when a new formula revision is created. The three methods for creating a new formula revision are:

1. Copy a formula
2. Mass Component Replace utility
3. Formula Update utility

Access Control Section

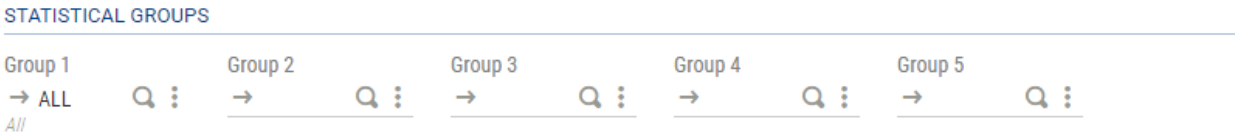


Access Codes control who has access to read and/or modify the formula. When a formula is first created it is assigned the "Initial Access code" from the formula template. When a formula is approved, the formula is automatically assigned the "Access Code after Approval" from the formula template.

Only administrators or users who have been assigned the access code will be able to edit the formula.

Statistical Groups Section

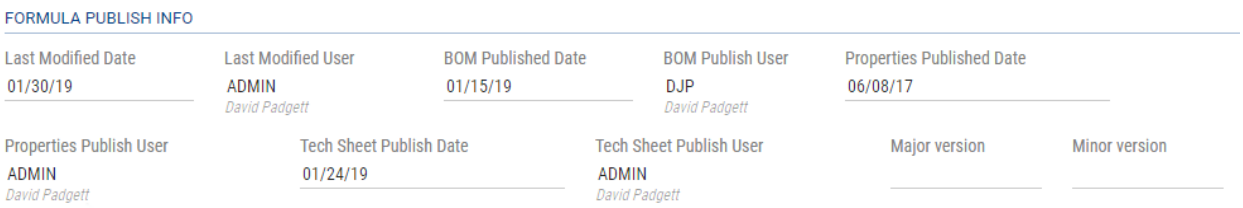
Statistical groups are a feature in Sage Enterprise Management for classifying products. Since a formula is typically created before a product, the statistical groups can be first assigned to the formula. The product is then updated with the statistical groups when the formula is published to the product.



Statistical groups are useful when searching for a product or a formula. Statistical groups can be searched in the left list of the formula or by using the Advanced Selection menu option in the right panel.

If assigning an existing product to a formula, the following prompt will ask if the formula statistical group values should be overwritten with the values from the product.

Formula Publish Info Section

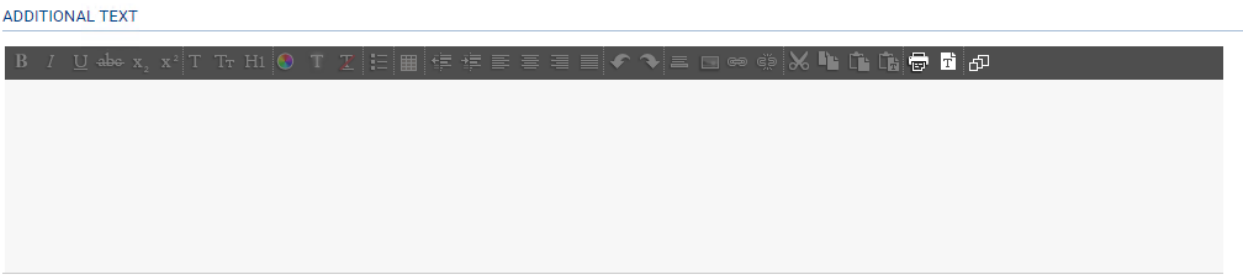


The Formula Publish Info section tracks the formula modification and publish history. If BOM version tracking is used in Sage Enterprise Management, this section also contains the links to the corresponding BOM version.

The fields in this section are:

- **Last Modified Date** – the last date that the formula was modified.
- **Last Modified User** – the user who last modified the formula.
- **BOM Published Date** – the date that the formula was last published to a BOM.
- **BOM Publish User** – the user who last published the formula to a BOM.
- **Properties Published Date** – the date the properties were last published to the product or SDS.
- **Properties Publish User** – the user who last published the properties to the product or SDS.
- **Tech Sheet Publish Date** – the date that the specifications were last published to a Product Technical Sheet.
- **Tech Sheet Publish User** – the user who last published the specification to a Product Technical Sheet.
- **Major Version** – If the BOM is version managed, this is the BOM Version number that was created from this formula revision. This field serves as a link between the formula revision and the BOM version.
- **Minor Version** - the minor version number of the version-managed BOM that was created from this formula revision.

Additional Text Section



Internal notes related to the formula into this section. This field is originally populated from the template record, when a template is selected. This field can also be manually edited. This field is reference only and does not print or display anywhere else.

Comments

Comments is an option on the right panel of most windows in Sage Enterprise Management. Additional internal comments can be added to the formula using this feature.

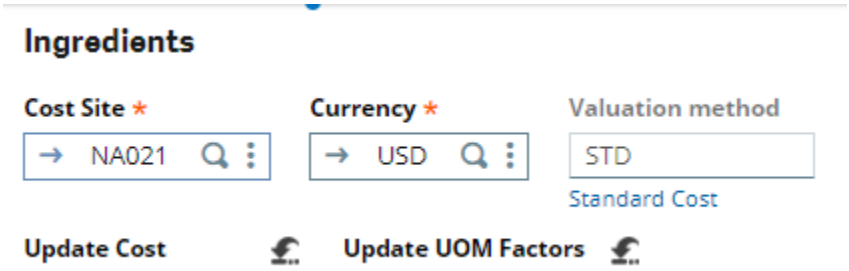
Attachments

Attachments are an option on the right panel of most windows in Sage Enterprise Management. If additional documentation was provided with a formula request, then it should be attached to the formula using this feature.

Ingredients Tab

The Ingredients Tab is used to enter ingredients/components and production instructions that will be used to create the production BOM. The information below describes each section of the Ingredients tab.

Cost Site Section



The fields in this section default from the selected template, but most are editable on the formula. The fields are:

- **Cost Site** – The source site for the formula's costs. As ingredients are added to the formula, the ingredient's cost default from the specified cost site.
- **Currency** –the currency for the costs. This currency must match the currency of the selected cost site.
- **Valuation Method** – Determines what costing method to use when costing the formula. For example, "STD" would mean that the standard costing method is used for the formula ingredients.

  The Valuation Method is populated when a formula template is selected. To change the costing method, the template must be changed in order to select a template which has the intended costing method.

- **Update Cost** – This button allows the costs on the formula to be updated with the latest costs for each ingredient.

  Typically, the costs on the formula remain static, regardless of any cost changes in inventory. One reason the formula costs are static is because formulas will sometimes contain manually

entered theoretical costs or forecasted costs. Formulas also maintain the history of the formula cost at the time of formulation.

The Update Cost button updates all of the ingredient costs on the current formula. The costs are based upon the valuation method and the cost site.

Formula costs can also be updated in batch mode using the Formula Update utility.

- **Update UOM Factors** – This feature allows the UOM conversion factors to be updated for the formula ingredients. When clicked, all of the unit of measure conversion factors for the formula are updated with unit of measure conversion factors for each ingredient.

  The UOM conversion factors are used to calculate the following conversions:

  1. Convert the ingredient's quantity from the ingredient's BOM unit of measure to the ingredient's stock unit of measure and vice versa.
  2. Convert the ingredient's quantity to the formula unit of measure when calculating the formula totals.

  The UOM conversion factors include:

  1. Density/Specific Gravity
  2. UOM-STK coefficient

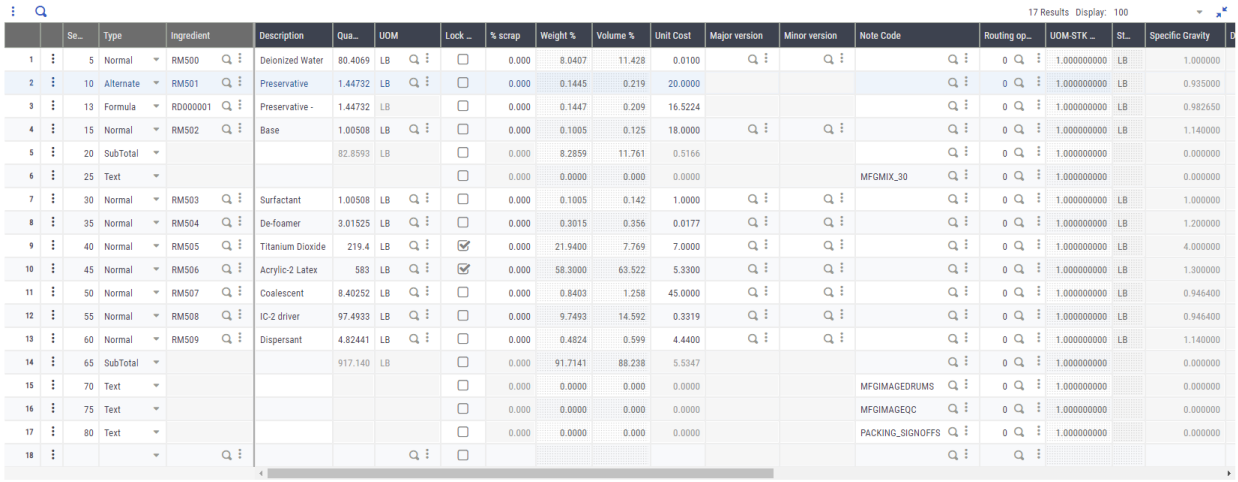
Formula UOM Factors can also be updated in batch mode using the Formula Update utility.

Ingredients Grid

The Ingredients grid is where the following data is entered for the formula:

1. Ingredients from Inventory
2. Theoretical Ingredients which are not in Inventory
3. Additional Costing line items
4. Process instructions and operator sign-offs
5. By-Products

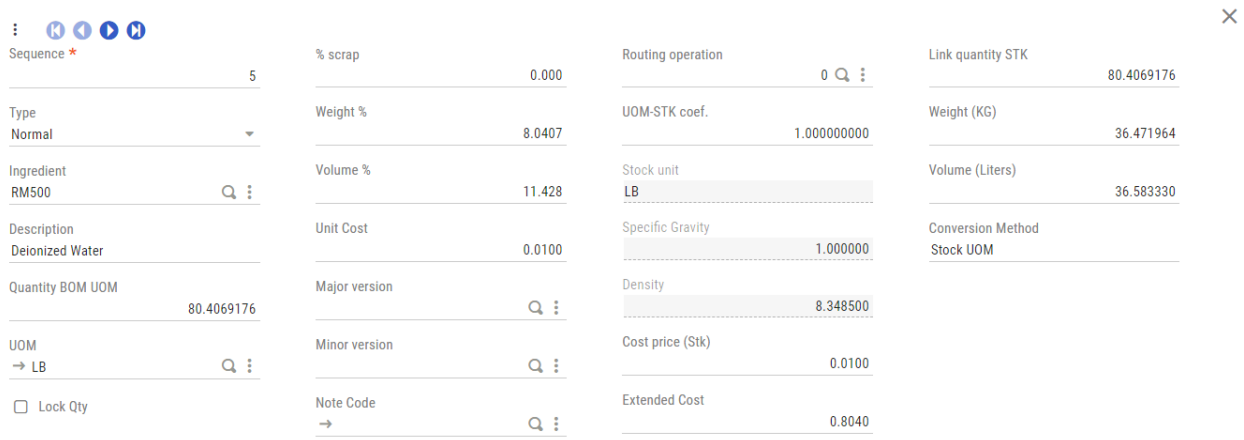
Grid View



17 Results Display: 100

		Se...	Type	Ingredient	Description	Qua...	UOM	Lock ...	% scrap	Weight %	Volume %	Unit Cost	Major version	Minor version	Note Code	Routing op...	UOM-STK ...	St...	Specific Gravity
1		5	Normal	RM500	Deionized Water	80.4069	LB	☐	0.000	8.0407	11.428	0.0100				0	1.000000000	LB	1.000000
2		10	Alternate	RM501	Preservative	1.44732	LB	☐	0.000	0.1445	0.219	20.0000				0	1.000000000	LB	0.935000
3		13	Formula	RD000001	Preservative -	1.44732	LB	☐	0.000	0.1447	0.209	16.5224				0	1.000000000	LB	0.982650
4		15	Normal	RM502	Base	1.00508	LB	☐	0.000	0.1005	0.125	18.0000				0	1.000000000	LB	1.140000
5		20	SubTotal			82.8593	LB	☐	0.000	8.2859	11.761	0.5166				0	1.000000000		0.000000
6		25	Text					☐	0.000	0.0000	0.000	0.0000			MFGMIX_30	0	1.000000000		0.000000
7		30	Normal	RM503	Surfactant	1.00508	LB	☐	0.000	0.1005	0.142	1.0000				0	1.000000000	LB	1.000000
8		35	Normal	RM504	De-foamer	3.01525	LB	☐	0.000	0.3015	0.356	0.0177				0	1.000000000	LB	1.200000
9		40	Normal	RM505	Titanium Dioxide	219.4	LB	☑	0.000	21.9400	7.769	7.0000				0	1.000000000	LB	4.000000
10		45	Normal	RM506	Acrylic-2 Latex	583	LB	☑	0.000	58.3000	63.522	5.3300				0	1.000000000	LB	1.300000
11		50	Normal	RM507	Coalescent	8.40252	LB	☐	0.000	0.8403	1.258	45.0000				0	1.000000000	LB	0.946400
12		55	Normal	RM508	IC-2 driver	97.4933	LB	☐	0.000	9.7493	14.592	0.3319				0	1.000000000	LB	0.946400
13		60	Normal	RM509	Dispersant	4.82441	LB	☐	0.000	0.4824	0.599	4.4400				0	1.000000000	LB	1.140000
14		65	SubTotal			917.140	LB	☐	0.000	91.7141	88.238	5.5347				0	1.000000000		0.000000
15		70	Text					☐	0.000	0.0000	0.000	0.0000			MFGIMAGEDRUMS	0	1.000000000		0.000000
16		75	Text					☐	0.000	0.0000	0.000	0.0000			MFGIMAGEQC	0	1.000000000		0.000000
17		80	Text					☐	0.000	0.0000	0.000	0.0000			PACKING_SIGNOFFS	0	1.000000000		0.000000
18								☐											

Popup View

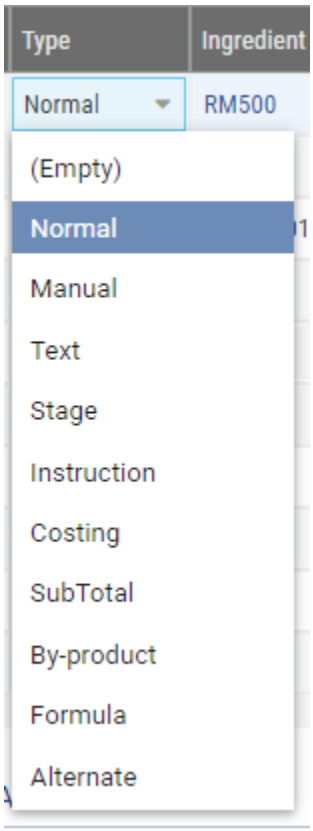


The fields in the Ingredient Grid are:

- **Sequence #** - Defines the order in which the ingredient should display in the grid. By default, new sequence numbers are counted by the same increment defined in Sage X3 for the BOM (ex. 5, 10, 15, etc.). An ingredient is re-sequenced by manually changing the sequence number or by using the resequencing features on the formula row or right-panel grid. Each sequence number must be unique within the formula, with the exception of ingredients of the type “Alternate”.

  For example, if a formula multiple ingredients sequenced by fives, then any ingredient can be moved to first in the formula by changing its sequence to any number less than 5 (ex. 1,2,3,4).

- **Type** – Determines the type of ingredient line. Settings include instruction line, normal inventory line, manual (i.e. theoretical ingredient), costing or a subtotal line. For more detail on Ingredient line types see LOCAL MENU 4869 – COMPONENT TYPE



- **Ingredient** – This field may contain either a product ID or a formula. If the line type is "Normal", "Costing", "By-Product" or "Alternate" then this field allows the selection of an inventory product. If the type is "Formula", then this field allows the selection of another R&D formula. The Ingredient field is disabled for all other types.
- **Description** – When a product is selected for the ingredient, the ingredient description will default to the product description. If a formula is selected for the ingredient, then the ingredient will default to the formula description.

  For other line types, the description is used for text or notes. For example, for "instruction" line types, the description is used to store short instruction lines, up to 30 characters.

- **Quantity BOM** – If the ingredient is an inventory product, formula or a "manual" line type, then the quantity BOM contains the ingredient's quantity to be used in the formula in the specified UOM. The quantity can be specified in a unit of measure other than the ingredient's stock unit.

For “subtotal” line types, the Quantity BOM field contains the sum of the lines above it, from the last stage or subtotal line.

For “costing” line types, this field contains the number of costing units to be applied to the formula. An example would be a burden costing item that has a cost of $100 per unit. On the formula, entering a Quantity BOM of 1.5 for this costing item would result in a $150 cost being added to the formula. Another example of a costing line may be packaging.

- **UOM** – Quantity BOM unit of measure. This value defaults to the ingredient’s stock unit, but it is editable. When a UOM is selected, the Quantity BOM is automatically recalculated. The accuracy of this recalculation is based upon the conversion factors that have been setup for the ingredient and the UOM.

- **Lock –** Lock is a checkbox that can be used to indicate which ingredient quantities are “locked”, which means that those quantities should not change when a formula is resized.

- **Scrap %** - Expected amount of scrap percentage for the ingredient. Scrap% will affect the Expected Yield of the formula. If no Scrap% is entered for the formula, then the Expected Yield will be calculated as 100%.

- **Weight %** – The weight percentage of this ingredient compared to the total formula weight.

- **Volume %** - The volume percentage of this ingredient compared to the total formula weight.

- **Unit Cost** – Cost per BOM unit. If selecting an inventory product, this cost will default based upon the Cost Site and Valuation Method that is specified on the formula. The cost is editable to allow the cost to be adjusted based upon forecasted or theoretical costs.

- **Major/Minor Version** – If an ingredient is version controlled, the version fields allow the ingredient version to be specified. When a new version of the ingredient is approved for use product formulas, then new formula revisions would typically be created with the new ingredient version specified.

- **Note Code** – Predefined or boilerplate notes are linked to the formula using the note code field. When a note code is selected, a link is maintained back to the original note record. This link allows the text on the formula line to automatically update whenever a master boilerplate note is changed. Changes to the boiler plate note are automatically applied to all formulas and BOMs that use the note code.

Note codes are typically added to formula lines of the type Text or Instruction. However, a note code can be added to any line of the formula, except "subtotals" lines.

The line text for the note code can be viewed from the action menu on the line by selecting "Line Text Entry".

- **Routing Operation** – If an ingredient is to be used only on a specific routing operation step, this operation step can be defined in the Routing Operation field for the ingredient.

- **UOM-STK Coefficient** – Conversion factor from the BOM unit of measure to the stock unit of measure for the ingredient.

- **Stock Unit** – The ingredient's stock unit of measure.

- **Specific Gravity** - This field can be populated from the Product Master or at default will be set at 1. For more information refer to Appendix 3 – System Parameters

- **Density** – Ingredient's density which can be used in UOM conversions. For more information refer to Appendix 3 – System Parameters

- **Cost Price (Stk)** – Cost per stock unit.

- **Extended Cost** – Calculated from cost multiplied by quantity.

- **Link Quantity** – This is the stock quantity needed for this ingredient line.

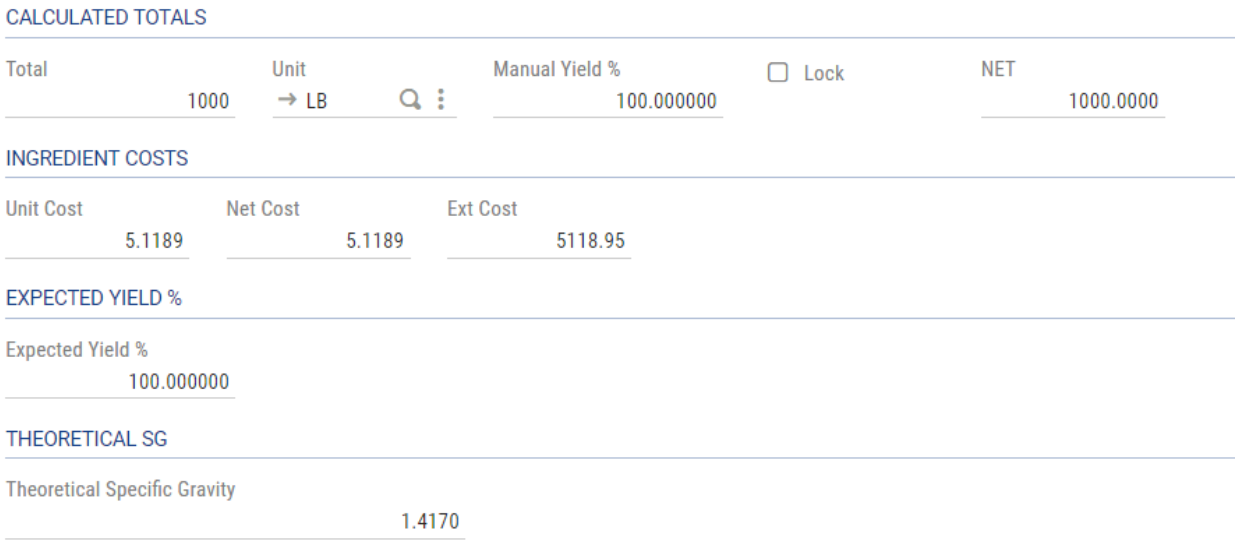
- **Weight (KG)** – Total KG for this ingredient.

- **Volume (Liters)** – Total liters for this ingredient.

- **Conversion Method** – When the BOM unit is changed, a BOM to Stock conversion factor is calculated. In some cases, the conversion factor is stored on the product. However, when the conversion factor is not defined for the product, the system will search for the factor or calculate the factor. The method that was used in determining this factor is stored in the Conversion Method field. For more information on conversions, refer to APPENDIX 4 –UNIT OF MEASUREMENT CONVERSIONS.

Calculated Totals Section

Formula totals are stored at the bottom of the Ingredients tab. These totals include total quantity, yield, specific gravity and costs.



The fields in this section are:

- **Total Quantity** – The total quantity of ingredients on the formula. The quantity is shown based on the selected Unit. The total quantity is calculated by converting each ingredient's quantity to the formula unit.

  Formulas can be resized by adjusting this total quantity. When a new quantity is entered, the quantities for the ingredients that are not locked are automatically adjusted to match the new total. These adjustments occur so that each ingredient maintains their original Weight % in relation to the other ingredients.

- **Unit** – The unit of measure for the formula. This unit of measure can be any unit, and it is not required that the formula unit be the same as the product's stock unit. For instance a product may have a stock unit of measure of KG, but the formulation for that product may use LBS, MG, Liters, etc.

  The one limitation for a formula unit is that the quantity for each ingredient must be able to convert into the formula unit of measure. Therefore, you would not be able to select a unit of measure, such as "DR" (Drum), unless each ingredient's quantity can be converted to the DR unit of measure.

  When a formula is published to a BOM, the formula total quantity and unit is converted to the product's stock unit of measure on the BOM.

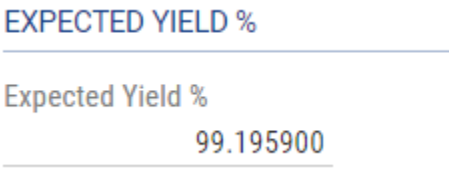
- **Manual Yield %** - The Manual Yield % defaults to the Expected Yield % for the formula, but unlike the Expected Yield %, the Manual Yield % is editable. Editing the Manual Yield % allows for the adjustment of the Net Yield. For example, a manual yield of 90% would indicate 10% yield loss on the formula. Adjusting the Manual Yield % results in the automatic recalculation of the Net quantity for the formula and the Lock field to become checked.

- **Net** – The Net quantity expected for the formula. This quantity is automatically calculated by multiplying the Total Quantity by the Manual Yield %.

  When the Net quantity is manually changed, the Manual Yield % is automatically re-calculated.

- **Lock** – When the manual yield % is edited, this field will "lock" the value that is entered. When selected, this lock will prevent the system from recalculating the manual yield %. If the lock is not in place, then the manual yield % will be automatically recalculated each time that the formula is adjusted.

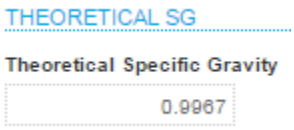
Yield Section



The Expected Yield % is automatically calculated and is not editable. This percentage is calculated based upon the scrap % entered for ingredients in the formula.

By default, the Expected Yield % and the Manual Yield % contain the same value, unless the Manual Yield % has been manually changed.

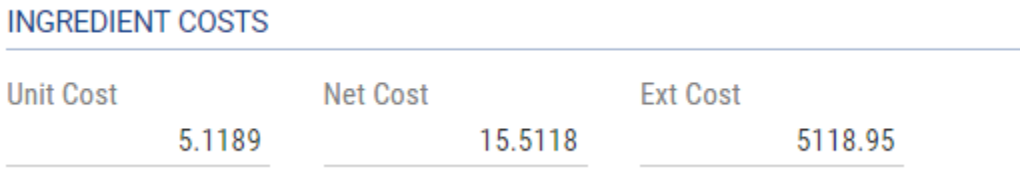
Theoretical SG Section



Theoretical SG is calculated based on the Specific Gravity of each ingredient and the percentage of that ingredient in the formula. This feature requires that the specific gravity is defined for each ingredient on the product's unit of measurement tab.

Ingredient Costs Section

Ingredient costs are shown in this section. Cost totals are automatically calculated by totaling the costs for all ingredient lines.

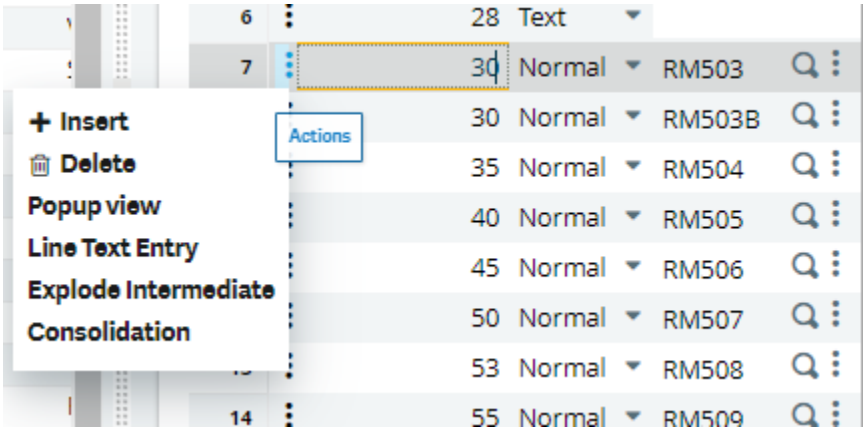


The fields in this section are:

- **Unit Cost** – Cost per unit based on the total quantity.
- **Net Cost** – Cost per unit based on the net quantity.
- **Extended Cost** – Total formula cost.

Ingredient Line Menu Options

In the Ingredients grid is a an action menu with the following options.

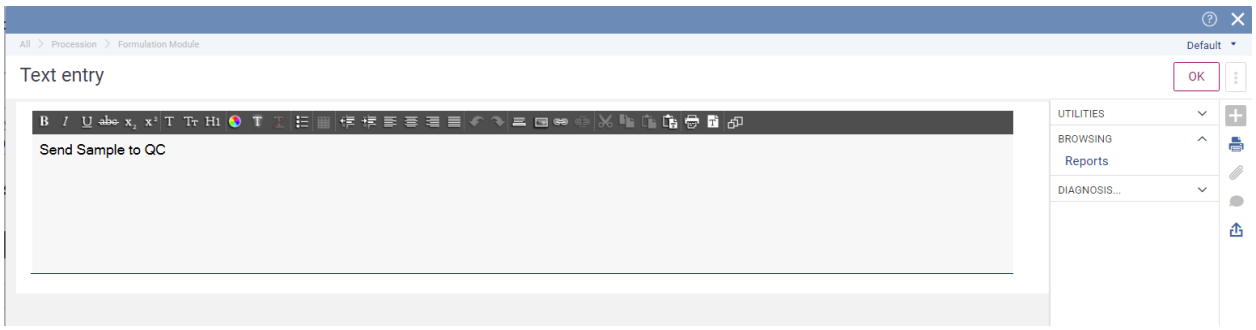


Line Text Entry

The Line Text Entry option can be used for either of the following purposes:

- View Boilerplate note text
- Enter/Edit non-boilerplate text.

Below is an example of the Line Text Entry window.



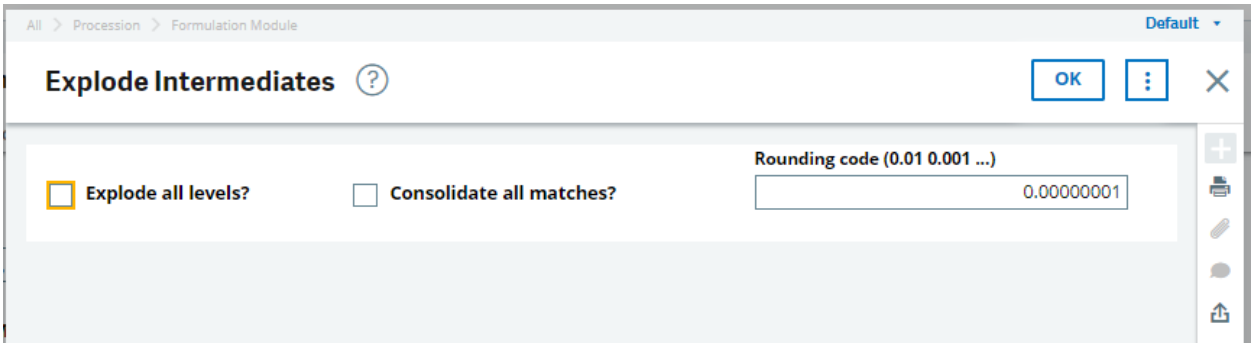
*Note: If viewing boiler-plate text in using the Text Entry menu option, **do not** click on the "OK" button, **unless** you have changed the text. Instead, click on the "X" in the upper right of the text entry window in order to close the window. The reason is that clicking "OK" indicates that you have made changes to the text and wish to save those changes. When changes are made to the text on the formula, the system removes the link to the boiler plate note on the formula. When this link is removed the text becomes specific to the current formula only. Without the link, future changes to the boiler plate note master record will not update the text on the formula.*

More information on boilerplate notes, see BILL OF MATERIAL (BOM) BOILER-PLATE NOTES

Explode Intermediate

The Explode Intermediate feature allows an intermediate on a formula to be replaced by the ingredients of the intermediate. A requirement for this feature is that the intermediate must have a type of "Normal" or "Formula".

When this line action menu is selected, the following window is displayed:



The option on this window are:

- **Explode all levels?** – The options for this field are:
  Selected - this option will cause the system to automatically explode any intermediates that are found on intermediate's formula and continue to deeper levels until no more intermediates exists in the stack.
  Not Selected – this option will stop at the first level and will not explode further than the first level.
- **Consolidate all matches?** – If this option is selected, then if the same Ingredient appears more than once in the intermediate or the current formula, then all instances of the ingredient will be combined into a single ingredient line.
- **Rounding code** – Defines how many decimals should show in the quantity that is returned for each ingredient returned by the explosion. For example, if only 2 decimal should be displayed, then the Rounding code should be set to "0.01".

If an intermediate has multiple formulas, the latest formula is used for the intermediate. The ingredient quantities are calculated proportionately based upon the intermediate's quantity.

When the ingredients returned by the explosion are added to the top-level formula, then the ingredients are added at same position in the formula that was previously occupied by the intermediate. The sequence number for all ingredients, after the intermediate, are automatically renumbered to accommodate the intermediate's ingredients in the formula.

Line Item Consolidation

There are two consolidation options available on the formula window. The first is the Ingredient line item action option and the other is the right panel menu option called Consolidation.

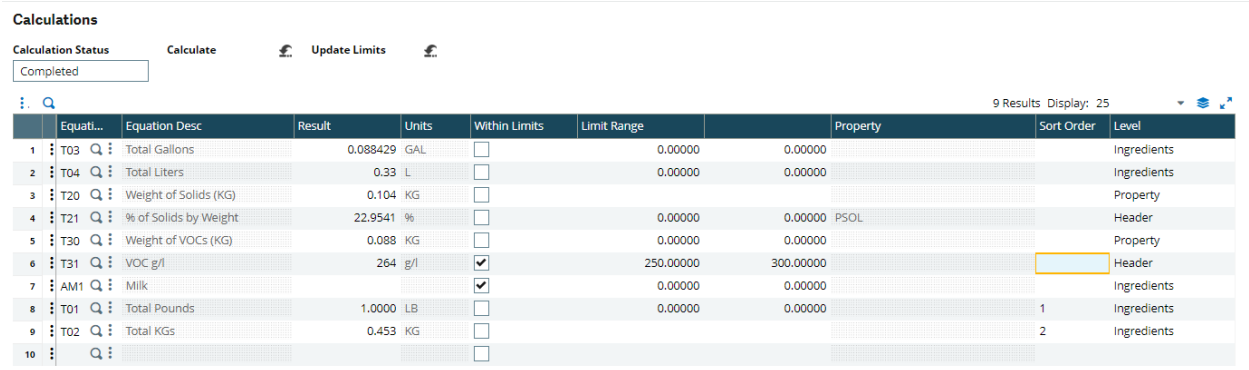
The main difference between the two options is that the line action option provides the ability to specify which product will be consolidated. For example, if the same ingredient appeared on row 1 and row 2, then if the line item consolidate action menu option is selected on row 2, then row 1 will be deleted and combined into row 2. Alternatively, if the consolidate option had been selected on row 1, then row 2 would have been deleted and combined into row 1.

Calculations Tab

The Calculations Tab is used to calculate properties for the formula. This tab can also be used to capture user-defined fields.

The properties that are calculated can vary by industry. Some examples are:

- **Paint and Coatings** – In this industry, examples of some common calculations are "VOC", "HAPS", "% Solids" and "Pigment %".
- **Food and Beverage** – In this industry, some common calculations are "Allergen Rollups", "Certification Compliance" (ex. Halal, Kosher, Non-GMO, etc.).



	Equati...	Equation Desc	Result	Units	Within Limits	Limit Range		Property	Sort Order	Level
1	T03	Total Gallons	0.088429	GAL	☐	0.00000	0.00000			Ingredients
2	T04	Total Liters	0.33	L	☐	0.00000	0.00000			Ingredients
3	T20	Weight of Solids (KG)	0.104	KG	☐					Property
4	T21	% of Solids by Weight	22.9541	%	☐	0.00000	0.00000	PSOL		Header
5	T30	Weight of VOCs (KG)	0.088	KG	☐	0.00000	0.00000			Property
6	T31	VOC g/l	264	g/l	☑	250.00000	300.00000			Header
7	AM1	Milk			☑	0.00000	0.00000			Ingredients
8	T01	Total Pounds	1.0000	LB	☐	0.00000	0.00000		1	Ingredients
9	T02	Total KGs	0.453	KG	☐				2	Ingredients
10					☐					

The value entered or calculated into the result field is stored with the formula, but can also be published out to the properties tab on a product and/or SDS. In order to publish to properties, the equation must be mapped to a property in the PROPERTY EQUATIONS master record.

The fields on this tab are:

- **Calculation Status** – Indicates whether the calculation is current or pending. If the status is "Completed", then no pertinent changes have occurred to the formula since the last calculation. If the status is "To Do", then the calculation needs to be initiated by either clicking the "Calculate" button or by saving the record.

  *Note: The system can be setup to either automatically calculate with any pertinent change, or it can be set to only calculate when the user initiates it or when the user saves the record. This is controlled by the **Procession** system parameter called XJBRDCLNW. The options for this*

parameter are "IMMEDIATE" (default) and "ONDEMAND". In order to optimize the system speed, the ONDEMAND setting is recommended if there is a large number of equations.

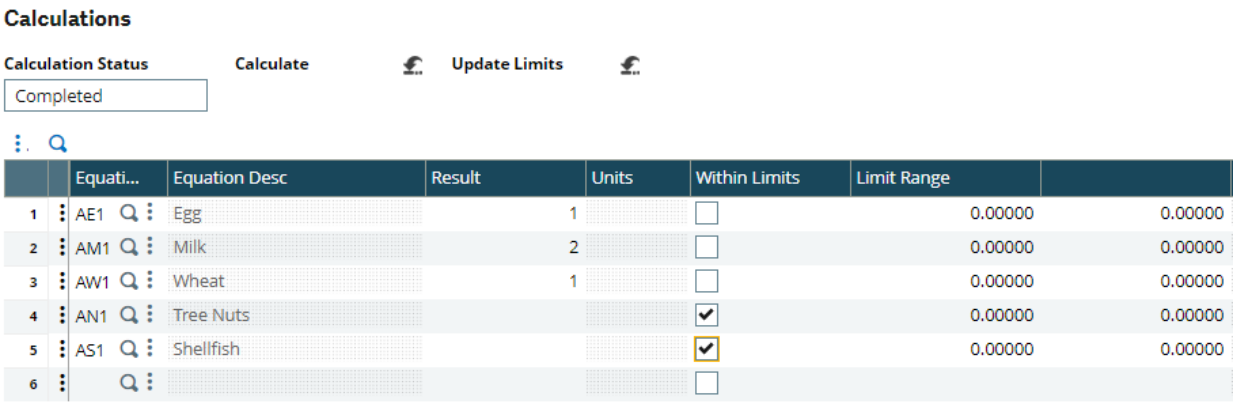
- **Calculate** – This button allows the user to initiate a re-calculation.
- **Update Limits** – Default limits are defined in the Property Equation, but can be modified on the formula. This button will resynchronize the Formula Equations in order to change the limit ranges to match the current values in the Formula Equation master record.

- **Equation** –Equation ID
- **Result** – If the Property Equation is defined as "Manual", then a result is manually entered into this field. Otherwise, the result is calculated using the defined equation and condition.
- **Units** – Unit of measure defined for the equation.
- **Within Limits** – This checkbox is only available for Property Equation that are defined with the "Limits" option selected in the master record. When the calculation occurs, the system will determine if the result is within the upper and lower limits defined for the equation on the formula.
- **Limit Range** – This fields are only available for Property Equation that are defined with the "Limits" option selected in the master record. The limit range will default to the values defined in the master record, but the range can be modified for the formula.
- **Property** – A value in this field indicates that the equation is mapped to a property in the Property Equation master record.
- **Sort Order** – This field is used to sort the order that the equations are displayed on this tab. Changes to the sort order will take affect when the formula is saved and the screen is refreshed.
- **Level** – Shows the calculation level for the Property Equation.

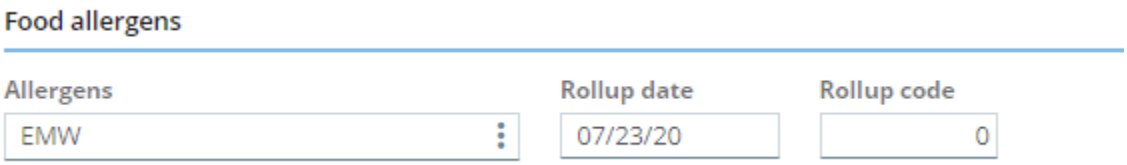
For more information on setting up equations, refer to the section PROPERTY EQUATIONS.

Allergen Rollups (New in Neon)

For allergen rollup calculations, the result will display the number of ingredients that contain the allergen. If the result is empty, then it indicates that the allergen was not reported in any of the ingredients. If the allergen was not found, then the "Within Limits" checkbox will be checked.

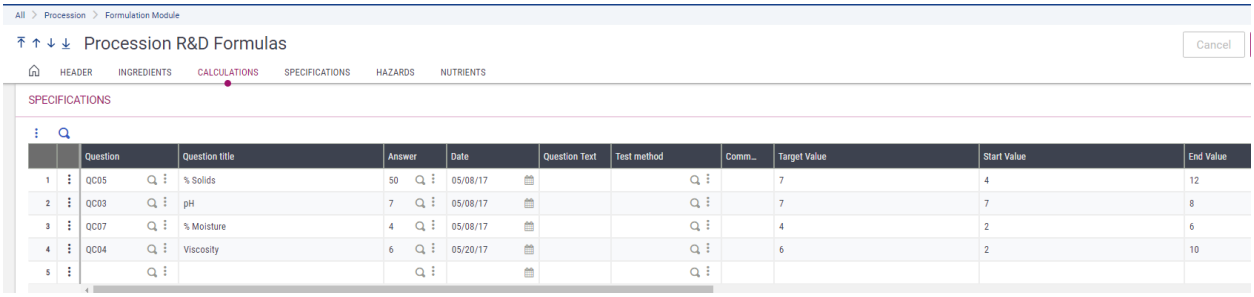


When publishing a formula to the product, the formula allergen values will update the Product's Food Allergens which is found on the Product Management tab.



Specifications Tab

The specifications tab is used for specifying and storing Quality Control specifications for a formula. Storing the specifications with a formula allow the specifications to be revision controlled. Each time that a specification changes for a formula, a new formula revision can be created. Each formula revision retains a history of the specifications for that formula revision.



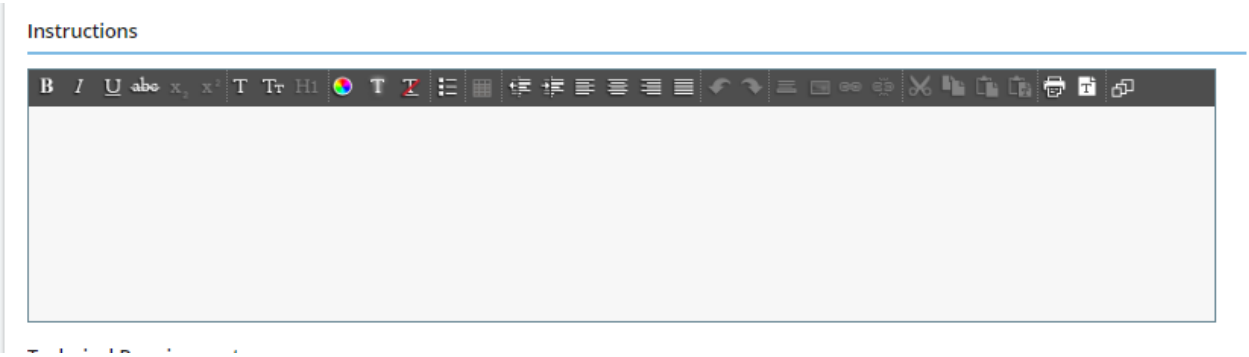
When publishing the formula to a product, the specifications can create or update a Product Technical Sheet for the product. Product technical sheets are used in Quality Control when posting test results for the product.

Note: A product may have multiple Product Technical Sheets. When publishing to a product from a formula, only the non-customer specific product technical sheet of the test type "FINAL" is updated from the formula.

During R&D, a lab sample is typically created and tested. If the lab sample is tracked in inventory, the sample can be tested and results entered in the ***Procession*** Quality Control Module. However, if the lab sample is not tracked in inventory, then these initial test results can be entered and tracked on the formula specifications tab in the Answer column. The date of the test can be entered in the Date column.

To add a specification to a formula, first select or enter a question. The questions are maintained using the standard QC Question feature. The ranges or value lists for each question are automatically populate for the selected questions, but the targets and ranges can be changed on the formula.

Instructions Section

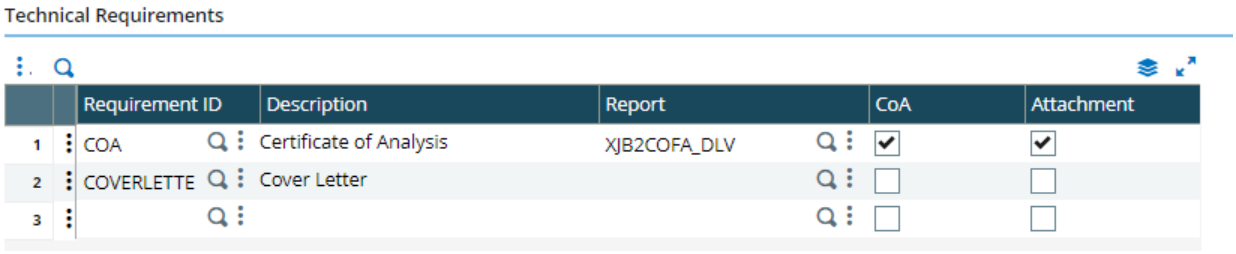


This section is used to enter testing instructions which will be published to the Product Technical Sheet. When QC results are entered in the ***Procession*** QC Results window, these instructions are displayed.

Technical Requirements Section (New in Neon)

This section contains a listing of Technical Requirements for this formula. A Technical Requirement can be a lab report that needs to be printed or an attachment that needs to be sent to customers that purchase this formula.

The Technical Requirements grid is initially populated when a Presale Request record is entered or selected on the Formula Header tab. However, once the formula is created, the Technical Requirements can be modified to be specific for the formula.



Fields in this section are:

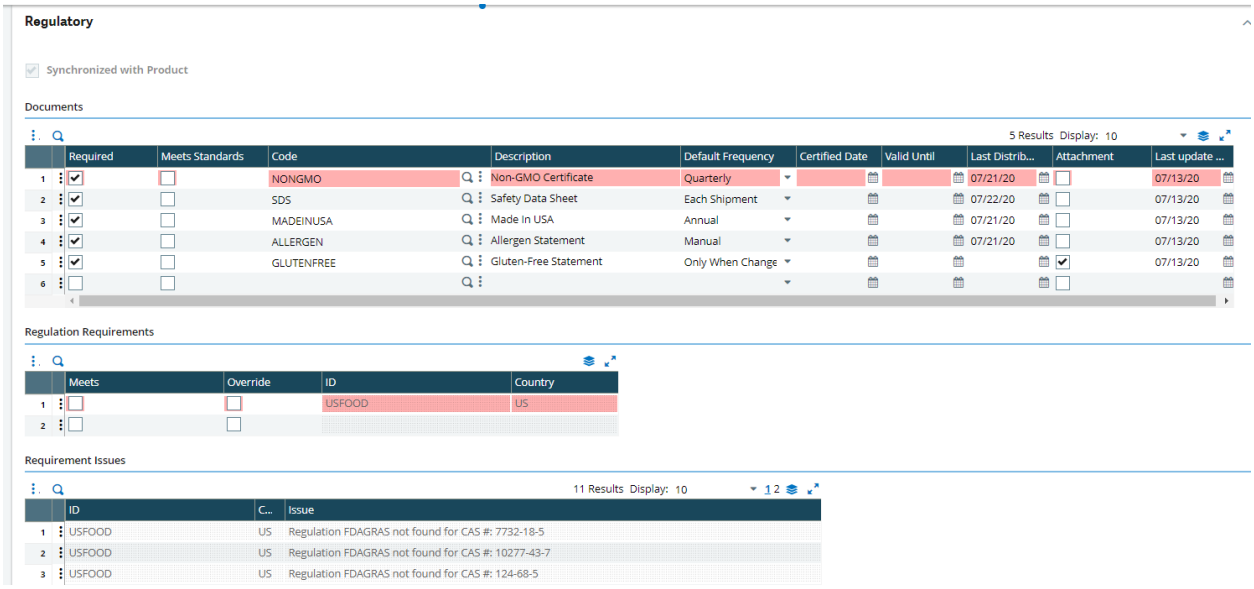
- **Requirement ID –** The requirement ID. For more information on creating new Technical Requirements, refer to Technical Requirements the in Setup section of this guide.
- **Report –** Contains the Sage X3 Report that will be used for this requirement. For example, if different versions of the Certificate of Analysis report exists, the default report for this formula can be selected here. If the requirement involves sending an attachment instead of printing a report, then this field would be blank.
- **CoA –** Identifies if the report is a Certificate of Analysis. CoA document distribution is tracked on the Product and Sales Order.
- **Attachment –** This option can be used to attach a document to the requirement. Attachments must be manually distributed to the customer.

Hazards Tab

On the Hazards Tab, the formula is hazard classified and Safety Data Sheets are generated. The Hazards tab is available with the ***Procession*** Regulatory Control module. Refer to the user guide for the Regulatory Control module for more information.

Regulatory Tab (New in Neon)

This tab is used to track regulatory documents and to identify regulation issues with the formula. The Regulatory document feature allows for the automatic distribution and tracking of documents related to the formula. These documents can be anything, but typical examples are certificates and safety data sheets.



The field and sections for this tab are listed below.

- **Synchronized with Product** – Indicates that changes have been published from the formula to the product record. This checkbox is automatically unchecked whenever the regulatory

documents grid is modified and checked when Regulatory Documents are published to the product using the “Publish To Product” option.

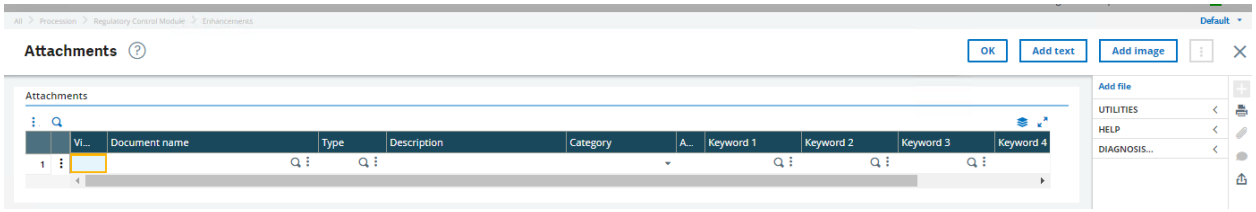
Documents Section

- **Required** – Indicates whether this document is required for distribution.
- **Meets Standards** – Indicates if the requirements have been met that will allow us to distribute this document.
- **Code** – The Regulatory Document Id.
- **Description**
- **Default Frequency** – Distribution frequency for the document.
- **Certified Date** – Indicates the date that this requirement was last certified.
- **Valid until** – Indicates that the certification is valid until this date. This value can be used in queries in order to determine certificates that need to be renewed.
- **Last Distribution Date** – The last date that this document was distributed for this product.
- **Attachment** – If an attachment should be sent instead of printing the report, then add the attachment here and set the Default Frequency to “Manual”. More information on attachments can be found in the next section.
- **Last Update** – This is the date that the document was last changed. If changes are made on the Regulatory Document on the Product, or if changes were published from the Formula, then this field is automatically be populated with the date. However, if the Regulatory Document default frequency is “Only When Changed”, then the date can be manually changed to indicate that there is a new version of the document that should be distributed. An example would be if a new revision of the SDS is ready to distribute, this date could change and then the next shipment for each customer will require that the new SDS revision be sent with the delivery.

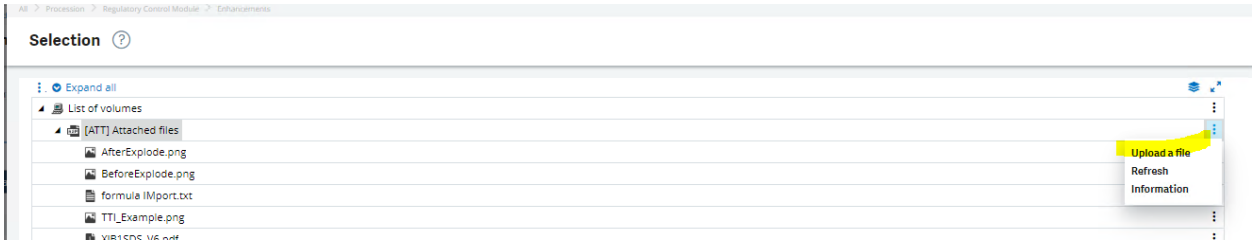
Attachments

Attachments can be added to a Regulatory Document to indicate that an attachment should be sent instead of generating a new report.

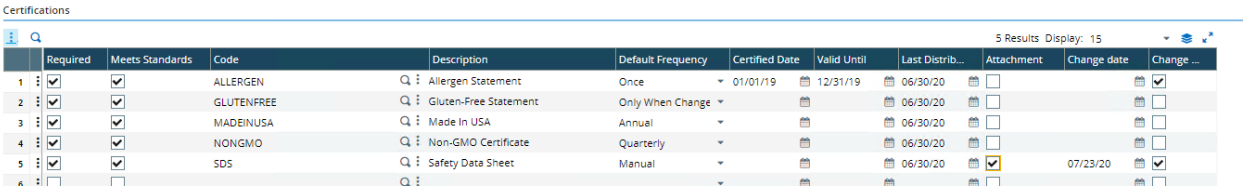
When selecting the Attachment checkbox, the Attachment dialog is displayed.



To add the attachment, click on the selector button (i.e. magnifying glass) in the document name field. Next, either select the file from one of the list volumes, or select to “Upload a file” as shown below.

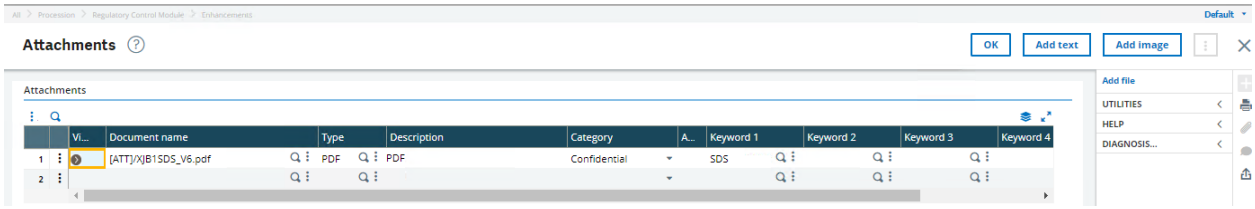


Once an attachment is added, the attachment checkbox will show as checked as shown below for the SDS row.



Any attachment that is added using this feature will be stored in the standard Sage X3 attachments that are accessible from the right panel on the product record.

The image below is an example of the attachment window for a product record. The attachment that was added shows in the list and can be viewed or printed from this window by clicking the “View” button. Note that the Regulatory Document ID was automatically stored in the Keyword1 field.

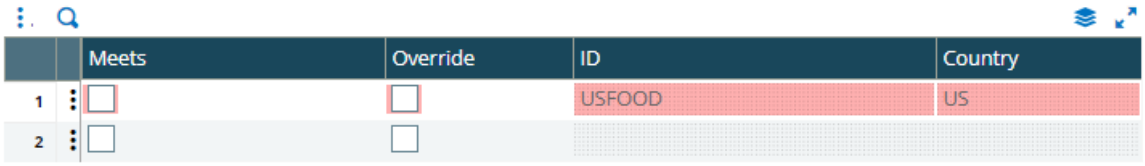


Regulation Requirements Section

This section shows the results of the regulation review for the formula. This review occurs when the Classify Hazards option is selected from the right panel.

The regulation review is performed based upon the Application for each Country. The Application is assigned to the Formula on the Formula Header tab. The regulatory requirements are defined in the Requirements by Country feature which is found in the ***Procession*** Regulatory Control module. Refer to the Procession Regulatory Control User guide for more information on defining the regulatory Requirements by Country.

Regulation Requirements



	Meets	Override	ID	Country
1	☐	☐	USFOOD	US
2	☐	☐		

If any regulatory problems are found for the formula, the country and requirement ID will show in red, as shown above. If no regulatory problems are found, the Meets checkbox will be automatically checked.

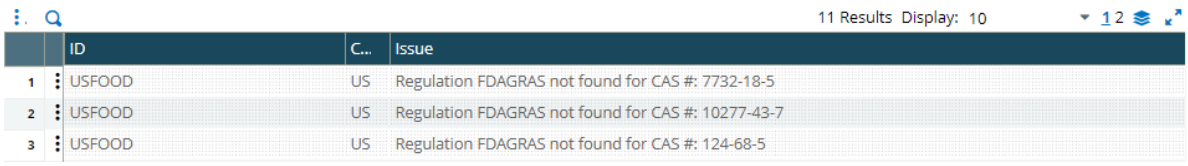
If a regulatory issue is found with the formula, then a warning will appear to the user if a sales order for the formula's product is entered for this country.

Regulatory issues can be overridden by clicking the Override checkbox.

Requirement Issues Section

This section reports all of the regulatory issues found for this formula.

Requirement Issues



11 Results Display: 10 1 2

	ID	C...	Issue
1	USFOOD	US	Regulation FDAGRAS not found for CAS #: 7732-18-5
2	USFOOD	US	Regulation FDAGRAS not found for CAS #: 10277-43-7
3	USFOOD	US	Regulation FDAGRAS not found for CAS #: 124-68-5

In the example shown above, the regulation requirement was defined to require each ingredient to be labeled as "U.S FDA – Food Additives Generally Recognized As Safe", but components were found which did not meet this requirement. Requirements are user defined in the Regulatory Control module's Requirements by Country feature.

Nutrients Tab

On the Nutrients tab, nutrient targets can be set and raw materials suggested by the system based upon those targets. The Nutrients tab is available with the ***Procession*** Nutraceutical plug-in. Refer to the user guide for the Nutraceutical plug-in for more information.

Estimating Tab (New in Neon)

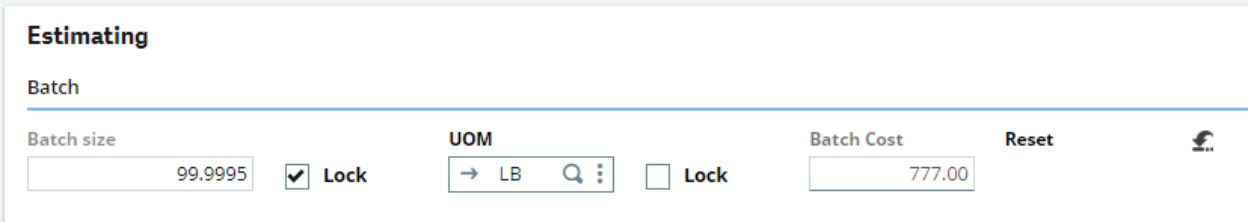
The Estimating tab provides the following functionality:

- Batch size definition
- Detailed cost calculations, including labor, machine, overhead, material and additional costs.
- Tiered Pricing
- Quote or Estimate generation

- Quote/Estimate history for the formula

Batch Section

This section allows for the definition of a batch size for the product. It also provides a cost for manufacturing the batch.



The fields in this section are:

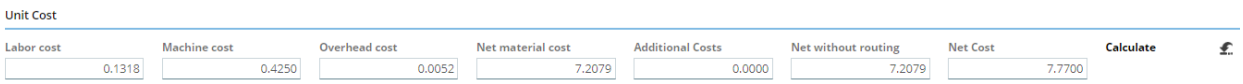
- **Batch Size** – The batch size defaults to the Net Quantity that is calculated on the Ingredients tab. Changing the batch size does not affect the quantities on the Ingredients tab. When changing the batch size, the quantity will automatically lock and become read-only. When publishing a product to a BOM, if the Management Unit is set to "By Lot", then the BOM will be created or updated by resizing the Formula to this batch size.
- **Lock** – This checkbox indicates that the field to the left of this field is locked. To edit the locked field, uncheck this checkbox.
- **UOM** – The unit of measure for the batch size. This value defaults to the UOM from the Ingredients tab, but it can be changed. This unit should be the stock unit for the product that is created from this formula.

  For example, in the Supplement industry, the formulation is usually created based upon a serving, which is measured in mg. However, the stock unit for the produced product is usually kg. In this scenario, all of the ingredients on the Ingredients tab would be sized based upon mg (example 20 mg), but the batch size would be based kg (example 100 kg).

- **Batch Cost** – The calculated total cost for producing a single batch of this formula.
- **Reset** – This button option will reset the batch size and UOM to match the Net Quantity from the Ingredients tab.

Unit Cost Section

This section displays costing details for a single unit based upon the Batch UOM.

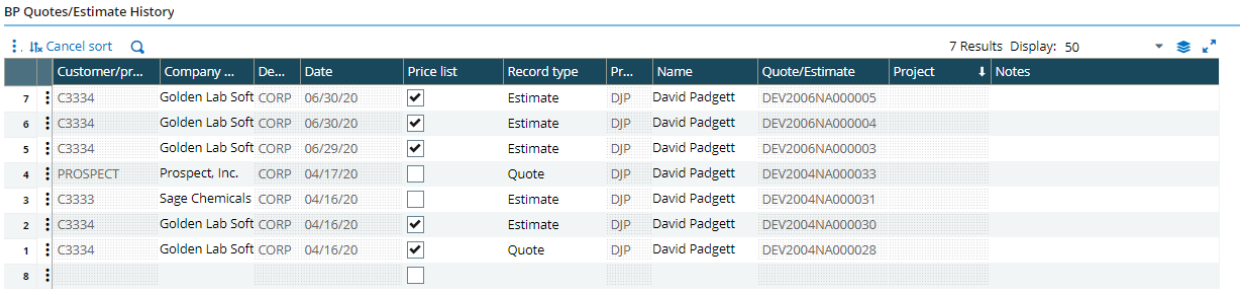


The fields in this section are:

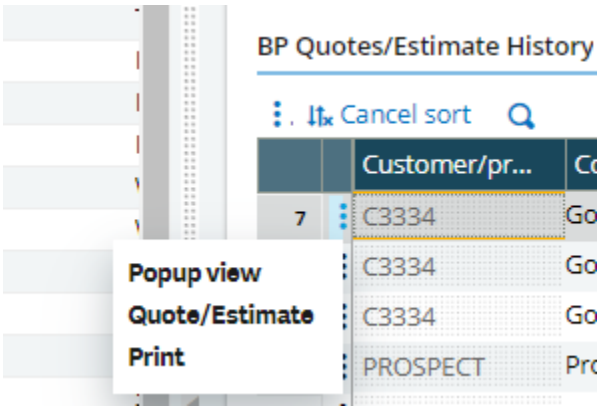
- **Labor Cost** – Calculated from the labor work centers on the formula's routing.
- **Machine Cost** – Calculated from the machine work centers on the formula's routing.
- **Overhead Cost** – Calculated from the overhead defined on the formula's routing.
- **Net material cost** – Based upon the costs from the Ingredients tab, but converted to the batch UOM.
- **Additional Costs** – Calculated from the Additional Costs defined in the Additional Costs section of this tab.
- **Net Without Routing** – Contains the Net Material Cost plus the Additional Costs.
- **Net Cost** – Per unit cost for the batch UOM. On this tab, the Batch Size * Net Cost = Batch Cost.
- **Calculate** – This button will recalculate the unit costs and pricing. Note, this recalculation will occur automatically when changes are made to the formula through the user interface.

BP Quotes/Estimate History

This section contains a log of all quotes or estimates that have been generated from this formula. Quotes and Estimates can be generated from the formula using the right panel menu option called GENERATE QUOTES/ESTIMATES.



Within this grid is the action menu options to drill down to the Quote/Estimate or to print it.



The fields in the BP Quotes/Estimate History grid are:

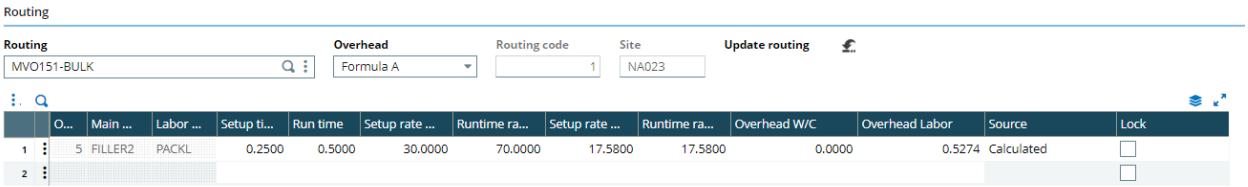
- **Customer/prospect** – The customer or prospect for which the quote/estimate was generated.
- **Date** – Date the quote/estimate was generated.

- **Price List** – This checkbox indicates whether the quote/estimate is a price list. If selected, then the quote/estimate does not show extended pricing or total pricing. Instead, a price list only show the pricing tiers.
- **Record type** – Indicates if the record is a quote or an estimate.
- **Prepared by** – The user id for the person who generated the quote/estimate.
- **Quote/Estimate** – This is the Sage X3 Quote record ID. Note that both Quotes and Estimates are created as Sage X3 Quotes. The distinction between the two is the document that is printed and sent to the customer using the "Print" action menu that can be selected on the row as shown earlier in this section.
- **Project** – The project number assigned to the Quote record. The project number is used to tie the quote back to the project and the Presale Request.
- **Notes** – This is a free-form text field where note related to the quote/estimate can be entered.

For examples of the Quote and Estimate print-outs, refer to FORMULA QUOTE/ESTIMATE/PRICING REPORT.

Routing Section

The routing section is used to assign a routing to a formula. Routings define the manufacturing process and the work centers for that process.



The fields in this section are listed below. All of the hours and cost fields are calculated, but they can be manually adjusted or changed.

- **Routing** – This field is used to select a routing that will be used in the calculation of labor, machine and overhead costs for the formula. The routing assigned to a formula can either be generic to a product class or it can be product specific. The routing that is selected must be setup in the same UOM as the Batch UOM.

  Note: A default routing can be defined on the formula template.

- **Overhead** – Defines which overhead formula to use when calculating overhead.
- **Routing Code** – Routing code for the selected routing.
- **Site** – Site defined for the selected routing.
- **Update routing** – This button provides the option of refreshing the routing with any changes that were made to the routing master. This option will overwrite the current routing on the formula, except for the routing rows that are marked as locked.

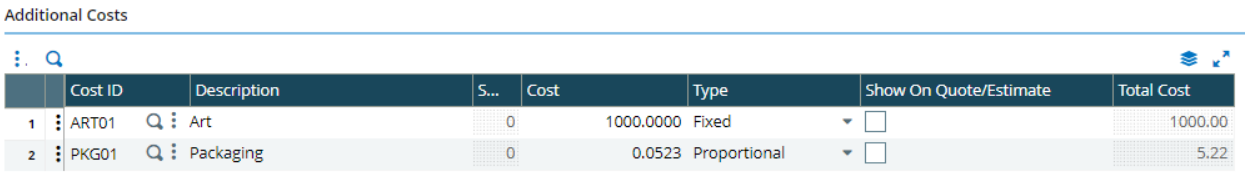
Routing Grid

The fields in the routing grid are listed below. All of the hours and cost fields are calculated, but they can be manually adjusted or changed.

- **Operation** – Sequence number that defines the order of operation for the manufacturing process.
- **Main Work Center** – Work center used in the calculation of machine costs and overhead costs.
- **Labor Work Center** – Work center is used in the calculation of labor costs and overhead costs.
- **Setup time** – Calculated setup time based upon the settings in the work centers.
- **Run time** - Calculated run time based upon the settings in the work centers.
- **Setup rate W/C** – Setup cost hourly rate from the main work center.
- **Runtime rate W/C** – Runtime cost hourly rate from the main work center.
- **Setup rate Labor**– Setup cost hourly rate from the labor work center.
- **Runtime rate Labor** – Runtime cost hourly rate from the labor work center.
- **Overhead W/C –** Total overhead cost calculated for the batch based upon the overhead assigned to the main work center.
- **Overhead W/C –** Total overhead cost calculated for the batch based upon the overhead assigned to the labor work center.
- **Source –** Indicates if the values shown on this row were "Calculated" or if they were "Entered". If any value on the row was modified, then the source will automatically display as "Entered".
- **Lock –** If the values on this row are static, then they can be locked by clicking this field. By locking the row, it prevents the values on the row from changing when costs are recalculated or the "Update Routing" option is used.

Additional Costs Section

The additional costs section is used in estimating and allows the addition of costs that are not included in the material, labor, machine or overhead costs.



For example, if bidding on a project, additional costs may include art fees, lab fees, packaging costs, registration fees, shipping costs, etc. These costs can be significant and are therefore critical in order to create accurate and profitable estimates.

The fields in this section are:

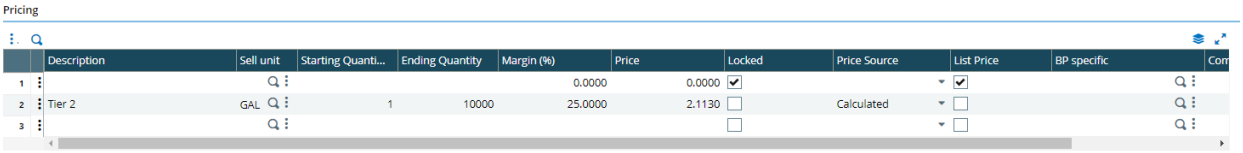
- **Cost Id** – The ID for the Additional Cost record. Additional costs are defined in Miscellaneous Table 20515 – Additional Costs

- **Sequence** – Defines the order in which the additional costs will display or print on a quote/estimate.
- **Cost**
- **Type** – Defines the method used for adding the cost. The options are:
  a) **Fixed** – Use this method when the cost is a single amount that is to be distributed across the entire batch. For example, if the additional cost was for $325 "Fixed" and the batch size is 100 Kg, then the system will automatically calculate the per KG cost as $3.25.
  b) **Proportional** – Use this method if the cost is reported as a "per unit" cost. For example, if the additional cost was reported as $3.25 "Proportional" and the batch size is 100 Kg, then the system will automatically calculate the total cost as $325.
- **Show on Quote/Estimate –** If selected, the additional cost will print on the estimate or quote.
- **Total Cost –** The total cost calculated for this additional cost based upon the batch size.

Pricing Section

The pricing section allows for the definition of pricing tiers for the formula. These pricing tiers can be customer specific or non-customer specific and these pricing tiers determine the pricing on the quote or estimate.

By default, pricing is calculated, but it can also be manually entered.



Note that the formula pricing can be used to automatically update the product list price. However, the price tiers defined on the formula do not automatically create Sage X3 Sales Price Lists.

The fields in this section are:

- **Description** – User defined field that describes the price tier.
- **Sell Unit** – The selling unit of measure. By default, the batch UOM is used, but any sell or pack unit that is defined for the product can be used.
- **Starting Quantity** – The starting quantity for the price tier.
- **Ending Quantity**
- **Margin % -** Margin % is used in calculating the price. Margin should be entered as a %, for example 40%.
- **Price –** The per unit price. This field can be calculated or manually entered.
- **Locked –** If selected, then the price is fixed and will no longer float as changes are made to the formula costs.

- **Price Source –** If the price is calculated, this field will contain the value “Calculated”. If the price is manually changed, this field will automatically change to the value of “Entered”.
- **List Price –** Used to designate the price as the list price for the product. When publishing the formula to product, the product list price can be updated from the formula list price.
- **BP specific –** (Optional) – This field is used if the pricing is specific to a single customer or prospect.

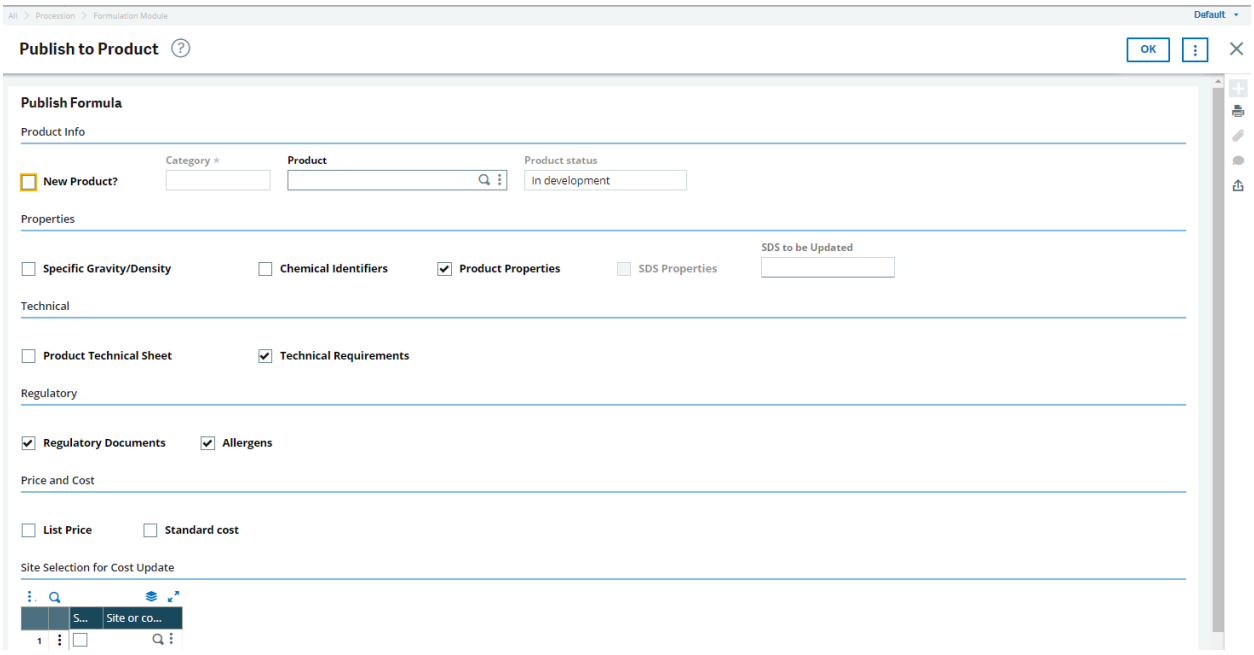
Formula Right Panel Options

Publishing a Formula

After a formula has been approved, the formula may be published to a product and/or a production BOM. The publish feature allows the formula data to efficiently and accurately flow from the R&D sandbox into inventory and manufacturing. The Publish feature is found on the R&D Formula screen in the right hand option menu.

Publish to Product

The Publish to Product feature allows products to be created or updated from the formula.



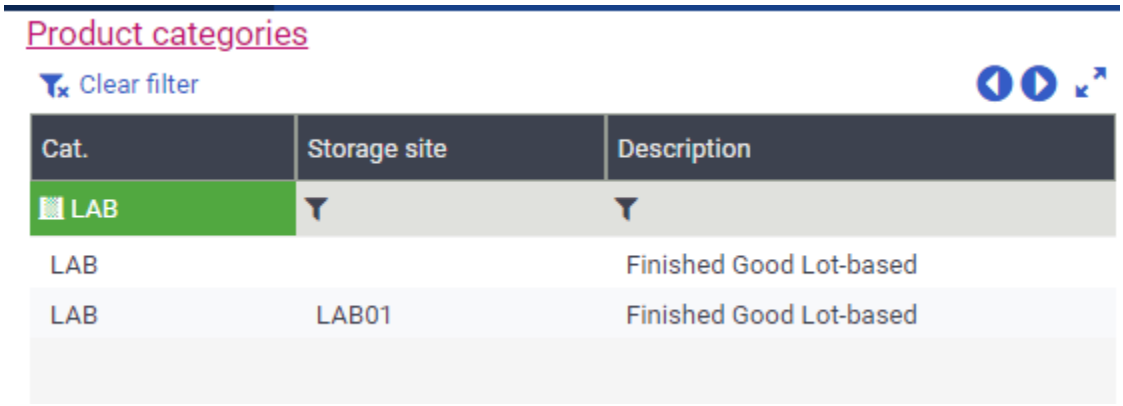
The fields and sections for this window are detailed below.

Product Info Section

The field options in this section can vary, based upon whether a product has been defined for the formula or not. If updating an existing product, only the Product field is displayed in this section. All of the fields that can be listed in this section are detailed below.

- **New Product?** - This option only displays if the formula is not currently linked to a product. When selected, this flag indicates that a new product will be created from the formula.
- **Category** – When creating a new product from the formula, this field defines the category for the product. Note that many of the product defaults can be setup in the product category.

  When creating a new product from a formula, if the selected Product Category is setup for storage sites, then each of these storage sites will be automatically created for the new product.
  The image below shows an example of a category that has a storage site defined.



- **Product** – The product to update or create. This field is editable except if creating a new product for a category that has a product number sequence defined.
- **Product Status –** Used to define the initial status of a new product. For example, a new product can be released as "In Development", which allows the product to be used on sales orders or work order, but with restrictions and warnings.

Properties Section

- **Specific Gravity/Density** – Signifies that the formula's theoretical specific gravity should be either pushed to the product density field or a LBS/Gallon density should be calculated from the theoretical specific gravity. See the section, SYSTEM PARAMETERS, for setup information that controls which method is used.
- **Chemical Identifiers** – This option is used to publish the chemical composition information (i.e. CAS numbers and percentages) from the formula hazard tab to the product record. This feature is very important for intermediate products, since these identifiers are used to determine the chemical composition of formulas that use the intermediate. This feature would not typically be used for products that have Safety Data Sheets.
- **Product Properties** – Indicates whether to update product properties from the formula equations. Using this option, if a property equation is mapped to a product property, then the result for the

property equation will be stored in the properties for the product. If the property does not exist on the product, it will be added.

- **Update SDS Properties** – Used to update the properties on the latest SDS record, if an SDS exists for the product.
- **SDS to be Updated** – Shows the SDS whose properties would be updated

Technical Section

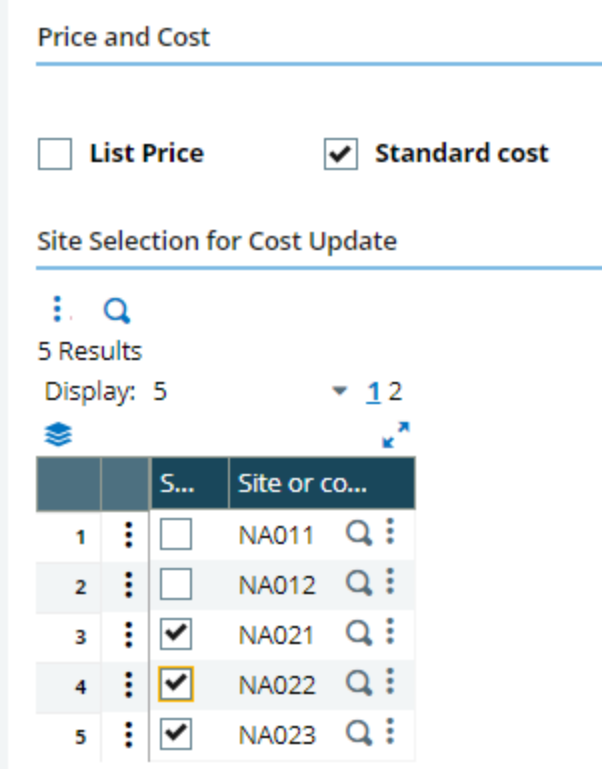
- **Product Technical Sheet** – When selected a QC product technical sheet will be created or updated from the formula specifications. This feature will only update non-customer specification and only for product technical sheets of type "Final".
- **Technical Requirements** – Indicates whether the Technical Requirements that are defined on the Product Specifications tab of the formula should be published to the product record.

Regulatory Section

- **Regulatory Documents** – Indicates whether the Regulatory Documents that are defined on the Regulatory tab of the formula should be published to the product record.
- **Allergens** – If this option is selected, then any allergen property equations used on the formula calculations tab will be used to update the product record. The allergens can be found on the Management tab of the product record.

Price and Cost Section

- **List Price** – Used to update the list price from the formula pricing record which is marked as list price.
- **Standard cost** – The feature provided by this option are:
  a) Create a Product Standard Cost record using the formula calculated cost for the selected sites.
  b) Create Product-Site records, if they don't currently exist for the selected sites.

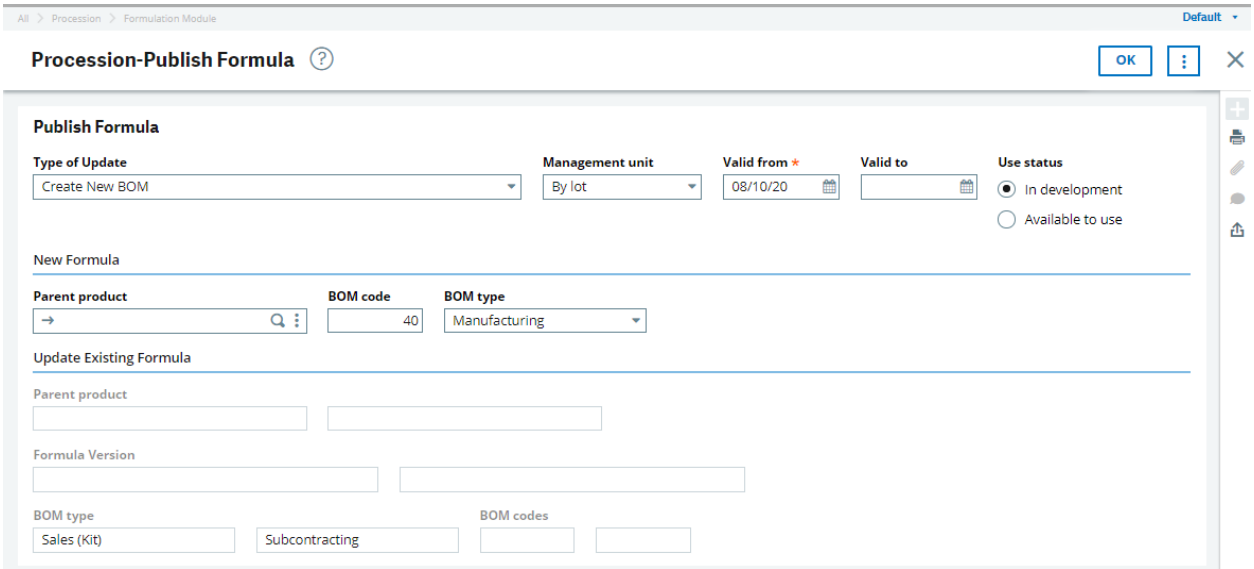


When the standard cost option is selected, all available sites are listed. Select the sites for which standard costs will be created.

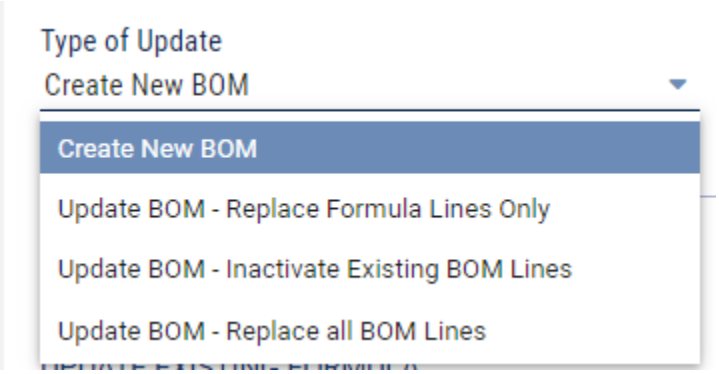
Publish to BOM

The Publish to BOM feature allows Production BOMs to be created or updated from a formula. This feature can be used to update the BOMs for one or multiple products.

This feature is accessed from the Formula screen's right menu:



When publishing to BOM, the first option is whether to create a new BOM or update an existing one. Note that if the product is version controlled, then the type of update is automatically determined based upon whether the product has an in-development version.



Type of Update options:

- **Create New BOM**–Create a new Production BOM from the formula.
- **Update BOM - Replace Formula Lines Only** – Remove previous formula lines on the BOM (BOM lines which are marked as "based on formula") and save the current formula's ingredients to the specified BOMs.
- **Update BOM – Inactivate Existing BOM Lines** –Deactivate formula lines (lines marked as based on formula). With this option, the ending validity date for the existing lines on the BOM are changed to make them inactive. This option allows previous versions of the formula to be accessible from the BOM screen, creating a formula history for the product. Previous formulas can be accessed on the BOM screen by changing the reference date on the BOM. The current formula version is added to the existing BOM with a validity date range that ensures only the current version is active.

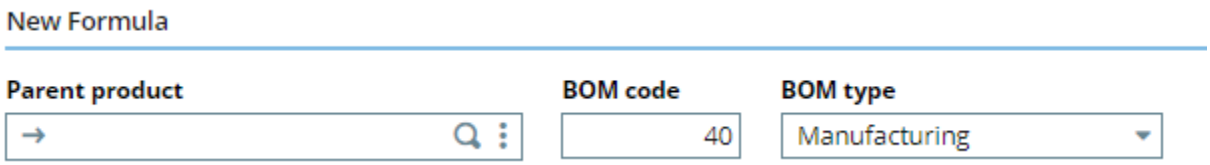
- **Update BOM– Replace BOM Lines** – This option deletes the current Production BOM lines and adds the current formula to the BOM.

Other options for this feature include:

- **Management Unit**
    - **One** – This will scale the formula to equal 1 of the Product's stock unit.
    - **Per Hundred** – This will scale the formula to equal 100 of the Product's stock unit.
    - **Per Thousand** – This will scale the formula to equal 1000 of the Product's stock unit.
    - **Percentage**– The formula will be published as 100%. If the "% of Whole" field for the formula ingredients does not sum to 100%, then the adjustment will be made to largest ingredient by weight.
    - **By Lot** (default) – The BOM will be created based upon the formula batch size. If the batch size is different from the Net Quantity on the Ingredients tab, then the formula will be resized to the batch size.
- **Validity Dates** – These dates will be used on the Production BOM header and on each ingredient line.
- **Use Status** – Defines if the BOM will have a status of "In Development" or "Available to Use"

Creating a New BOM from a Formula

When the Update Type is set to "Create New BOM", specify the product and the BOM code for the new BOM. Only one BOM can be created at a time, however the publish feature can be run multiple times in order to create multiple BOMs.

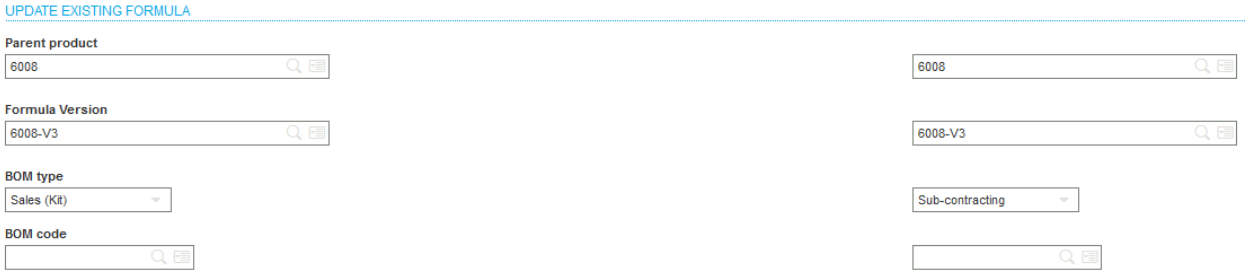


The fields in this section are:

- **Parent Product** – Product ID for the new BOM. This value will default to the Product ID of the formula, but can be changed to any existing product number.
- **BOM Code** –BOM code for the new Production BOM
- **BOM Type** – Type of BOM to create or update. The options are Manufacturing (default), Kit or Subcontracting.

Updating Existing BOMs

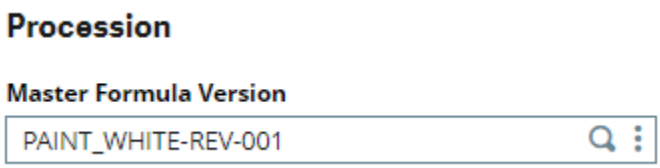
When updating existing BOMS from a formula, enter the filter criteria in the "UPDATE EXISTING FORMULA" section of the publish screen. In this section you can define the ranges to update one or more formulas.



The fields in this section are:

- **Parent Product Range** – Range of products to update.
- **Formula Version Range** – Update only BOMs with master formulas within this range.
- **BOM Type Range** – Type of BOMs to update. By default, the range is set to include all BOM types.
- **BOM Code Range** – The BOM code to update.

When updating using the Formula Version range, the system only updates the BOMs which currently have a Master Formula Version containing the specified formula version or revision. This field is shown below.



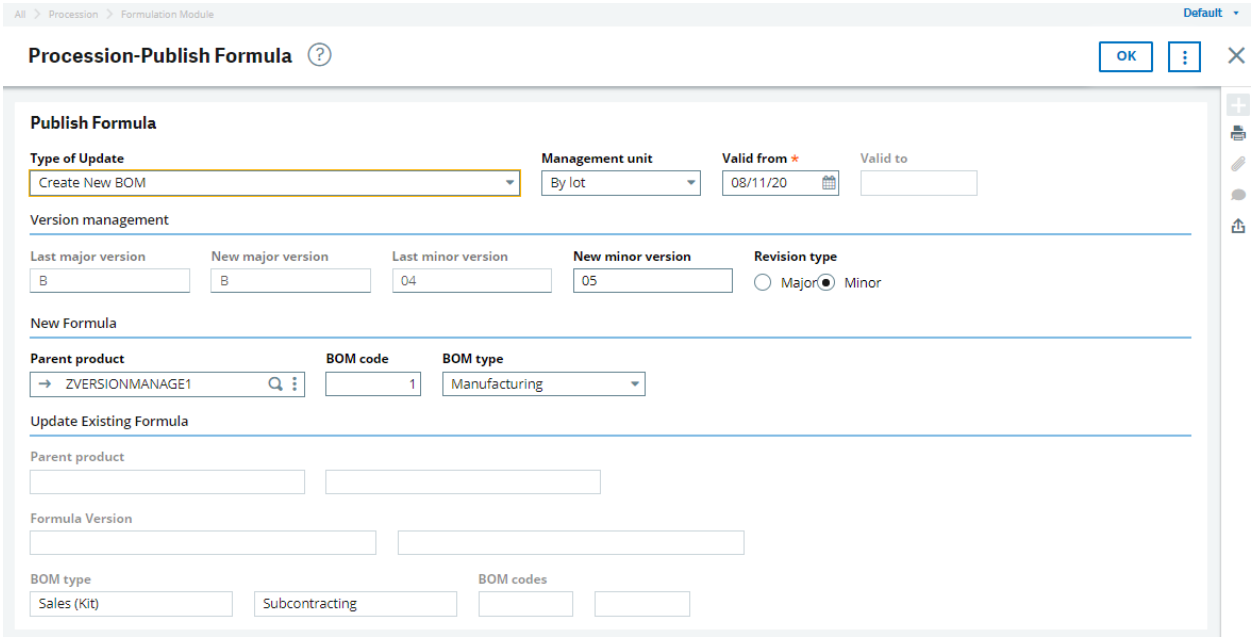
When publishing a new formula version, set the Formula Version Range to the old formula version in order to update the existing BOMs, which currently contain the old formula version.

Note that not all BOMs, which are linked to the Master Formula Version should be updated. For example, separate BOMs may exist for bulk products and packaged products. In this scenario, the packaged product BOM would contain the bulk product as a component. The BOM for the bulk product would be created and updated from the formula. However, the packaged product BOM would be created and managed from the Manufacturing BOM feature. When the packaged product BOM is created, it is recommended to enter the Master Formula Version for the BOM. The benefit of having the Master Formula Version on the packaged product BOM, is that it provides a link back to the formulas SDS and the Certificate of Analysis for the bulk product. It is recommended that bulk products and packaged products use different BOM codes. When different BOM codes are used, it allows formulas to be published to the bulk product BOMs by set BOM Code Range criteria to the bulk product BOM code.

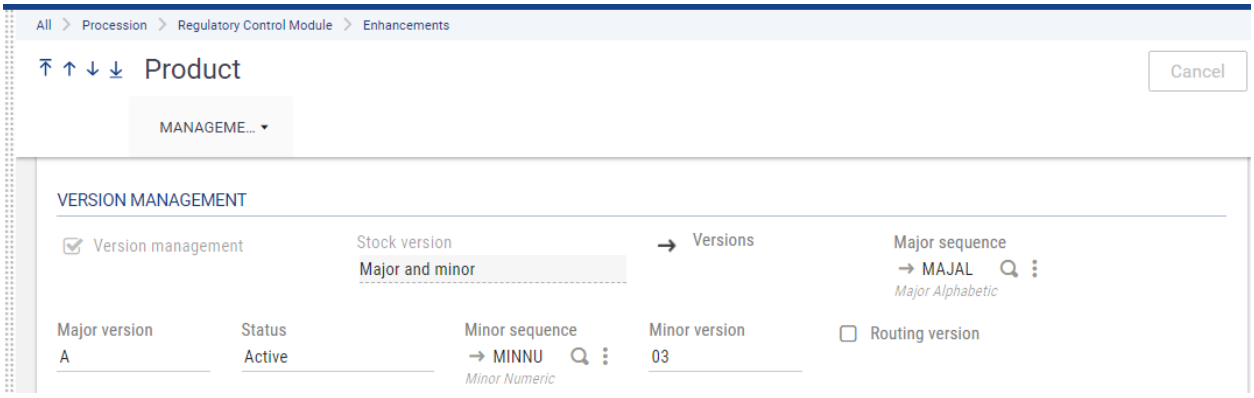
Version Management

If the product ID on a formula is for a product that is version managed, different options become available on the Publish to BOM window.

If the product is version control, there must be a one-to-one relationship between the product and the formula. When publishing to a version managed product, the Version Management section is displayed. This section shows the last major and minor version for the product.

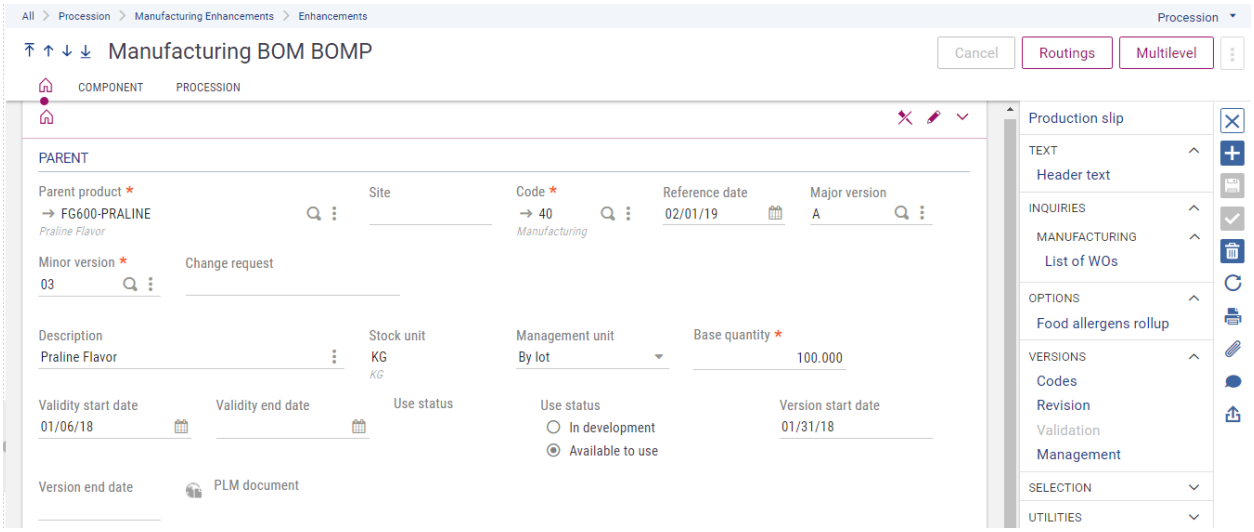


Version management is a standard Sage Enterprise Management feature, which is setup on the Product Management tab.



A version-managed product can only have a maximum of 2 BOM versions active at one time, but each of the active BOMs must have a different Code and Use Status. For example, only one BOM version of the product can be “Available to use” at one time and only one BOM version can be “In development”. A version-managed BOM which has a Use status of “Available for Use” cannot be modified and cannot be

updated from the formula. However, a version-managed BOM with a Use status of “In Development” can be modified or updated from the formula.

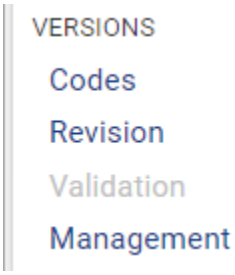


When publishing a formula to a version-managed product, if an “In Development” BOM exists for the product, then the “Create New BOM” Type of Update is not allowed. Only the “Update” Type of Updates are allowed in this scenario.

If an “In Development” BOM does not exist for the product, then the Type of Update will default “Create New BOM”.

If the product is using both the Major and Minor version features, then when creating a new BOM, the user can select whether the new BOM is a new major or minor version number.

An “In Development” BOM version can be made “Available To Use” by selecting the “Validation” menu option on the Right Panel of the BOM.



For more information on the BOM Version Management feature, refer to the Sage Enterprise Management help.

BOM Formula Versions

This inquiry is used to show all BOMs that are linked to the current formula. Refer to BOM FORMULA VERSION INQUIRY for more information.

Formula Stock By Lots Inquiry

This inquiry is used to show all current inventory which was created for the current formula. Refer to the FORMULA STOCK BY LOTS INQUIRY for more information

SDS – Classify Hazards

This menu option provides the following functionality:

1. On the Hazard Tab, this option will populate the chemical composition, determine the hazard rating factors and classify the hazards for the Hazard Categories. Refer to the ***Procession*** Regulatory Control User Guide for more information regarding this feature.

2. On the Regulatory Tab, this option will populate the Regulation Requirements. These requirements determine if a product is in regulatory compliance for specific countries. If a compliance issue is found, the Requirement Issues grid is populated with a list of the regulatory issues which were found. The regulatory requirements are defined in the Requirements by Country feature which is found in the ***Procession*** Regulatory Control module. Refer to the ***Procession*** Regulatory Control User guide for more information on defining the regulatory Requirements by Country.

SDS – Generate SDS

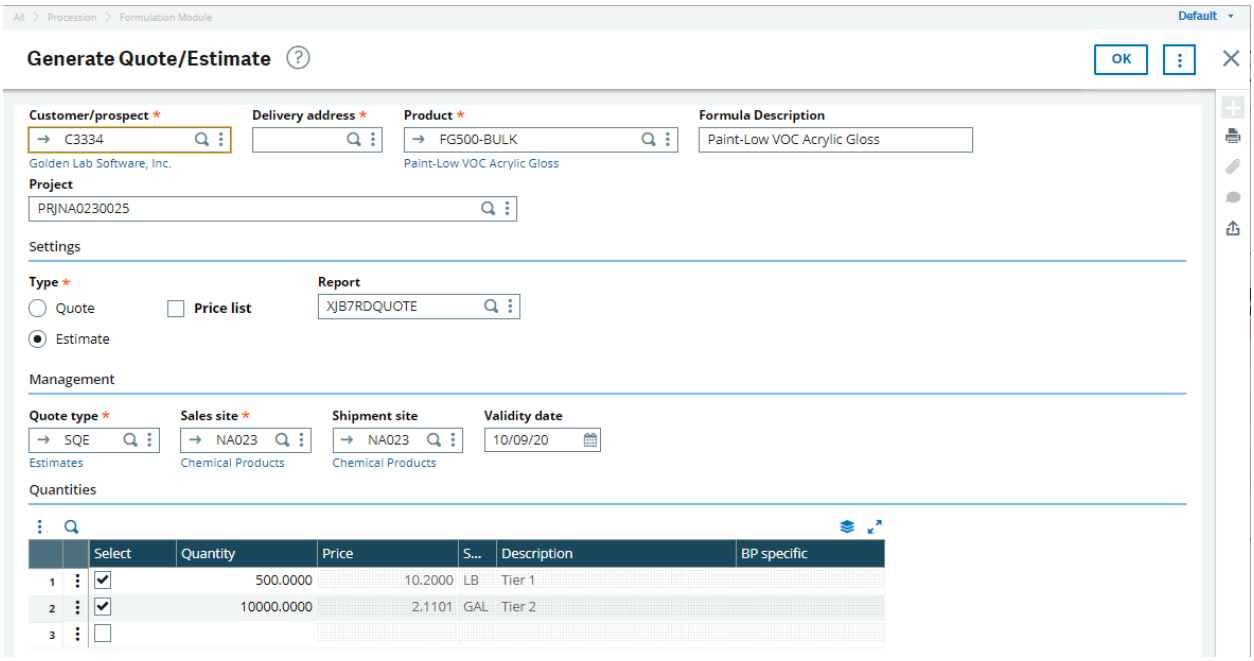
This option can be used to generate a safety data sheet for the formula. Refer to the ***Procession*** Regulatory Control User guide for more information on Generating SDS.

SDS – View SDS

This menu option is used to view SDS records for the current formula.

Quotes – Generate Quote/Estimate (New in Neon)

This menu option provides the ability to create a quote or an estimate from the formula.



Three definitions that are used by this feature are:

- **Quote** – Fixed price bid.
- **Estimate** – Non-fixed price bid.
- **Price List** – A variation of an estimate or quote where the price tiers are shown on the report, but extended prices and total prices are not shown. The quantities grid is only shown when price list is not selected.

An estimate or quote is generated when the Ok button is clicked. When an estimate or quote is generated the following events occur:

1. A Sage X3 Sales Quote is created
2. The quote number is logged on the formula, along with the designation of whether the record is an estimate, quote, and/or price list. Additional Costs and Price Tiers are saved with the quote.
3. If the type is Quote, then the Sage X3 Sales Quote record is automatically displayed.

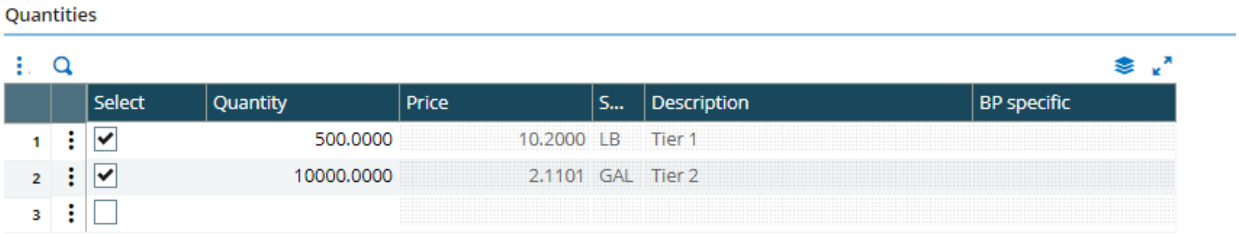
After the quote/estimate is generated, it can be printed from the row's action menu on the Estimate/Quotes grid on the formula's Estimating tab.

The fields on this window are:

- **Customer/Prospect** – The customer or prospect for which the quote will be generated.
- **Delivery Address** - Delivery address for the quote/estimate.

- **Product** – The product record to show on the quote/estimate. By default, this value will be the formula product number. If a formula product number does not exist, then the system will default to the sample product number defined by the system parameter XJBFORMPRO.
- **Project** – the lab project number. This number is used to tie the quote back to the lab project and to the Presale Request.
- **Type-** Defines whether the generated record will be classified as a quote or an estimate. This type determines the text that will display on the print-out that is sent to the customer. The formula template defines the text differences between estimates and quotes.
- **Price List –** Determines whether the print-out will show as a price list. A price list does not show extended prices or totals.
- **Report** – Defines the report that will be used when printing the quote/estimate from the formula Estimating tab. The default report is XJB7RDQUOTE, but this value can be changed if a custom report exists.
- **Quote Type** – When the quote record is created, this defines the quote type for that record. It is recommended to create different quote types for Estimates and Quotes in order to help differentiate them in the Sage X3 Sales Quote feature.
- **Sales site** – The sales site for the quote/estimate.
- **Shipment site** – The shipment site for the quote/estimate.
- **Validity date** – The quote/estimate is valid until this date.

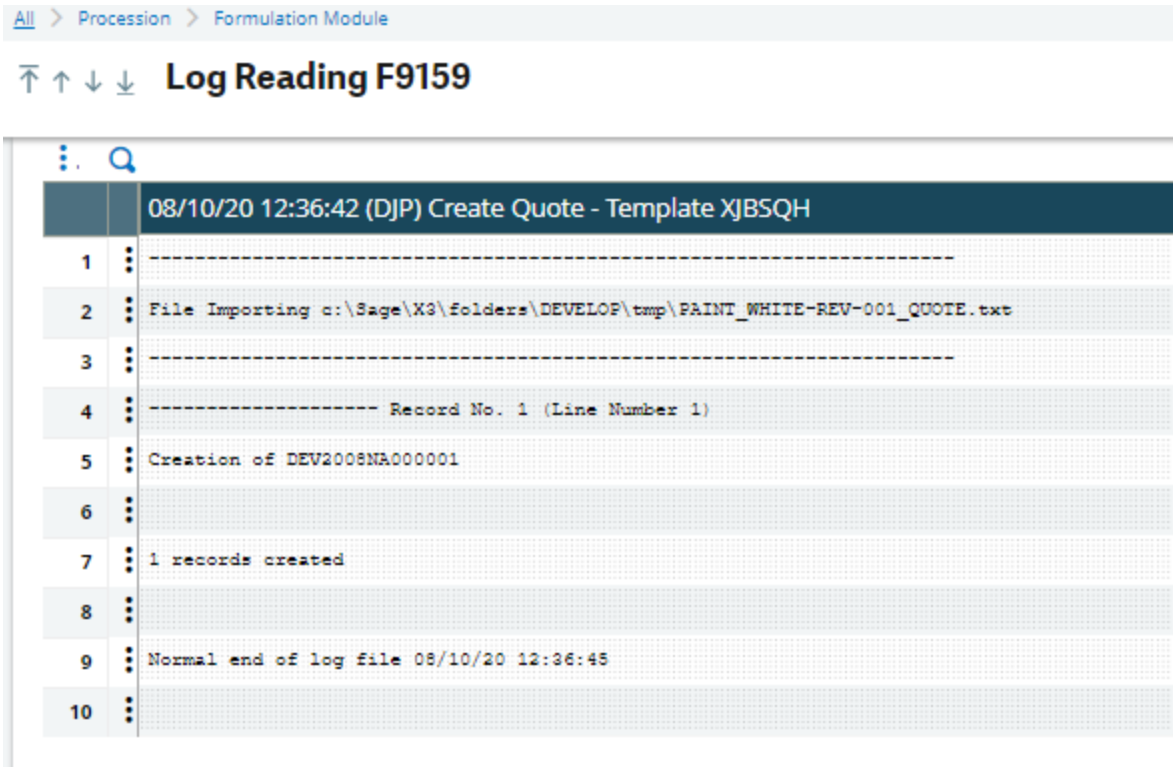
In the bottom section of this window is the Quantities.



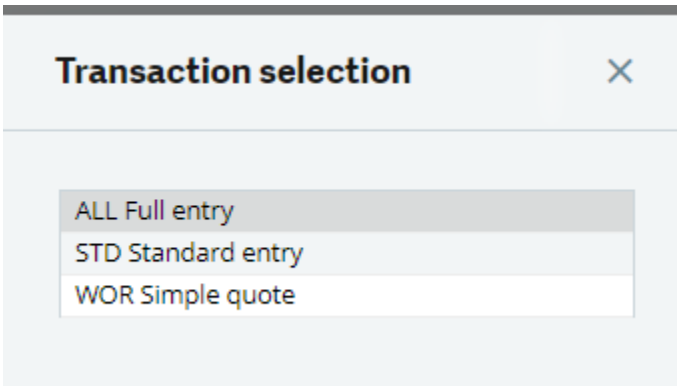
By default, the values in this section are the price tiers that are valid for this customer/prospect. For each price tier, only the upper limit quantity is shown in this grid, but these quantities can be edited. Each line that is selected in this section will result in a separate line item that will be added to the quote/estimate at the quantity specified here.

Note that this option is only available when the price list option is not selected.

After clicking the Ok button the system will generate the record and display a log file. If any error occur during the generation, those errors will be shown in red. The image below is an example of a successful generation of a sales order quote.

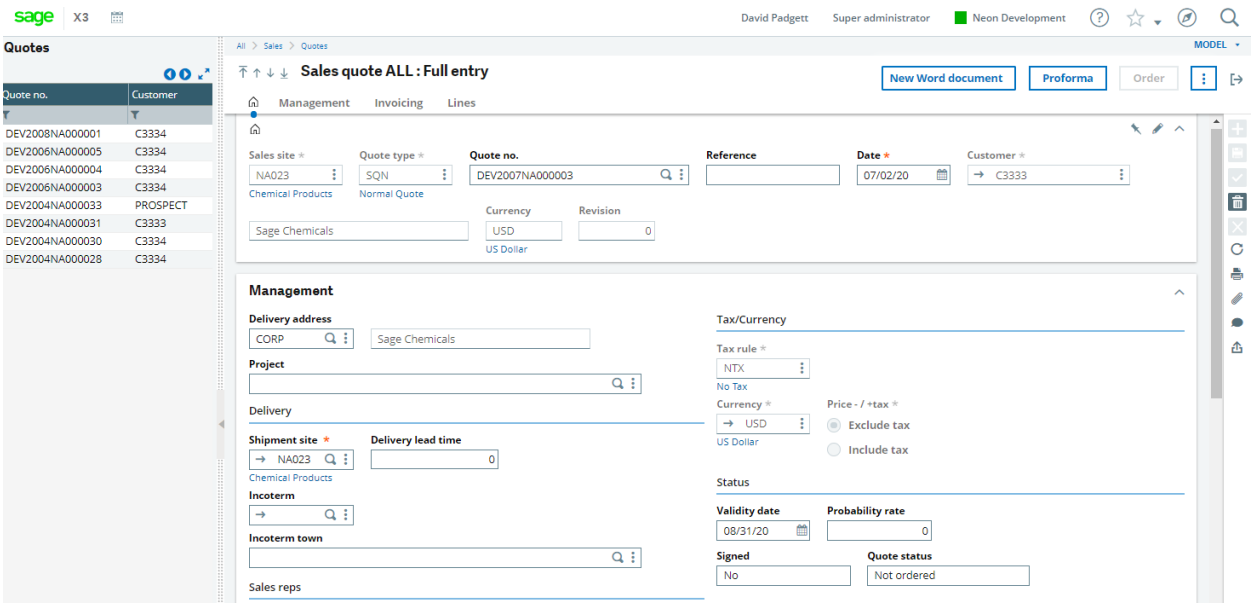


For estimates, when the log file is closed, the user is returned to the formula window. However, for quotes, the system will automatically take the user to the quote record. If Quote Entry Transactions exist, the user will be asked to select the Entry Transaction prior to display the Sales Order Quote record.



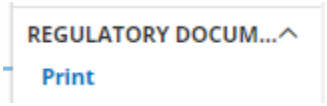
Quotes – View Quote/Estimate (New in Neon)

This menu option displays the Sage X3 Sales Quote feature, with the left list filtered to only include records for the current formula.

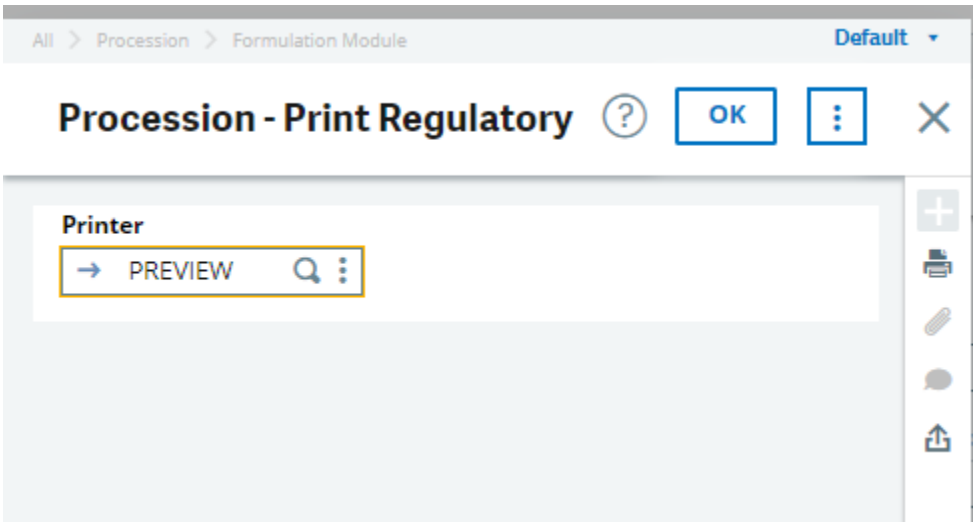


Regulatory Documents – Print (New in Neon)

This menu option can be used in order to print all regulatory documents for the formula.



When this option is selected, the following window is displayed. In this window, the user can select the printer or destination for the report.



After printing the documents, the last distribution date is updated for each document on the formula and the product.

Note that regulatory documents can also be printed from the product, sales order or delivery records.

Ingredients – Consolidation

This menu option combines multiple instances of an ingredient into a single instance. This option processes all ingredients and combines all multiple instances within the formula.

If finer control is required, refer to the LINE ITEM CONSOLIDATION feature.

Ingredients – Re-sequence

This menu option re-sequences all ingredients on the formula.

As an example, the following formula has been numbered as shown below.

	Sequence	Type	Ingredient	Description	Quantity BOM ...	UOM	BC
1	5	Text					
2	6	Normal	RM500	Deionized Water	6.68	LB	
3	7	Normal	RM501	Preservative	1.144	LB	

The system is configured to number by 5, so when the Re-sequence option is selected, the ingredients are now sequenced as follows.

	Sequence	Type	Ingredient	Description	Quantity BOM ...	UOM
1	5	Text				
2	10	Normal	RM500	Deionized Water	6.68	LB
3	15	Normal	RM501	Preservative	1.144	LB
4	20	Normal	RM502	Base	15.44	LB

Formula Report

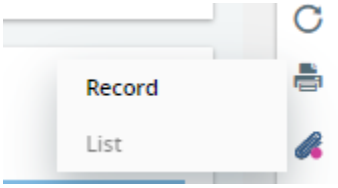
The formula report provides users with a printout of formulas. This report is printed from the R&D Formula screen.

Formula :	PAINT_WHITE-REV-001	Paint-Low VOC Acrylic Gloss	
Product Id:	FG500-BULK	**Paint-Low VOC Acrylic Gloss**	
Base quantity :	1,000.00 LB	**Approved for:**	Production

Seq	Type	Component	Description	Quantity
3	Text			
	Verify all Raw Materials are correct before starting Process.			
5	Normal	RM500	Deionized Water	66.700 LB
10	Normal	RM501	Preservative	1.440 LB
15	Normal	RM502	Base	1.000 LB
20	SubTotal			69.140 LB
25	Text			
	Mix for 30 Minutes			
	Operator Sign off: _____			
30	Normal	RM503	Surfactant	1.000 LB
30	Alternate	RM503B	Surfactant- Type II	1.200 LB
35	Normal	RM504	De-foamer	3.000 LB
40	Normal	RM505	Titanium Dioxide	220.000 LB
45	Normal	RM506	Acrylic-2 Latex	582.000 LB
50	Normal	RM507	Coalescent	7.360 LB
55	Normal	RM508	IC-2 driver	112.700 LB
60	Normal	RM509	Dispersant	4.800 LB
65	SubTotal			930.860 LB
70	By-product	BYPRD-WASTE	Waste	1.000 KG
75	Text			
	Send Sample to QC			
80	Text			
	1. Store in Blue Poly drums. 2. Place GHS Label on the center of drum 3. Place Shipping hazard classification labels to the right of GHS label.			
85	Text			

Formula Quote/Estimate/Pricing Report

The XJB7RDQUOTE report is the standard ***Procession*** report for Quotes, Estimates and Pricelists. It is recommended that this report be printed from the Quote/Estimate grid. However, it can also be printed from the right panel on the formula (shown below) or from the Reports menu in Sage X3.



The following image is an example of a quote printed from the Print action menu.

QUOTE

COMPANY
COMPANY

NA Process
100 Main Street
Cumming, GA
30041
United States of America

Bill To:
Golden Lab Software, Inc.
4970 OTC
Cumming, GA
30041
United States of America

Ship To:
Golden Lab Software, Inc.
4970 OTC
Cumming, GA
30041
United States of America

Quote No.:	**DEV2008NA000001**
Date	8/10/2020
Delivery date	10/9/2020
Customer code	C3334
Reference	

Product	Quantity	Net price tax excluded	Net amount tax excluded
FG500-BULK Paint-Low VOC Acrylic Gloss	500.0000 LB	$10.20	$5,100.00
FG500-BULK Paint-Low VOC Acrylic Gloss	300.000000 GAL	$2.11	$633.00

Tax excluded line total **$5,733.00 USD**

See general sales conditions

Discount for early payment (monthly rate): 2.00%
We will guarentee the pricing set forth on this quote until the validity date indicated. After this date, the pricing is subject to change.

The following image is an example of a price-list estimate.

ESTIMATE

COMPANY
COMPANY

NA Process
100 Main Street
Cumming, GA
30041
United States of America

Bill To:
Golden Lab Software, Inc.
4970 OTC
Cumming, GA
30041
United States of America

Ship To:
Golden Lab Software, Inc.
4970 OTC
Cumming, GA
30041
United States of America

Estimate No.:	**DEV2006NA000005**
Date	6/30/2020
Delivery date	8/29/2020
Customer code	C3334
Reference	

Pricing

Description	Sell Unit	Quantity Range	Unit Price
Tier 1	LB	1 to 500	$10.20
Tier 2	GAL	1 to 10000	$0.90

This is a good-faith estimate based upon our knowledge and experience. However, the actual pricing may vary due to un-forseen circumstances. We will notify you for further approval if it is determined that the pricing will exceed this estimate.

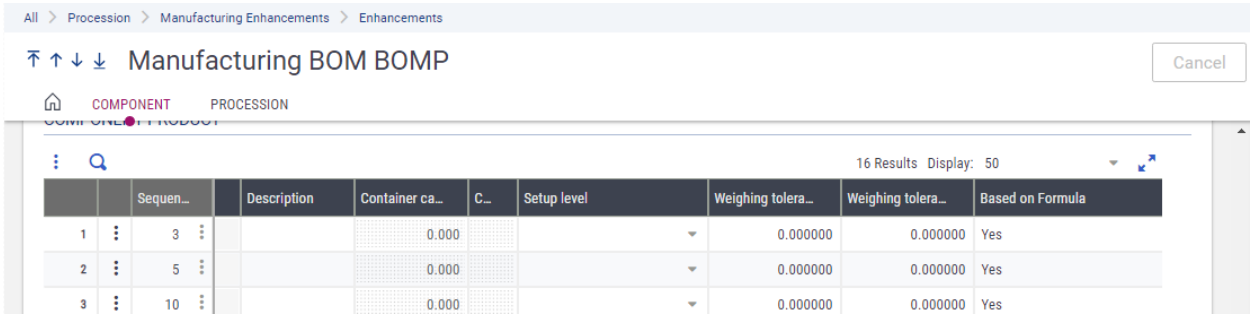
Production BOMs

Production BOM is a standard Sage X3 feature. ***Procession*** adds the following features to the Production BOMs:

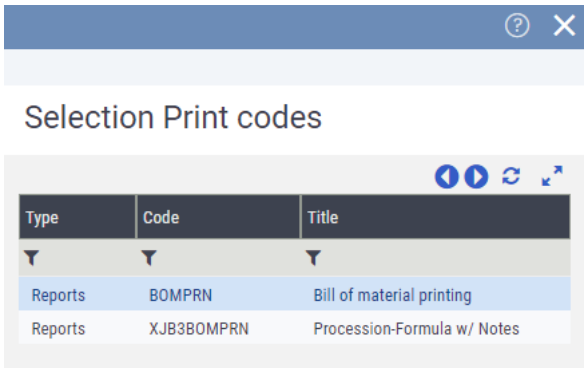
- **Master Formula Version** –a link from the product BOM to the originating formula. The master formula version is automatically populated when a formula is published to create or update a BOM.

  For package BOMs, this field should be manually entered. This link allows the SDS and product technical sheets to be defined once for the bulk product, without the requirement that they also be defined for each packaged product id.

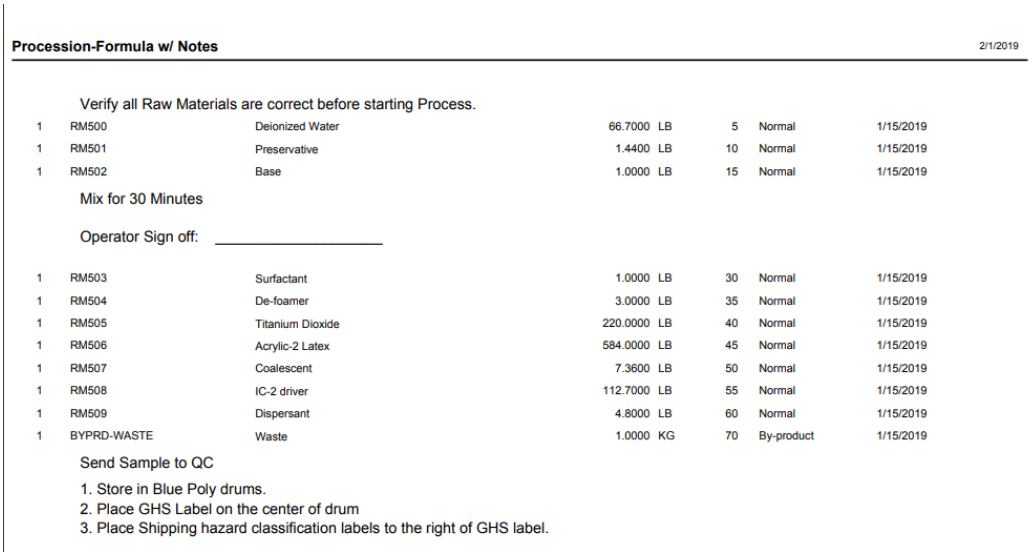
- **"Based on Formula" Flag** –Flag on the BOM component grid. This flag is automatically set to "Yes" when a formula is published to create or update a BOM. This flag will be set to "No" when a text line or component is manually added to the BOM. This flag is used when publishing a formula when the "Update BOM - Replace Formula Lines Only" option is selected.



- **BOM Report** (XJB3BOMPRN)



This modified version of the standard X3 BOMPRN report includes the BOM notes.



Procession-Formula w/ Notes 2/1/2019

Verify all Raw Materials are correct before starting Process.

1	RM500	Deionized Water	66.7000	LB	5	Normal	1/15/2019
1	RM501	Preservative	1.4400	LB	10	Normal	1/15/2019
1	RM502	Base	1.0000	LB	15	Normal	1/15/2019

Mix for 30 Minutes

Operator Sign off: _____

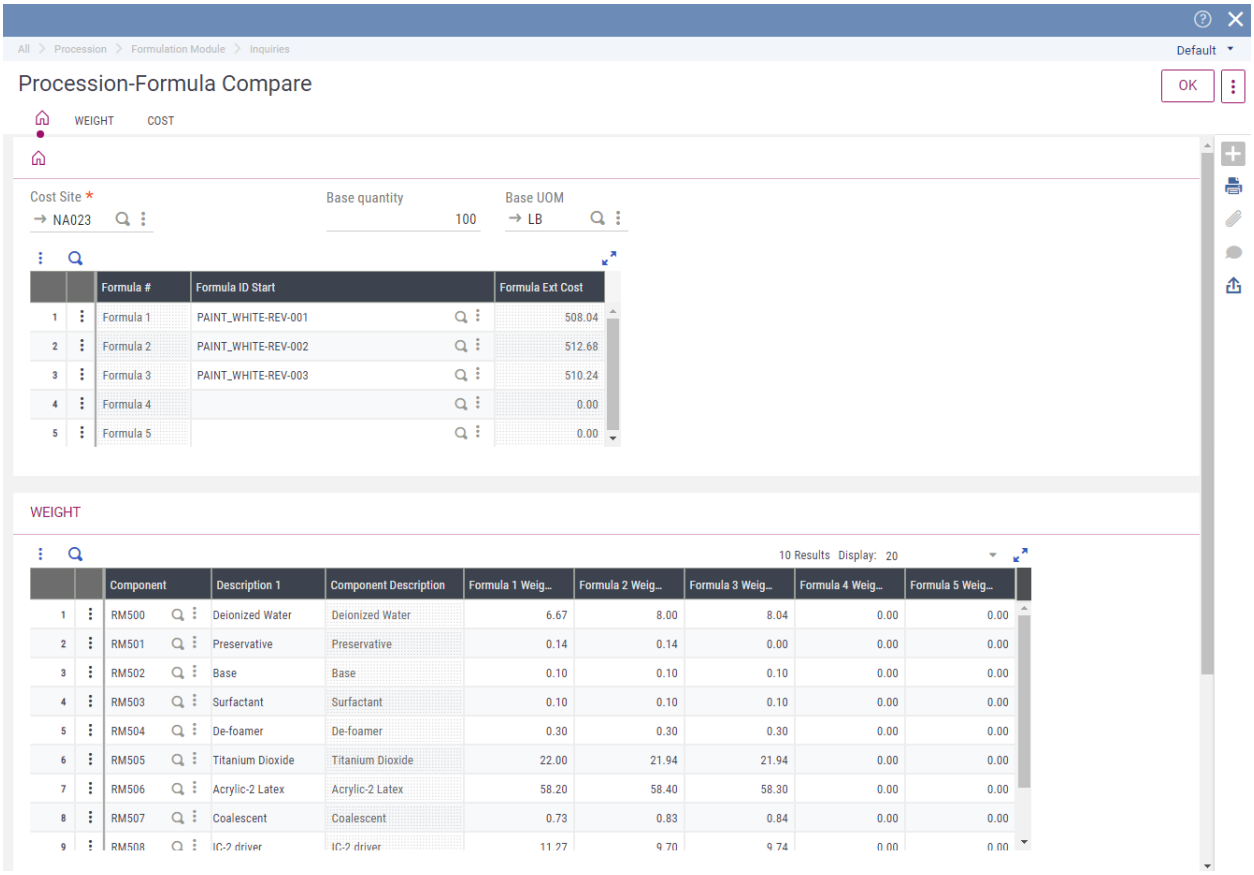
1	RM503	Surfactant	1.0000	LB	30	Normal	1/15/2019
1	RM504	De-foamer	3.0000	LB	35	Normal	1/15/2019
1	RM505	Titanium Dioxide	220.0000	LB	40	Normal	1/15/2019
1	RM506	Acrylic-2 Latex	584.0000	LB	45	Normal	1/15/2019
1	RM507	Coalescent	7.3600	LB	50	Normal	1/15/2019
1	RM508	IC-2 driver	112.7000	LB	55	Normal	1/15/2019
1	RM509	Dispersant	4.8000	LB	60	Normal	1/15/2019
1	BYPRD-WASTE	Waste	1.0000	KG	70	By-product	1/15/2019

Send Sample to QC

1. Store in Blue Poly drums.
2. Place GHS Label on the center of drum
3. Place Shipping hazard classification labels to the right of GHS label.

Formula Compare

The Formula Compare inquiry allows users to compare similar formulas based on ingredient weight percentages and cost totals. Users can find the Formula Compare feature by navigating to **Procession → Formulation → Inquires → R&D Formula Compare**



In order to compare formulas, all formulas are automatically resized to the Base Quantity and Base UOM specified on the Formula Compare header. The Base Quantity and UOM defaults from the formula template which has been designated as the default template.

Users may compare up to five different formulas at one time. Comparison data includes the total extended cost of the formula, weight percentages, and ingredient costs.

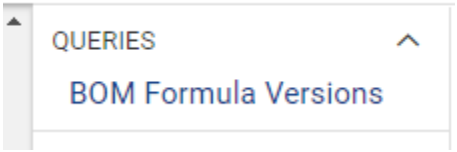
To compare formulas, select up to 5 formulas in the first grid. The extended cost for each of the five formulas is shown in this grid.

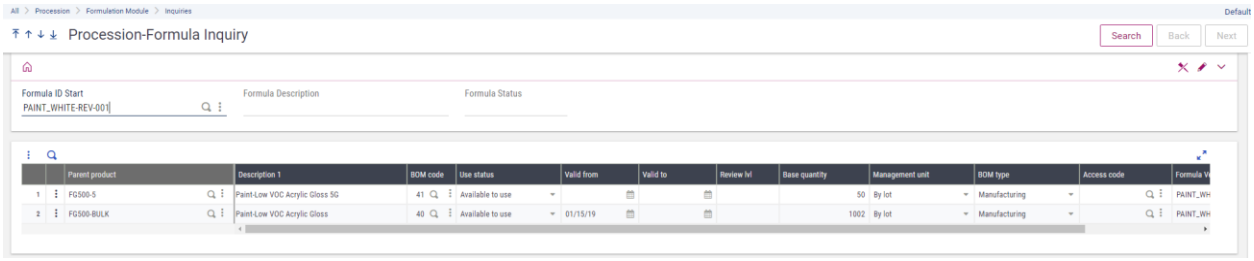
The comparison screen contains tabs for Weight and Cost. These tabs will show the list of ingredients for each of the selected formulas and compare their weight % or extended cost for each ingredient.

BOM Formula Version Inquiry

The BOM Formula Version Inquiry displays which Production BOMs are linked to a specific formula. The inquiry is accessed either from the formula screen or from the ***Procession*** menu.

From the R&D Formula screen users can click on the BOM Formula Inquiry button from the Queries menu on the right side of the window. When accessed this way the inquiry will display the Production BOMs associated with the formula the user is currently on.



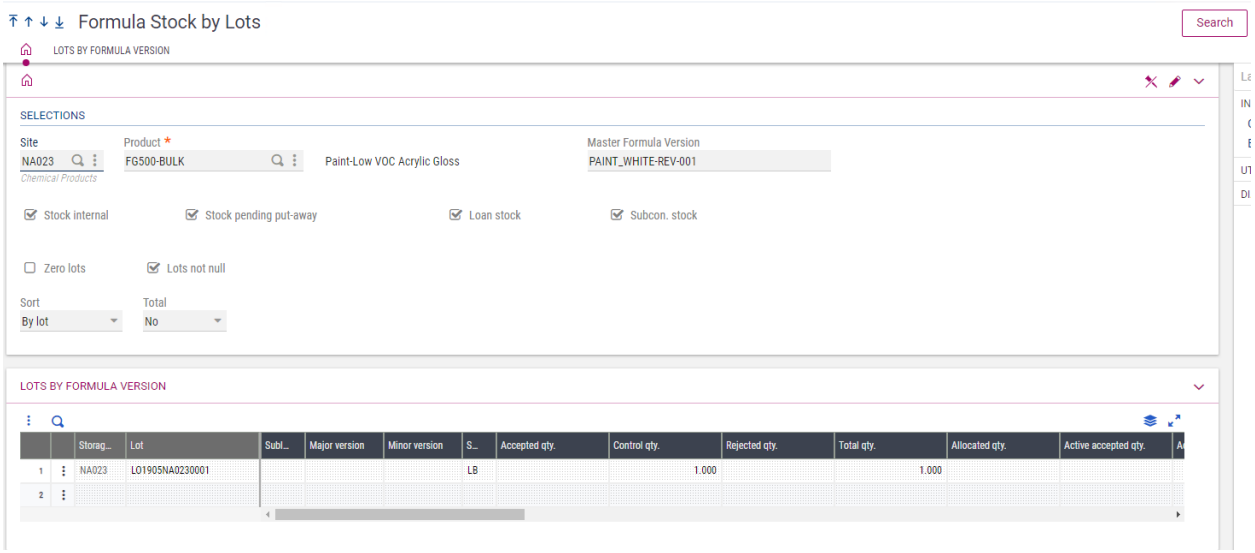


Users may also access this inquiry by navigating to **Procession → Formulation → Inquires → BOM Formula Version**. Initially all Production BOMs will be displayed, but users may use the criteria bar to filter by desired fields.

Formula Stock by Lots Inquiry

This inquiry displays all of the current inventory which was manufactured using a specific formula version.

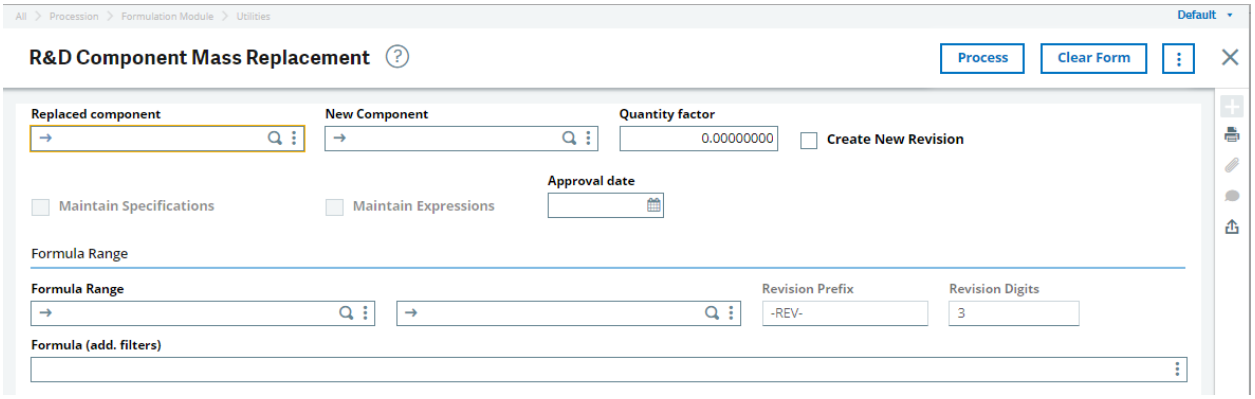
This inquiry can be accessed from the right panel on the R&D Formula screen.



R&D Mass Component Replacement Utility

The Mass Component Replace Utility allows an ingredient to be replaced in all formulas.

This feature is accessed by navigating to **Procession → Formulation → Utilities → Mass Component Replace.**



This feature is similar to the standard Sage X3 BOM Component Replacement feature. The difference is that the standard feature will only replace components on a BOM. The ***Procession*** Mass Component Replacement feature will only replace ingredients on formulas.

The options on the ***Procession*** Mass Component Replacement Utility are:

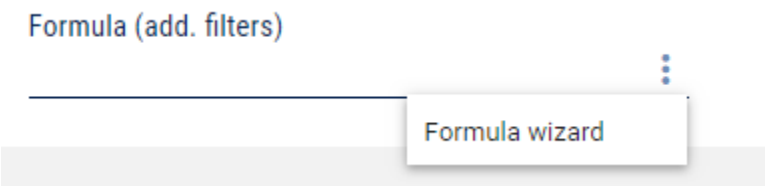
- **Replaced Component –** Component/Ingredient to be replaced.
- **New Component -** New Component to replace the "replaced component".
- **Quantity Factor** – If the new component has a different potency, then this factor allows the quantity to be adjusted for the new component. A factor of 0 or 1, indicates that the quantity should not be

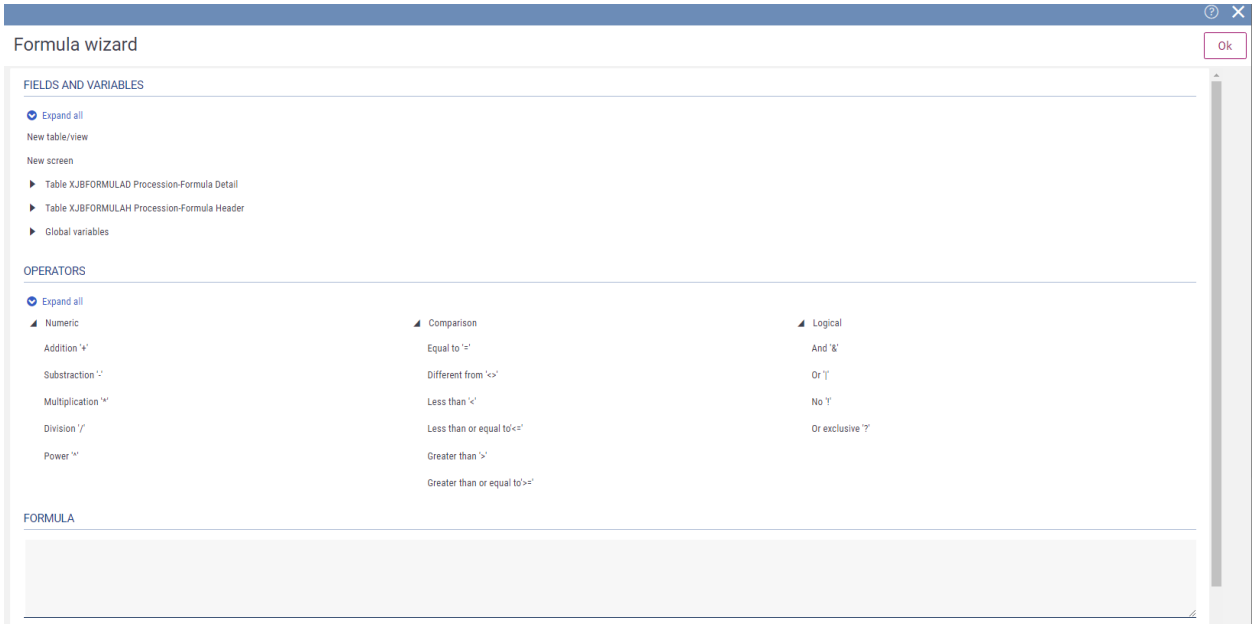
adjusted. A factor of 1.1 would indicate that the quantity for the new component should be increased by 10% over the previous quantity.

- **Create New Revision** – If this is set to "Yes", then a new formula record will be created for each formula that is updated. This new record will be given a new revision number.
- **Approval Date** – The date that the new formula is approved for either production or pilot. For example, if the new component has not arrived, then the approval date may be set to the expected arrival date.
- **Formula Range** – The range of formulas to update. If a formula range is not specified, then all formulas will be updated.
- **Revision Prefix** – The symbol or string that indicates the beginning of the revision number in the formula id. This is defined in the system parameter XJBREVPRE. Refer to APPENDIX 3 –SYSTEM PARAMETERS for more information.
- **Revision Digits** – The number of digits used in revision numbers. This is defined by the system parameter XJBREFDIG. Refer to APPENDIX 3 –SYSTEM PARAMETERS for more information.

- **Formula** (add. Filters) – Formula wizard, which allows the building of filter expressions. This allows the creation of advanced filters for determining which formulas to update. The tables that are available for use in these filters are:

  - **XJBFORMULAD** – Formula Ingredients
  - **XJBFORMULAH** – Formula Header





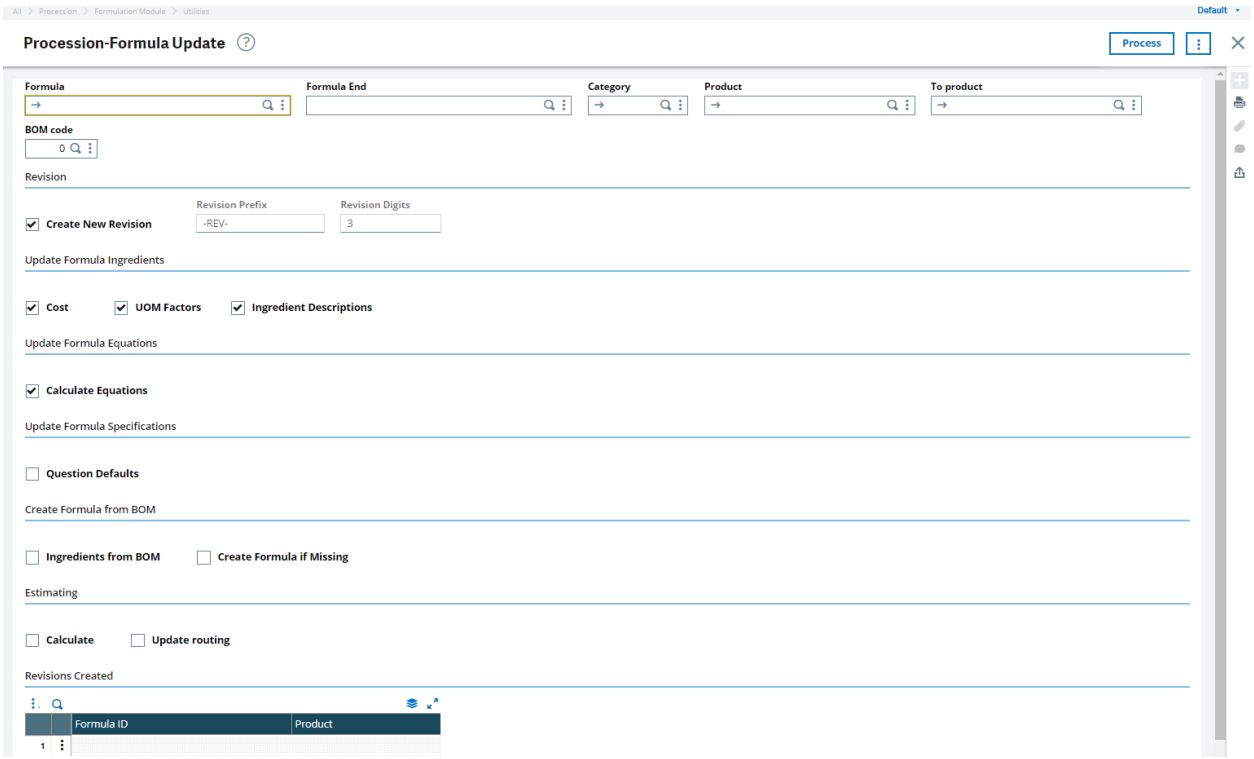
For more information on the Formula wizard, refer to SAGE X3 4GL QUICK START.

Formula Update Utility

The Formula Update Utility is used to perform any of the following tasks:

- Recalculate costs and pricing
- Conversion factors
- Recalculate equations
- Update ingredient descriptions for formulas.
- Update question defaults
- Create Formula records from BOMs

The Formula Update Utility is accessed by navigating to **Procession → Formulation → Utilities → Formula Update.**



The formula filters for this utility are:

- **Formula** – Start range for the formulas to update.
- **Formula End** – ending range for formulas.

Product filters are used to either: a) update an existing formula that is linked to a product or b) update or create a formula from the BOM for a product.

The product filters for this utility are:

- **Category** – Product category to update.
- **Product/To Product** – If a product range is defined, then only products within this range will be updated.
- **BOM Code –** This feature is used only when using the "Ingredients from BOM" option. The BOM code specifies which BOM to use, if a product has multiple BOMs.
- **Create New Revision** – If set to "Yes", then a new formula record will be created for each formula that is updated. This new record will be given a new revision number.
- **Revision Prefix** – The symbol or string that indicates the beginning of the revision number in the formula id. This is defined in the system parameter XJBREVPRE. Refer to APPENDIX 3 –SYSTEM PARAMETERS for more information.
- **Revision Digits** – The number of digits used in revision numbers. This is defined by the system parameter XJBREFDIG. Refer to APPENDIX 3 –SYSTEM PARAMETERS for more information.

Update Formula Ingredients Section

- **Cost** – Update all ingredient costs on the formula.
- **UOM Factors** – Update ingredient UOM factors on the formula.
- **Ingredient Descriptions** – Update the ingredient descriptions with the latest product descriptions.

Update Formula Equations Section

- **Calculate Equations** – Recalculate and store the updated results for the formula.

Update Formula Specifications Section

- **Question Defaults** – If selected, this option will update the Questions in the Formula Specifications. The data that is updated includes descriptions, ranges, etc.

Create Formula from BOM Section

- **Ingredients from BOM** – This feature is used to perform a one time migration of Sage X3 BOM's to create ***Procession*** formula records. When using this option, also specify the BOM Code if products exist with multiple BOM codes.
- **Create Formula if Missing** – If this and "Ingredients from BOM" are both set to "Yes", then if a product BOM exists and a ***Procession*** formula record does not for this product, then a ***Procession*** formula record will be created from the BOM record.

Estimating

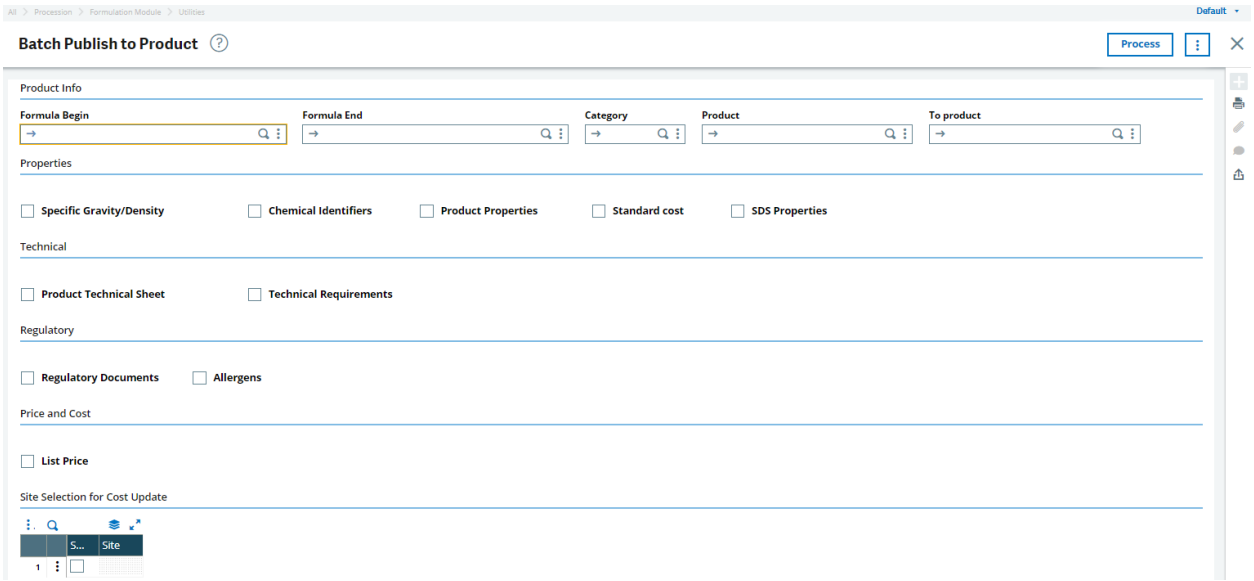
- **Calculate** – When selected, this option is used to recalculate the estimate costing and pricing on the formula Estimating tab. Note, this option does not update existing estimates/quotes, it only updates the costing and pricing for future estimates/quotes.

- **Update routing** – When selected, the routing defaults on the formula Estimating tab are updated.

Batch Publish to Product Utility (New in Neon)

This utility is used to publish multiple formula to products at once. The options on this utility are almost identical to the PUBLISH TO PRODUCT button option found on the Formula Window.

Note: This utility does not include a Standard Cost option. Instead, it is assumed that once a formula is released to production, the Sage X3 BOM cost rollup functionality will be used to perform standard cost calculations.



Appendix 1 – Local Menus

Procession uses local menus to provide standard statements, settings, and agency required responses on many screens, windows, and reports. Local menus are accessed by *selecting* **Development → Data and Parameters → Tables →Local menus – Messages.**

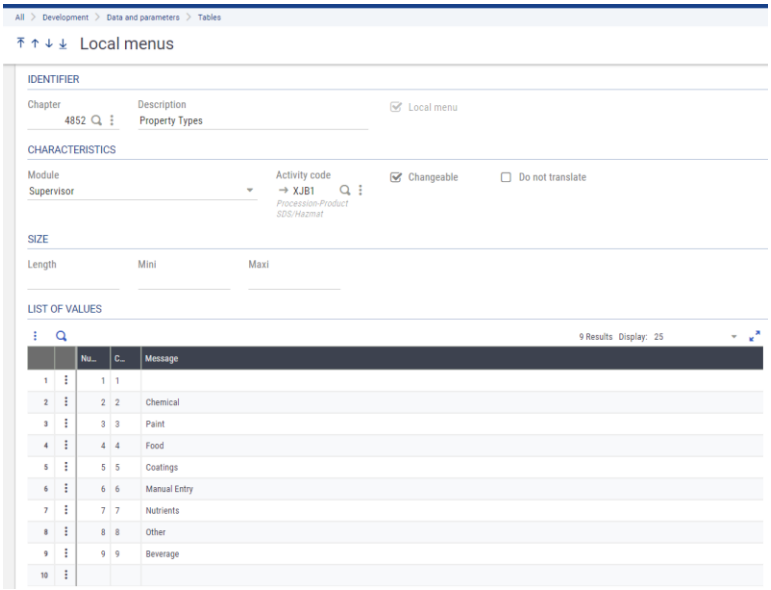
The ***Procession*** local menus are listed below**.** Only local menus that are flagged as "Changeable" on the local menu screen should be modified. When modifying a local menu, add new entries to the end of the list, instead of replacing items within the list. The reason is that Local menu values are stored in data as integers, with the integer value based upon the position of the selected item in the list. If a local menu item is deleted, the position stored for the local menu in existing data will no longer match the list. This can cause previously selected value to incorrectly change to whatever item currently resides in the same position in the local menu list.

When modifying a local menu, users will need to logout and restart their Sage X3 session before having access to the changes.

Local Menu 4852 – Property Types

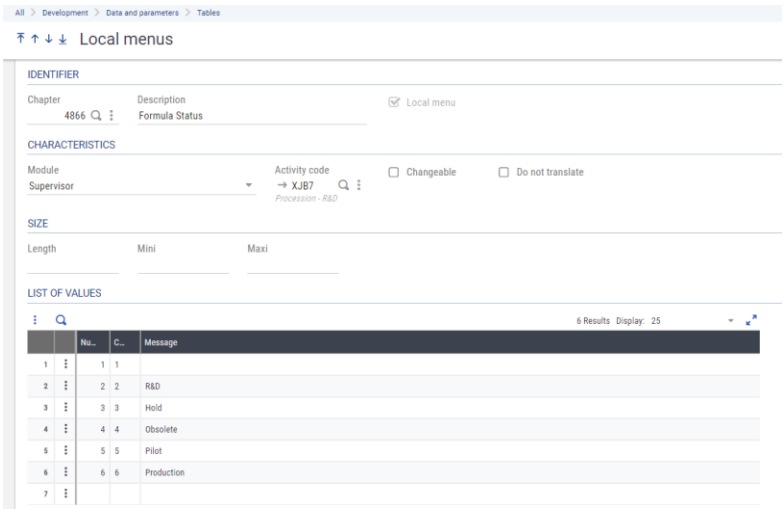
Property lists can be defined and assigned to either a product or SDS. This list may be edited, as long as the "Manual Entry" option remains the sixth option in the list.

Property Types are used in MISCELLANEOUS TABLE 4848 to group properties.



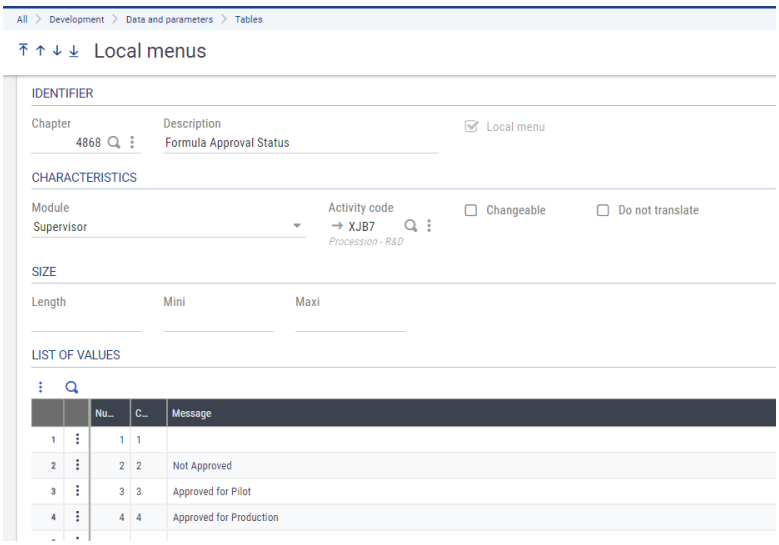
Local Menu 4866 – Formula Status

Formula status definitions, which are displayed on the R&D FORMULA screen. The formula status default is set on the TEMPLATE screen.



Local Menu 4868 – Formula Approval Status

Formula approval status displayed on the general information tab of the R&D Formula Screen and may be setup as default on the TEMPLATE screen.



Local Menu 4869 – Component Type

Formula component types which are used on the formula ingredients tab. Options are:

- Normal – Ingredients that are selected from the Sage X3 products. Information such as item weight, item volume, density, specific gravity, and stock unit of measure may be used for calculations and conversion.

- Manual – Theoretical Ingredients for which a Sage X3 product record does not exist. Density, Specific Gravity and Costs fields default for manual ingredients, but these values can be overridden.
- Text – Contains long text or the text from a boilerplate note code.
- Stage – A form of Text line that is used to designate the beginning of a stage or operation in the process.
- Instruction – Short text instructions. Instructions are entered in the description field and are limited to 30 characters.
- Costing – Select a costing element in order to add additional costs to the formula. Costing lines do not contribute to the formula quantities or yield, but do contribute to the formula costing. The costing element must exist as a product in Sage EM. For example, a packaging product could exist with a cost of $5.00 per unit. If 10 packages are required for the formula, a costing line could be added with a quantity of 10 and a cost of $5.00. The costing line can similarly be used to add burden or overhead costs to the formula.

- Subtotal –Summarizes the quantity and cost for a Stage or all ingredients up to this subtotal line.

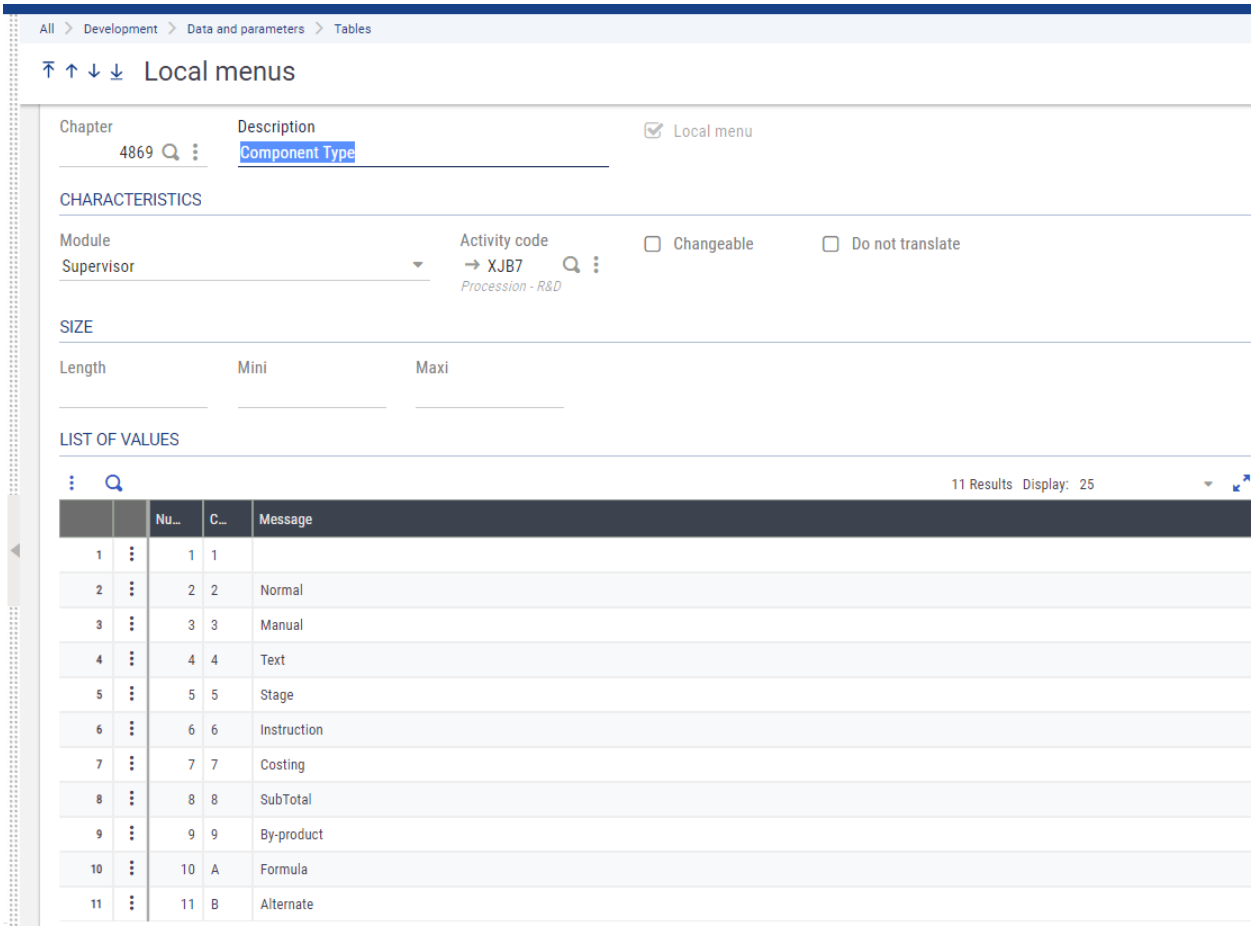
- By-Product – By-products are additional products that will be created during production of the formula. Typically, by-products have little to no value. Waste is an example of a by-product that is received during production so that the waste can be tracked and properly disposed of.

  In other cases, a by-product will have value and can be sold. For example, a by-product of juicing oranges is pulp or a by-product of furniture production is saw dust. In these examples, the by-product has value and can be sold.

- Formula – During R&D, a formula for a finished product may use an intermediate formula. If that intermediate exists in inventory, it can be added to the formula as a Normal component line. However, if that intermediate formula has not been published to inventory, then it would need to be added to the finished product formula using the Formula component type. When Formula is selected as the component type the selection for the Ingredient field will allow the user to select a formula instead of an inventory product.

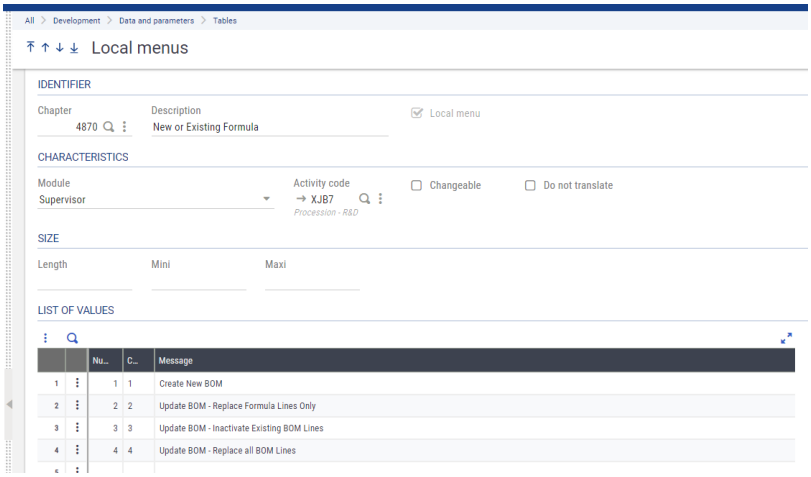
- Alternate – Some inventory products may be used interchangeably. When an Alternate is added to a formula, it specifies that this ingredient may be used to replace another ingredient in the formula without changing the formula. When an alternate is added to the formula, the Sequence number for the alternate should be manually changed to match the Sequence number for the ingredient it is associated with.

  An example of the use of an Alternate would be a baking recipe that requires melted chocolate. The preferred ingredient may be miniature chocolate chips, which is then added to the formula as a Normal line. The alternate in this example is determined to be regular chocolate chips. By defining an Alternate, it indicates that if sufficient quantity of the preferred ingredient is not available, then the Alternate ingredient can be used.


All > Development > Data and parameters > Tables
Local menus
Chapter
4869
Description
Component Type
Local menu
CHARACTERISTICS
Module
Supervisor
Activity code
→ XJB7
Procession - R&D
Changeable
Do not translate
SIZE
Length
Mini
Maxi
LIST OF VALUES
11 Results Display: 25
Nu... C... Message
1 1 1 1
2 2 2 Normal
3 3 3 Manual
4 4 4 Text
5 5 5 Stage
6 6 6 Instruction
7 7 7 Costing
8 8 8 SubTotal
9 9 9 By-product
10 10 A Formula
11 11 B Alternate

Local Menu 4870 – New or Existing Formula

Formula publish options that are used when creating or updating a Production BOM.



Appendix 2 – Miscellaneous Tables

Miscellaneous tables are a feature in standard Sage X3 that can be accessed by navigating to **Development → Data and Parameters → Miscellaneous Tables → Data**. Miscellaneous tables contain data that can be edited by users.

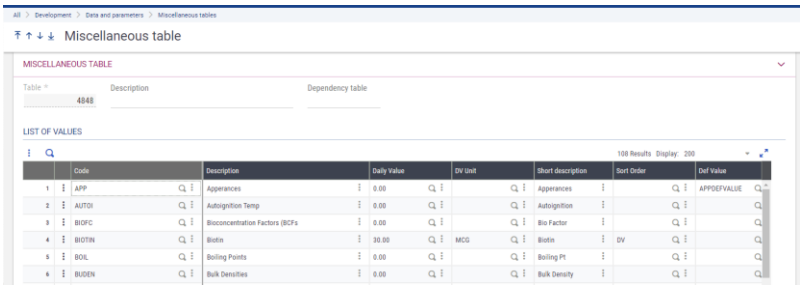
Miscellaneous Table 4848 - Properties

This table contains properties that can be assigned to product, CAS record or SDS. These properties can be used for a variety of purposes. A common use is to assign chemical properties to a product. For food and nutraceuticals, properties are used to assign nutritional values to a product.

On formulas, equations can be defined that calculate a formulas properties based upon the properties of its ingredients.

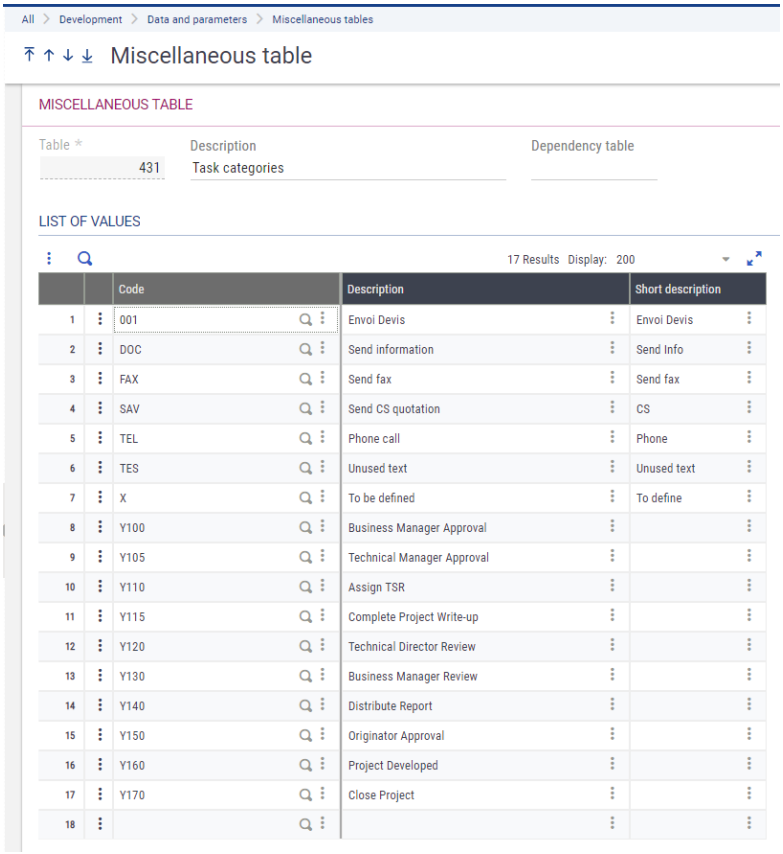
The fields for this table are:

- **Code** – Unique key
- **Description**
- **Short Description**
- **Sort Order –** The order that the property should display on the product or SDS.
- **Def Value** – Default value to be populated when this property is selected.
- **Property Type** – This is the group of properties this property is associated with these property types may be found in LOCAL MENU 4852 – PROPERTY TYPES.
- **LOLI Id –** List ID that is used if this property is to be updated from a subscription database.
- **LOLI Update –** Specifies whether the property should be updated from a subscription database.
- **Hide on SDS?** – If a product has internal properties which should not show on the SDS, set this value to "Yes" for the property. Properties marked as Hide on SDS will not print on the SDS.
- **Daily Value/DV Unit/Nutrient –** These fields are used by the ***Procession*** Nutraceutical Plug-In.



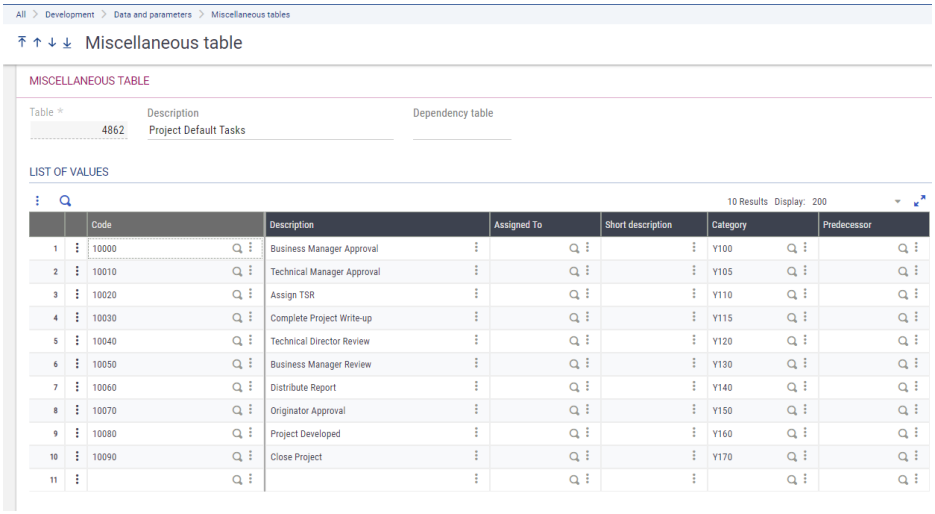
Miscellaneous Table 431 – Task Categories

This is a standard Sage X3 Miscellaneous table. These task categories are used in miscellaneous table 4862 in order to define the default CRM project tasks.



Miscellaneous Table 4862 – Project Default Tasks

Table 4862 stores the project tasks that are auto populated when a new CRM project is created in Sage X3 with ***Procession***.

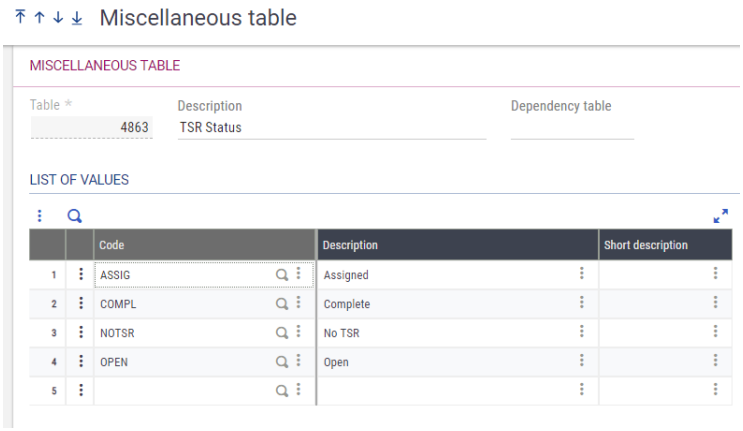


Key fields are:

- Code –task identifier.
- Description – Description for the task.
- Category – task to be performed (refer to MISCELLANEOUS TABLE 431).
- Predecessor – The task that should be completed before this task.
- Assigned to – User for which the task is assigned. Note, the user must be setup as a sales person in Sage X3 in order to assign a task to the user.

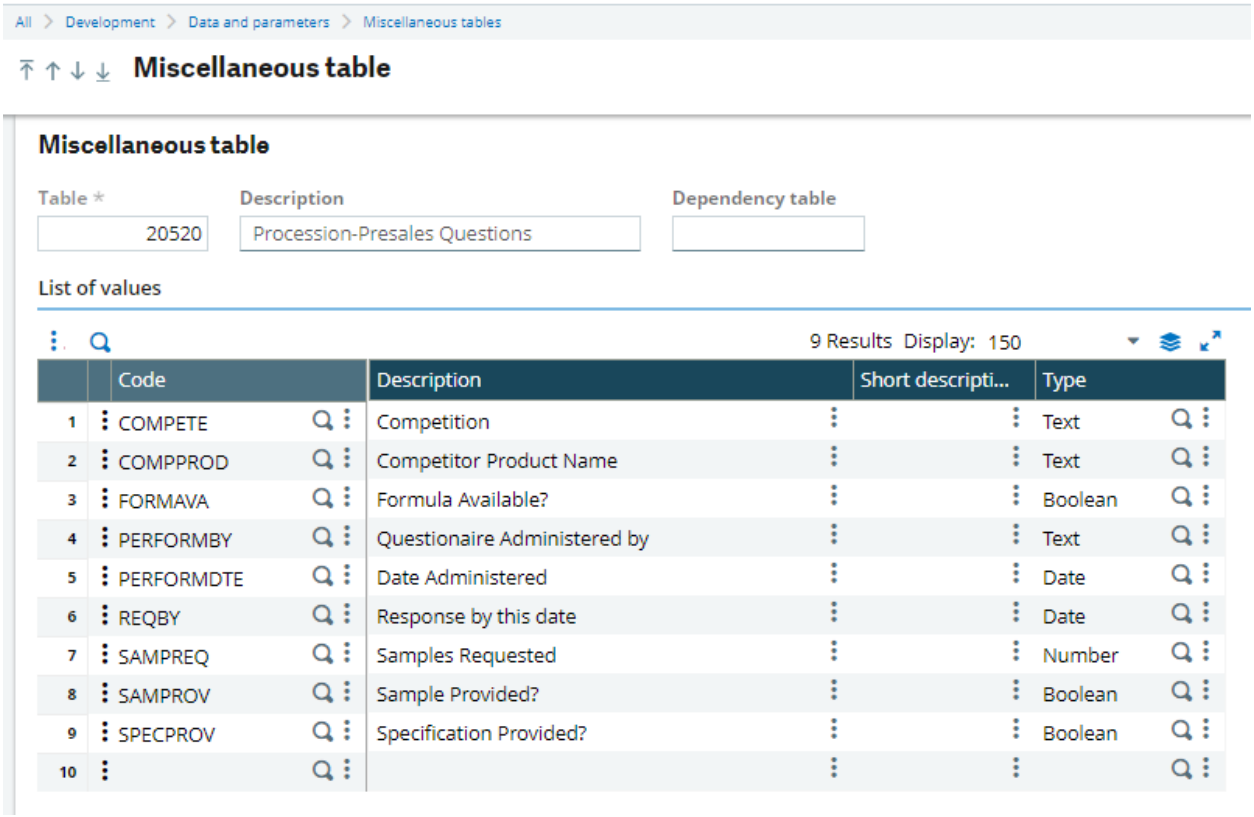
Miscellaneous Table 4863 – TSR Status

This table contains the available statuses for presales requests.



Miscellaneous Table 20520 – Presale Questions (New in Neon)

Table 20520 is used to define questions that can be used on a Presale Request.

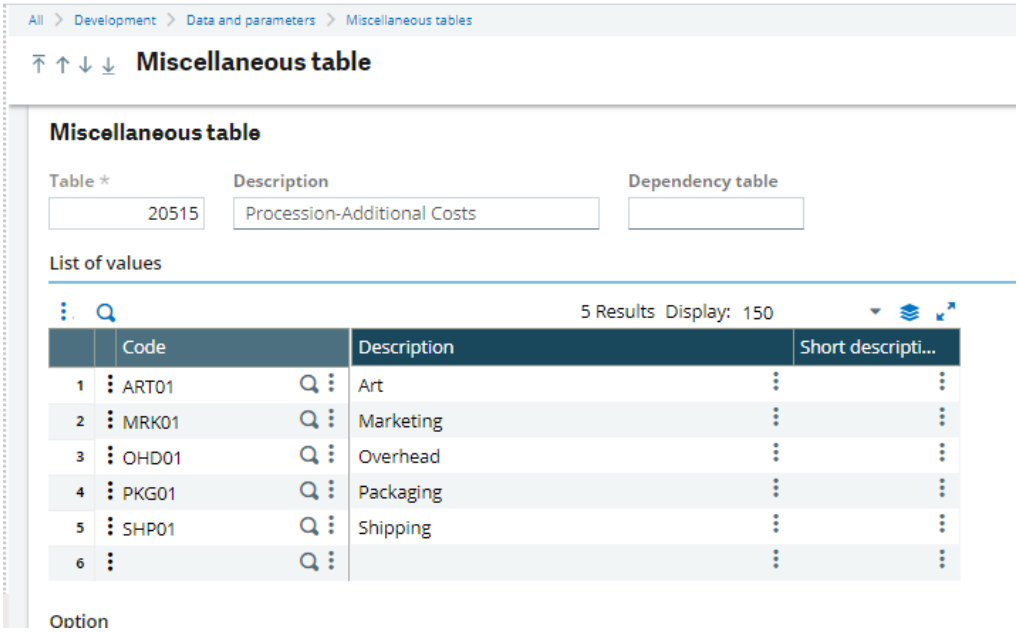


	Code	Description	Short descripti...	Type
1	COMPETE	Competition		Text
2	COMPPROD	Competitor Product Name		Text
3	FORMAVA	Formula Available?		Boolean
4	PERFORMBY	Questionaire Administered by		Text
5	PERFORMDTE	Date Administered		Date
6	REQBY	Response by this date		Date
7	SAMPREQ	Samples Requested		Number
8	SAMPROV	Sample Provided?		Boolean
9	SPECPROV	Specification Provided?		Boolean
10				

The code and description in this table are user defined. The type field is used to declare the type of answer allowed for the question. Options include: Boolean, Text, Date and Number.

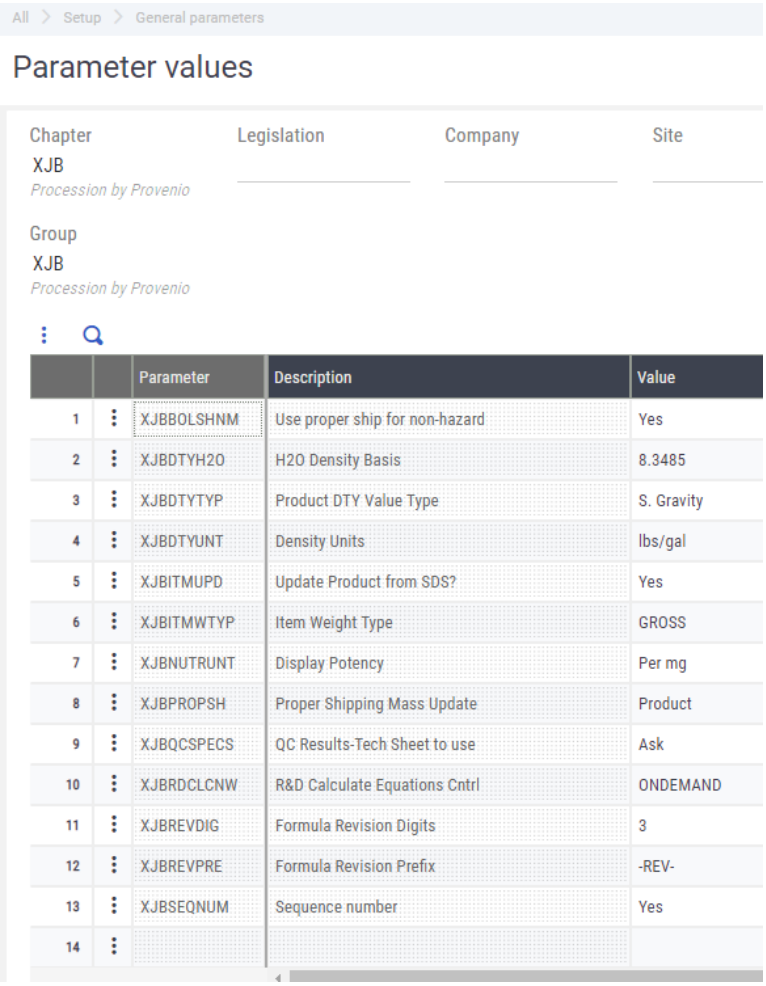
Miscellaneous Table 20515 – Additional Costs (New in Neon)

Table 20515 is used to define additional costs that are used in formula estimates.



Appendix 3 – System Parameters

The following is a list of new ***Procession*** parameters that may be changes as desired. Parameter values can be set by navigating to **Setup → General Parameters → Parameter Values**



	Parameter	Description	Value
1	XJBBOLSHNM	Use proper ship for non-hazard	Yes
2	XJBDTYH2O	H2O Density Basis	8.3485
3	XJBDTYTYP	Product DTY Value Type	S. Gravity
4	XJBDTYUNT	Density Units	lbs/gal
5	XJBITMUPD	Update Product from SDS?	Yes
6	XJBITMWTYP	Item Weight Type	GROSS
7	XJBNUTRUNT	Display Potency	Per mg
8	XJBPROPSH	Proper Shipping Mass Update	Product
9	XJBQCSPECS	QC Results-Tech Sheet to use	Ask
10	XJBRDCLCNW	R&D Calculate Equations Cntrl	ONDEMAND
11	XJBREVDIG	Formula Revision Digits	3
12	XJBREVPRE	Formula Revision Prefix	-REV-
13	XJBSEQNUM	Sequence number	Yes
14			

Below are the parameters that are used in this module:

- **XJBDTYH20** – H20 Density Basis –The density of water is used in unit of measure conversions on the formula and bill of lading. The default value used is **8.3485 lbs/gallon**, but can be changed to any value, including metric. However, if changed, the density units defined in XJBDTYUNT must match.

- **XJBDTYTYP** – On the standard Sage X3 Product Unit of Measure tab is a field labeled "density" which is often used for specific gravity. If the stock unit is metric, density and specific gravity are usually interchangeable. However, for companies using non-metric stock units, they must declare whether they wish to use this field for specific gravity or density. This selection impacts the unit of measure conversion for the formulas and bill of lading.

- **XJBDTYUNT** – Density Units – This parameter is used to declare which unit the Density is calculated in. This parameter is used on the formula screen. The default for this parameter is **lbs/gal**. The other option is kg/m3.

- **XJBITMWTYP** – On the Product Unit of Measure tab is a field called "Item Weight". This field is the weight of a product's stock unit. However, some companies will store the "Net Weight" of a product in this field and others will store the "Gross Weight". The net weight is the gross weight minus the packaging and is often used by companies that stock in a weight unit of measure. The gross weight includes the packaging and is often used by companies that sell their product by "eaches". The XJBITMWTYP parameter allows the distinction to be defined and is required in order to accurately calculate the gross weight for a bill of lading. The options for this parameter are "GROSS" and "NET".

- **XJBREVDIG** – Number of digits used for formula revisions. This parameter is used by the Component Mass Replace utility in order to automatically create formula revision numbers. When a new revision of the formula is created, the revision number will be automatically assigned and stored in the last digits of the formula ID. If this parameter is set to 5 digits and a revision is created for "FORMULA-A", then the formula id for the revision may be "FORMULA-A-00001", depending upon how the formula revision prefix (XJBREFPRE) is defined.
- **XJBREVPRE** –Character(s) that indicate the beginning of the formulas revision number. For example, if the value of this parameter is "-", then any value after the dash is considered the revision number. Other examples are "V-", "-REV-", "-R", "REVISION", etc. These examples may appear as:
  - FORMULA-V-00001
  - FORMULA-REV-00001
  - FORMULA-R00001
  - FORMULAREVISION00001

- **XJBRDCLCNW** – Controls whether the formula equations are calculated immediately or if the calculations only occur when the user specifies. The options are:

  - **IMMEDIATE** – This should be used if equations should be calculate immediately whenever a change occurs to the formula. For optimal system performance, it is recommend to only use this option if formulas typically have fewer than 30 equations.
  - **ONDEMAND**– This option should be used to allow the user to control when the equations are calculated. When this option is selected, equations are calculated when a formula is saved or when the user clicks the "Calculate" button.

Appendix 4 – Unit of Measurement Setup

In standard Sage EM, the Unit of measures feature allows unit of measures to be defined. The Unit of Measure feature can be accessed by navigating to **Common Data→Common tables→Unit of Measure**.

A common practice is to create new units of measure for packaging. Sage X3 allows the product to be stored, sold and tracked in both the stock unit and the package unit. For example, that sells products in drums may create the following units:

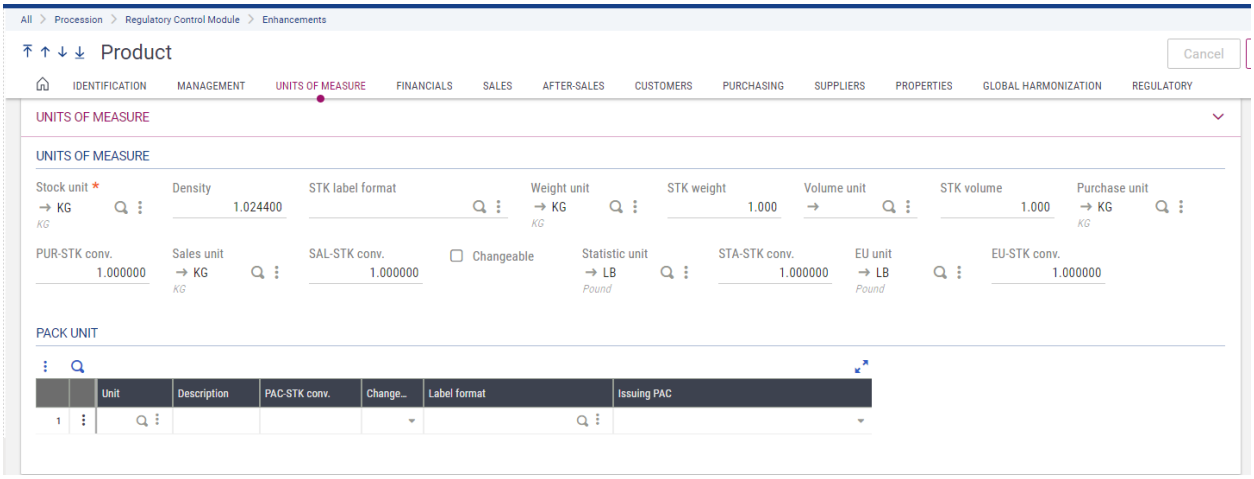
- DR1 – 55 Gallon Blue Poly Drum
- DR2 – 55 Gallon White Poly Drum
- DR3 – 55 Gallon Steel Drum

If using the ***Procession*** Distribution module, then the symbol field should contain the package code that will show on the ***Procession*** BOL. This package code can be the U.N. package code or an internal package code.

Unit of measure conversion factors are setup by navigating to **Common Data→Common tables→UOM Conversion.** For Procession, the conversion factor is only required in one direction. For example, if the conversion factor from LB to KG is defined, then it is not necessary to define the conversion factor for KG to LB.

Refer to the Sage X3 help documentation for more information on Unit of Measure setup.

Appendix 5 – Product Unit of Measurement Setup



Unit of Measure conversions for a product are controlled in Sage X3 and ***Procession*** by the settings on the product's unit of measure tab.

- **Stock Unit** –Typically, process manufacturers produce and stock their bulk product in a weight or volume unit. Since Sage X3 allows product to be tracked in multiple units, a common practice is to use the same stock unit of measure for the packaged product.
- **Density** – When using metric units, the density and specific gravity are typically the same. However, if using non-metric units, it is recommended to enter the specific gravity into this field.
- **Item Weight** – This is the weight of a single stock unit. The container weight may include the container weight (GROSS) or it may exlude the container weight (NET).

  Refer to APPENDIX 3 – SYSTEM PARAMETERS for configuration information regarding NET or GROSS weights.

- **Volume of STK –** When defined, the value will be used in calculating the volume of a formula. This value is optional and if the volume is not defined, then the volume is calculated based upon the specific gravity.
- **Sales Unit** – Define the unit of measure that the product is most commonly sold in.
- **SAL-STK conv** – Conversion factor from one sale unit to the stock unit. For example, if the product is sold as a drum but stocked in KG, the conversion factor may be 250.00.
- **Pack Unit** – The pack unit section is where additional package units can be defined for the product. This feature is commonly used when there are multiple packages for the product, where the package unit does not affect the cost of the product. If the package does affect the product cost, it is recommended to create a separate product SKU for each package.

Appendix 6 – Unit of Measurement Conversions

Procession allows flexibility when converting between two different units of measure within the R&D Formulas screen. ***Procession*** searches through the product master to determine if conversion factors have been entered. The search is performed in the following order and the first applicable value is used to determine the conversion factor.

1. **Stock Unit** – If the formula UOM is the same as the stock unit, then no conversion is required.
2. **Standard Conversions** – If converting from LBS to KG, or vice versa, a standard conversion factor is used.
3. **Product Weight** – If converting between the stock unit and the product's weight unit, then the product weight factor is used.
4. **Product Volume** – If converting between the stock unit and the product's volume unit, then the product volume factor is used.
5. **Purchase Unit** - If converting between the stock unit and the product's purchase unit, then the product purchase unit factor is used.
6. **Sales Unit** - If converting between the stock unit and the product's sales unit, then the product sale unit factor is used.
7. **Pack Unit** – If a pack unit exists for the product, then its conversion factor is used if applicable.
8. **Exception for the "EA" unit –** If an ingredient has a UOM of "EA" and the ingredient's volume is defined, then the weight of the ingredient may be calculated using the Product volume and density.
9. **Specific Gravity or Density conversion** – If converting to a weight or volume unit, then the product's specific gravity or density may be used to calculate a conversion factor.
10. **UOM Conversion Table** – standard conversion factors can be defined in the Sage X3 UOM Conversion table.
11. **Hard Coded Conversion** – Standard Conversions between Gallons, Pounds, Liters, Kilograms, and Grams are included in ***Procession***.

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